Operating Manual

AMAZONE

Catros 7003^{XL}-2TX
Catros 8003 ^{XL} -2TX

Mounted compact disc harrow

MG7105
BAG0210.8 10.22
Printed in Germany

SmartLearning

Please read and follow this operating manual before putting the machine into operation. Keep it in a safe place for future use.

en

Reading the instruction

Manual and following it should seem to be inconvenient and superfluous as it is not enough to hear from others and to realize that a machine is good, to buy it and to believe that now everything should work by itself. The person in question would not only harm himself but also make the mistake of blaming the machine for possible failures instead of himself. In order to ensure success one should enter the mind of a thing, make himself familiar with every part of the machine and get acquainted with how it's handled. Only in this way could you be satisfied both with the machine and with yourself. This goal is the purpose of this instruction manual.

Leipzig-Plagwitz 1872. Rud. Sark.

Identification data

Enter the machine identification data here. You will find the identification data on the rating plate.

Machine identification number:
(ten-digit) _____

Type: Catros

Year of manufacture: _____

Basic weight (kg): _____

Approved total weight (kg): _____

Maximum load (kg): _____

Manufacturer's address

AMAZONEN-WERKE
H. DREYER SE & Co. KG
Postfach 51
D-49202 Hasbergen
Phone: +49 5405 501-0
E-mail: amazone@amazone.de

Spare part orders

Spare parts lists are freely accessible in the spare parts portal at www.amazone.de.

Please send orders to your AMAZONE dealer.

Formalities of the operating manual

Document number: MG7105
Compilation date: 10.22

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER SE & Co. KG. We thank you for your confidence in our products.

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Using the delivery note, check that the machine was delivered in full including the ordered special equipment. Replacement will be made only if a claim is filed immediately!

Please read and follow this operating manual—in particular, the safety instructions—before putting the machine into operation. Only after careful reading will you be able to benefit from the full scope of your newly purchased machine.

Please ensure that all the machine operators have read this operating manual before they put the machine into operation.

Should you have any questions or problems, please consult this operating manual or contact your local service partner.

Regular maintenance and timely replacement of worn or damaged parts increases the lifespan of your machine.

User evaluation

Dear Reader

We update our operating manuals regularly. Your suggestions for improvement help us to create ever more user-friendly manuals.

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1 User information

The "User information" section supplies information on using the operating manual.

1.1 Purpose of the document

This operating manual

- Describes the operation and maintenance of the machine.
- Provides important information on safe and efficient handling of the machine.
- Is a component part of the machine and should always be kept with the machine or the traction vehicle.
- Keep it in a safe place for future use.

1.2 Locations in the operating manual

All the directions specified in the operating manual are always viewed in the direction of travel.

1.3 Diagrams used

Instructions for action and reactions

Tasks to be carried out by the user are presented as numbered instructions. Always keep to the order of the instructions. The reaction to instructions is given by an arrow.

Example:

1. Instruction for action 1

→ Reaction of the machine to instruction for action 1

2. Instruction for action 2

Lists

Lists without a mandatory sequence a presented as a list with bullet points.

Example:

- Point 1
- Point 2

Item numbers in diagrams

Numbers in round brackets refer to the item numbers in the diagrams. The first digit refers to the diagram; the second digit, to the item number in the illustration.

Example (6)

→ Item 6

2 General safety instructions

This section contains important information on safe operation of the machine.

2.1 Obligations and liability

Comply with the instructions in the operating manual

Knowledge of the basic safety information and safety regulations is a basic requirement for safe handling and fault-free machine operation.

Obligations of the operator

The operator is obliged only to let those people work with/on the machine who

- Are aware of the basic workplace safety information and accident prevention regulations.
- Have been trained in working with/on the machine.
- Have read and understood this operating manual.

The operator is obliged

- To keep all the warning pictograms on the machine in a legible state.
- To replace damaged warning pictograms.

If you still have queries, please contact the manufacturer.

Obligations of the user

Before starting work, anyone charged with working with/on the machine is obliged

- To comply with the basic workplace safety instructions and accident prevention regulations.
- To read and understand the section "General safety information" of this operating manual.
- To read the section "Warning symbols and other labels on the machine" (page 17) of this operating manual and to follow the safety instructions represented by the warning symbols when operating the machine.
- To get to know the machine.
- To read the sections of this operating manual, important for carrying out your work.

If the user discovers that a function is not working properly, then they must eliminate this fault immediately. If this is not the task of the user or if the user does not possess the appropriate technical knowledge, then they should report this fault to their superior (operator).

Risks in handling the machine

The machine has been constructed to the state-of-the art and the recognised rules of safety. However, there may be risks and restrictions which occur when operating the machine

- For the health and safety of the user or third persons,
- For the machine,
- For other goods.

Only use the machine

- For the purpose for which it was intended.
- In a perfect state of repair.

Eliminate any faults that could impair safety immediately.

Guarantee and liability

Our "General conditions of sales and business" are always applicable. These shall be available to the operator, at the latest on the completion of the contract. Guarantee and liability claims for damage to people or goods will be excluded if they can be traced back to one or more of the following causes:

- Improper use of the machine.
- Improper installation, commissioning, operation and maintenance of the machine.
- Operation of the machine with defective safety equipment or improperly attached or non-functioning safety equipment.
- Non-compliance with the instructions in the operating manual regarding commissioning, operation and maintenance.
- Independently-executed construction changes to the machine.
- Insufficient monitoring of machine parts that are subject to wear.
- Improperly executed repairs.
- Catastrophic events as a result of the impact of foreign objects or force majeure.

2.2 Representation of safety symbols

Safety instructions are indicated by the triangular safety symbol and the highlighted signal word. The signal word (DANGER, WARNING, CAUTION) describes the gravity of the risk and has the following significance:

DANGER

Indicates an immediate high risk, which will result in death or serious physical injury (loss of body parts or long term damage) if not avoided.

If the instructions are not followed, then this will result in immediate death or serious physical injury.

WARNING

Indicates a medium risk, which could result in death or (serious) physical injury if not avoided.

If the instructions are not followed, then this may result in death or serious physical injury.

CAUTION

Indicates a low risk, which could incur minor or medium level physical injury or damage to property if not avoided.

IMPORTANT

Indicates an obligation to special behaviour or an activity required for proper machine handling.

Non-compliance with these instructions can cause faults on the machine or in the environment.

NOTE

Indicates handling tips and particularly useful information.

These instructions will help you to use all the functions of your machine to the optimum.

2.3 Organisational measures

The operator must provide the necessary personal protective equipment, such as:

- Protective glasses
- Protective shoes
- Protective suit
- Skin protection, etc.

The operation manual

- Must always be kept at the place at which the machine is operated.
- Must always be easily accessible for the user and maintenance personnel.

Check all the available safety equipment regularly.

2.4 Safety and protection equipment

Before each commissioning of the machine, all the safety and protection equipment must be properly attached and fully functional. Check all the safety and protection equipment regularly.

Faulty safety equipment

Faulty or disassembled safety and protection equipment can lead to dangerous situations.

2.5 Informal safety measures

As well as all the safety information in this operating manual, comply with the general, national regulations pertaining to accident prevention and environmental protection.

When driving on public roads and routes, then you should comply with the statutory road traffic regulations.

2.6 User training

Only those people who have been trained and instructed may work with/on the machine. The operator must clearly specify the responsibilities of the people charged with operation, maintenance and repair work.

People being trained may only work with/on the machine under the supervision of an experienced person.

Activity \ People	Person specially trained for the activity [1]	Trained person [2]	Person with specialist training (specialist workshop) [3]
Loading/Transport	X	X	X
Commissioning	--	X	--
Set-up, tool installation	--	--	X
Operation	--	X	--
Maintenance	--	--	X
Troubleshooting and fault elimination	--	X	X
Disposal	X	--	--

Legend: X..permitted --..not permitted

1) A person who can assume a specific task and who can carry out this task for an appropriately qualified company.

2) Instructed persons are those who have been instructed in their assigned tasks and in the possible risks in the case of improper behaviour, have been trained if necessary, and have been informed about the necessary protective equipment and measures.

3) People with specialist technical training shall be considered as a specialist. Due to their specialist training and their knowledge of the appropriate regulations, they can evaluate the work with which they have been charged and detect possible dangers.

Comment:

A qualification equivalent to specialist training can be obtained through long term activity in the appropriate field of work.

Only a specialist workshop may carry out maintenance and repair work on the machine, if such work is specifically designated "Workshop work". The personnel of a specialist workshop shall possess the appropriate knowledge and suitable aids (tools, lifting and support equipment) for carrying out the maintenance and repair work on the machine in a way which is both appropriate and safe.

2.7 Safety measures in normal operation

Only operate the machine if all the safety and protection equipment is fully functional.

Check the machine at least once a day for visible damage and check the function of the safety and protection equipment.

2.8 Dangers from residual energy

Note that there may be residual mechanical, hydraulic, pneumatic and electrical/electronic energy at the machine.

Use appropriate measures to inform the operating personnel. You can find detailed information in the relevant sections of this operating manual.

2.9 Maintenance and repair work, fault elimination

Carry out prescribed setting, maintenance and inspection work in a timely manner.

Secure all media such as compressed air and the hydraulic system against unintentional start-up.

Carefully fix and secure larger subassemblies to lifting gear when carrying out replacement work.

Regularly check that bolted connections are firmly secured and tighten if necessary.

When the maintenance work is completed, check the function of the safety devices.

2.10 Constructive changes

You may make no changes, expansions or modifications to the machine without the authorisation of AMAZONEN-WERKE. This is also valid when welding support parts.

Any expansion or modification work shall require the written approval of AMAZONEN-WERKE. Only use the modification and accessory parts released by AMAZONEN-WERKE so that the operating permit, for example, remains valid in accordance with national and international regulations.

Vehicles with an official type approval or with equipment connected to a vehicle with a valid type approval or approval for road transport according to the German road traffic regulations must be in the state specified by the approval.

WARNING

Risk of being crushed, cut, caught, drawn in or struck if supporting parts break.

It is forbidden to:

- Drill holes in the frame or on the chassis.
- Increasing the size of existing holes on the frame or the chassis.
- Welding support parts.

2.10.1 Spare and wear parts and aids

Immediately replace any machine parts which are not in a perfect state.

Use only genuine AMAZONE spare and wear parts or the parts cleared by AMAZONEN-WERKE so that the operating permit retains its validity in accordance with national and international regulations. If you use wear and spare parts from third parties, there is no guarantee that they have been designed and manufactured in such a way as to meet the requirements placed on them.

AMAZONEN-WERKE accepts no liability for damage arising from the use of unapproved spare parts, wear parts or auxiliary materials.

2.11 Cleaning and disposal

Handle and dispose of any materials used carefully, in particular:

- When carrying out work on lubrication systems and equipment and
- When cleaning using solvents.

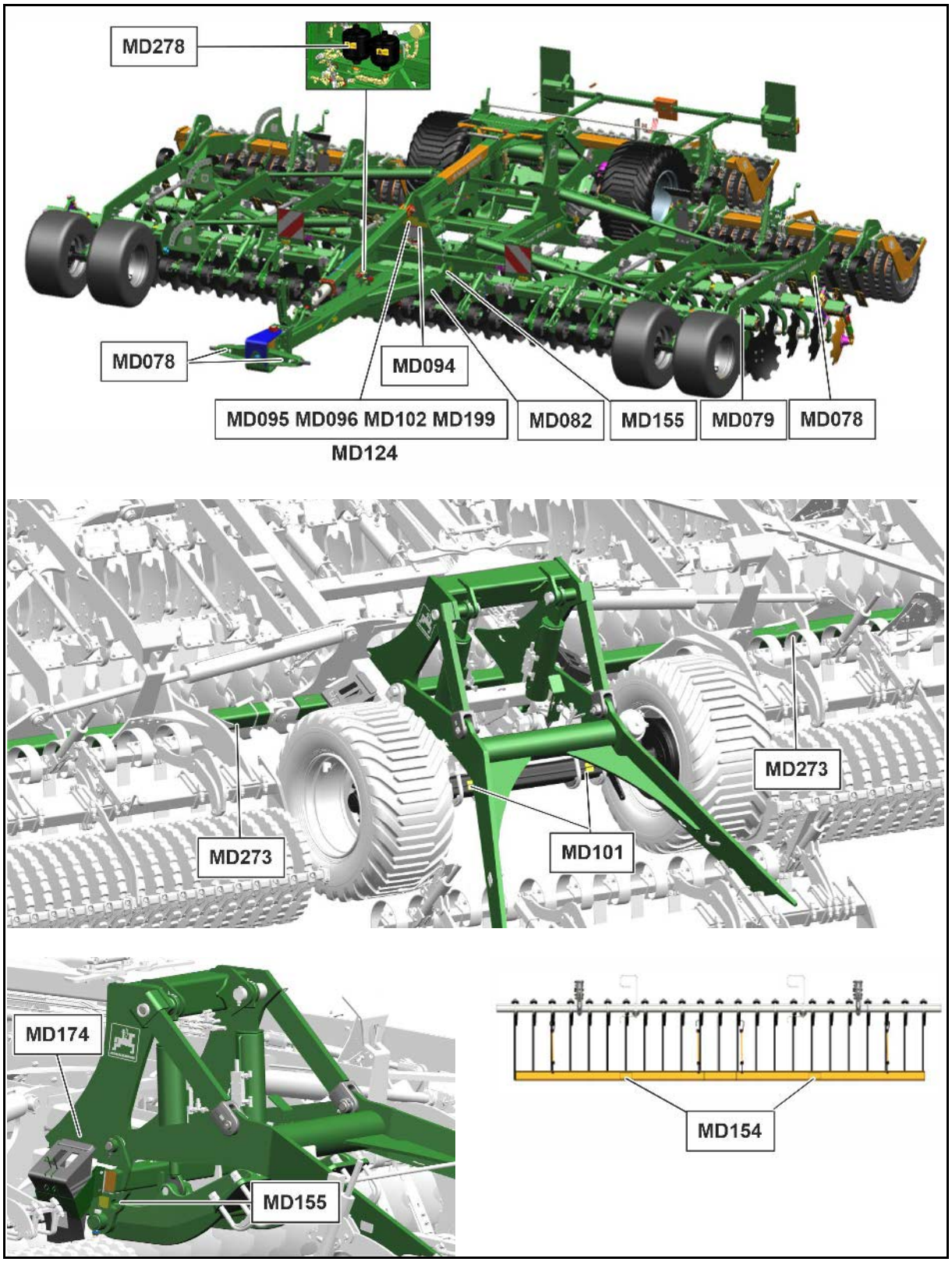
2.12 User workstation

The machine must be operated by only one person from the driver's seat of the tractor.

2.13 Warning pictograms and other signs on the machine

2.13.1 Positioning of warning pictograms and other labels

The following diagrams show the arrangement of the warning pictograms on the machine.



Always keep all the warning pictograms of the machine clean and in a legible state. Replace illegible warning pictograms. You can obtain the warning pictograms from your dealer using the order number (e.g. MD078).

Warning pictograms - structure

Warning pictograms indicate dangers on the machine and warn against residual dangers. At these points, there are permanent or unexpected dangers.

A warning pictogram consists of two fields:

Field 1

is a pictogram describing the danger, surrounded by triangular safety symbol.

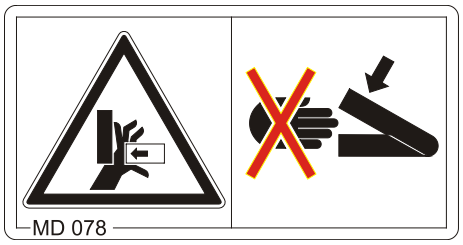
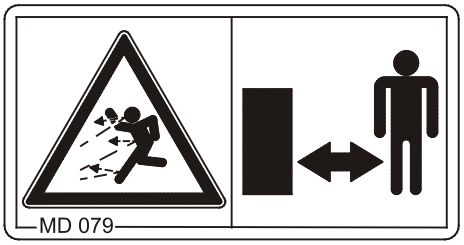
Field 2

is a pictogram showing how to avoid the danger.

Warning pictograms - explanation

The column **Order number and explanation** provides an explanation of the neighbouring warning pictogram. The description of the warning pictograms is always the same and specifies, in the following order:

1. A description of the danger.
   For example: danger of cutting!
2. The consequence of nonobservance of the danger protection instructions.
   For example: causes serious injuries to fingers or hands.
3. Instructions for avoiding the danger.
   For example: only touch machine parts when they have come to a complete standstill.

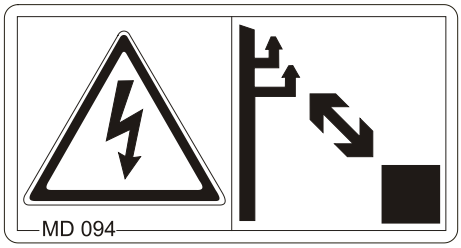
Order number and explanation	Warning pictograms
MD078 **Risk of contusions for fingers or hands through accessible moving machine parts!** This danger causes extremely serious injuries with the loss of body parts such as fingers or hands. Never reach into the danger area when the tractor engine is running with PTO shaft / hydraulic system connected.	
MD079 **Risk of materials or foreign objects being flung away by or out of the machine!** These dangers can cause extremely serious and potentially fatal injuries. • Keep a sufficient safety distance from the machine as long as the tractor engine is running. • Ensure that all other persons also keep a sufficient safety distance from the danger area of the machine as long as the tractor engine is running.	
MD082 **Danger of falling from treads and platforms when riding on the machine!** This danger will cause serious injuries anywhere on the body or death. It is forbidden to ride on the machine and/or climb the running machine. This ban also applies to machines with treads or platforms. Ensure that no one rides with the machine.	
MD084 **Risk of contusions over the whole body from machine parts moving down from above!** This danger will cause serious injuries anywhere on the body or death. • It is forbidden to stand in the swivel area of moving machine parts. • Instruct people to leave the swivel area of moving machine parts before the machine parts move down.	

MD094

Danger from electric shock or burns due to unintentional contact with electric transmission lines or from approaching high-voltage transmission lines without authorisation.

The danger will cause severe injuries anywhere on the body or death.

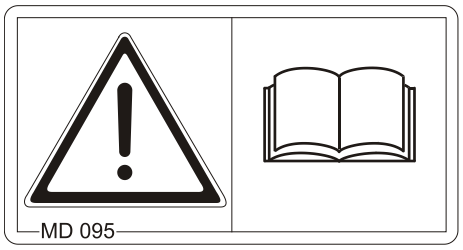
Keep a safe distance to the electric overhead power lines when swinging machine parts in and out.



Nominal voltage	Safety distance from transmission lines
up to 1 kV	1 m
over 1 up to 110 kV	2 m
over 110 up to 220 kV	3 m
over 220 up to 380 kV	4 m

MD095

Read and understand the operating manual safety information before starting up the machine!



MD096

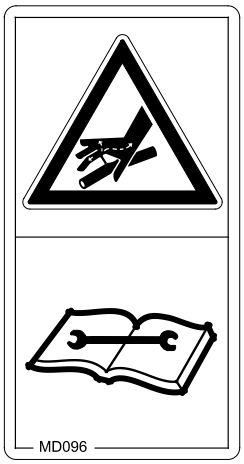
Danger of infection to the whole body from liquids escaping at a high pressure (hydraulic fluid)!

This danger will cause serious injuries over the whole body, if hydraulic fluid escaping at high pressure passes through the skin and into the body.

Never attempt to plug leaks in hydraulic lines using your hand or fingers.

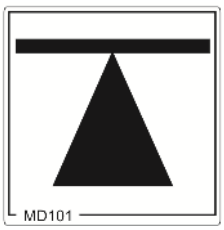
Read and understand the information in the operating manual before carrying out maintenance and repair work.

If you are injured by hydraulic fluid, contact a doctor immediately.



MD 101

This symbol indicates jacking points for lifting gear (jack).

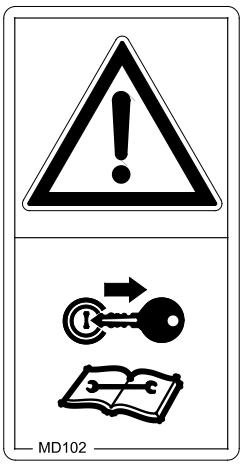


MD102

Danger from unintentional machine starting and rolling during intervention in the machine, e.g. installation, adjusting, trouble-shooting, cleaning, maintaining and repairing.

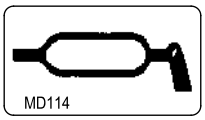
This danger will cause serious injuries anywhere on the body or death.

- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- Depending on the type of intervention, read and understand the information in the relevant sections of the operating manual.



MD 114

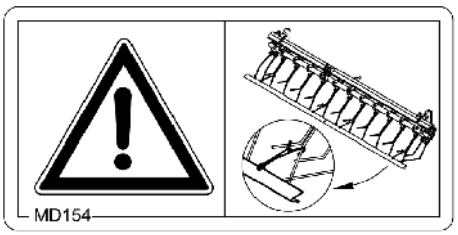
This pictogram indicates a lubrication point



MD 154

Risk of injury due to non-compliance with the approved transport width.

Before folding the implement, install the transport safety bar.



MD 155

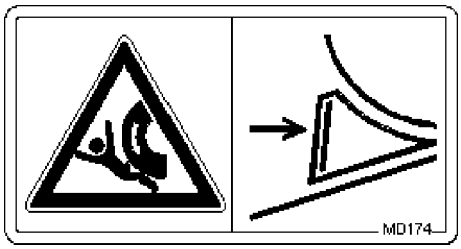
This icon designates the restraint points for tieing the machine to a transport vehicle allowing the machine to be transported in a safe manner.

MD174

Danger resulting from the unintentional movement of the machine!

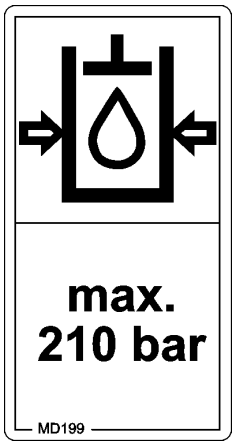
Causes serious injuries anywhere on the body or death.

Secure the machine against unintentional movement before uncoupling the machine from the tractor. For this, use the parking brake and/or the wheel chock(s).



MD199

The maximum operating pressure of the hydraulic system is 210 bar.

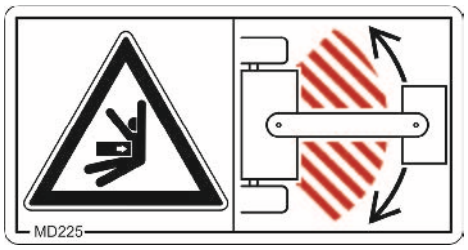


MD225

Danger of crushing the entire body, caused by remaining in the swivel range of the drawbar between tractor and attached machine.

This danger can cause extremely serious and potentially fatal injuries.

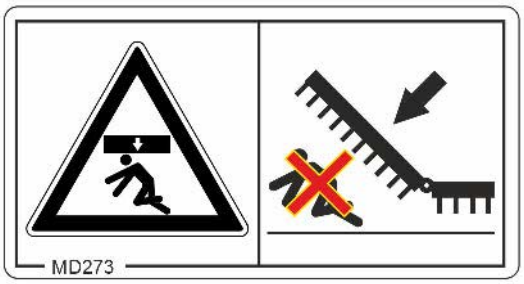
- Do not remain in the danger area between tractor and machine while the tractor engine is running and the tractor is not secured against unintentional rolling.
- Instruct anyone in the danger area between tractor and machine to leave the danger area while the tractor engine is running and the tractor is not secured against unintentional rolling.



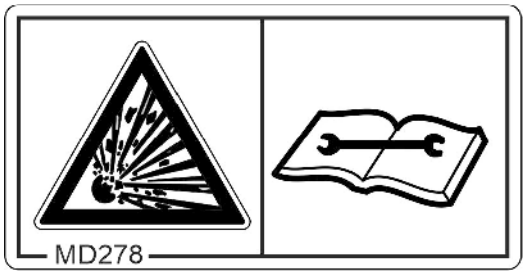
MD 273

Risk of crushing for the whole body from lowering implement parts!

Make sure that nobody is standing in the danger area.



MD 278



Risk of explosion, or risk of hydraulic fluid escaping under high pressure, caused by the pressure accumulator, pressurized with gas and oil!

There is a risk of serious and potentially fatal injuries if hydraulic fluid escaping at high pressure penetrates the skin and enters the body.

There is a risk of severe injuries, possibly with fatal consequences.

- Read and comply with the instructions in the operating manual before performing service and maintenance tasks.
- If you are injured by hydraulic fluid, seek medical attention immediately.

2.14 Dangers if the safety information is not observed

Nonobservance of the safety information

- Can pose both a danger to people and also to the environment and machine.
- Can lead to the loss of all warranty claims.

Seen individually, non-compliance with the safety information could pose the following risks:

- Danger to people through non-secured working areas.
- Failure of important machine functions.
- Failure of prescribed methods of maintenance and repair.
- Danger to people through mechanical and chemical impacts.
- Risk to environment through leakage of hydraulic fluid.

2.15 Safety-conscious working

Besides the safety information in this operating manual, the national general workplace safety and accident prevention regulations are binding.

Comply with the accident prevention instructions on the warning pictograms.

When driving on public roads and routes, comply with the appropriate statutory road traffic regulations.

2.16 Safety information for users

WARNING

Risk of being crushed, cut, caught, drawn in or struck due to insufficient traffic and operational safety!

Before starting up the machine and the tractor, always check their traffic and operational safety.

2.16.1 General safety and accident prevention information

- Beside these instructions, comply with the general valid national safety and accident prevention regulations.
- The warning pictograms and labels attached to the machine provide important information on safe machine operation. Compliance with this information guarantees your safety!
- Before moving off and starting up the machine, check the immediate area of the machine (children)! Ensure that you can see clearly!
- It is forbidden to ride on the machine or use it as a means of transport!
- Drive in such a way that you always have full control over the tractor with the attached machine.

  In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.

Connecting and disconnecting the machine

- Only connect and transport the machine with tractors suitable for the task.
- When connecting machines to the tractor three-point hydraulic system, the attachment categories of the tractor and the machine must always be the same!
- Connect the machine to the prescribed equipment in accordance with the specifications.
- When coupling machines to the front or the rear of the tractor, the following may not be exceeded:
  - The approved total tractor weight
  - The approved tractor axle loads
  - The approved load capacities of the tractor tyres
- Secure the tractor and the machine against unintentional rolling, before coupling or uncoupling the machine.
- It is forbidden for people to stand between the machine to be coupled and the tractor, whilst the tractor is moving towards the machine!

  Any helpers may only act as guides standing next to the vehicles, and may only move between the vehicles when both are at a standstill.
- Secure the operating lever of the tractor hydraulic system so that unintentional raising or lowering is impossible, before connecting the machine to or disconnecting the machine from the tractor's three-point hydraulic system.

- When coupling and uncoupling machines, move the support equipment (if available) to the appropriate position (stability).
- When actuating the support equipment, there is a danger of injury from contusion and cutting points!
- Be particularly careful when coupling the machine to the tractor or uncoupling it from the tractor! There are contusion and cutting points in the area of the coupling point between the tractor and the machine.
- It is forbidden to stand between the tractor and the machine when actuating the three-point hydraulic system.
- Coupled supply lines:
  - Must give without tension, bending or rubbing on all movements when travelling round corners.
  - May not scour other parts.
- The release ropes for quick action couplings must hang loosely and may not release themselves when lowered.
- Also ensure that uncoupled machines are stable!

Use of the machine

- Before starting work, ensure that you understand all the equipment and actuation elements of the machine and their function. There is no time for this when the machine is already in operation!
- Do not wear loose-fitting clothing! Loose clothing increases the risk over being caught by drive shafts!
- Only start-up the machine, when all the safety equipment has been attached and is in the safety position!
- Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor. If necessary, drive only with a partially-filled hopper.
- It is forbidden to stand in the working area of the machine.
- It is forbidden to stand in the turning and rotation area of the machine.
- There are contusion and cutting points at externally-actuated (e.g. hydraulic) machine points.
- Only actuate externally-actuated machine parts when you are sure that there is no-one within a sufficient distance from the machine!
- Secure the tractor against unintentional start-up and rolling before you leave the tractor.

  For this:
  - Lower the machine onto the ground
  - Apply the parking brake
  - Switch off the tractor engine
  - Remove the ignition key

Machine transportation

- When using public highways, national road traffic regulations must be observed.
- Before moving off, check:
  - the correct connection of the supply lines
  - the lighting system for damage, function and cleanliness
  - the brake and hydraulic system for visible damage
  - that the parking brake is released completely
  - the proper functioning of the braking system
- Ensure that the tractor has sufficient steering and braking power.

  Any machines and front/rear weights connected to the tractor influence the driving behaviour and the steering and braking power of the tractor.
- If necessary, use front weights.

  The front tractor axle must always be loaded with at least 20% of the empty tractor weight, in order to ensure sufficient steering power.
- Always fix the front or rear weights to the intended fixing points according to regulations.
- Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor.
- The tractor must guarantee the prescribed brake delay for the loaded vehicle combination (tractor plus connected machine).
- Check the brake power before moving off.
- When turning corners with the machine connected, take the broad load and balance weight of the machine into account.
- Before moving off, ensure sufficient side locking of the tractor lower links, when the machine is fixed to the three-point hydraulic system or lower links of the tractor.
- Before moving off, move all the swivel machine parts to the transport position.
- Before moving off, secure all the swivel machine parts in the transport position against risky position changes. Use the transport locks intended for this.
- Before moving off, secure the operating lever of the three-point hydraulic system against unintentional raising or lowering of the connected machine.
- Check that the transport equipment, e.g. lighting, warning equipment and protective equipment, is correctly mounted on the machine.
- Before transportation, carry out a visual check that the upper and lower link pins are firmly fixed with the lynch pin against unintentional release.
- Adjust your driving speed to the prevailing conditions.
- Before driving downhill, switch to a low gear.
- Before moving off, always switch off the independent wheel braking (lock the pedals).

2.16.2 Hydraulic system

- The hydraulic system is under a high pressure.
- Ensure that the hydraulic hose lines are connected correctly.
- When connecting the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the machine and tractor sides.
- It is forbidden to block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:
  - are continuous or
  - are automatically locked or
  - necessarily require an open centre or pressure position to operate correctly
- Before working on the hydraulic system
  - Lower the machine
  - Depressurise the hydraulic system
  - Switch off the tractor engine
  - Apply the parking brake
  - Take out the ignition key
- Have the hydraulic hose line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line if it is damaged or worn. Only use AMAZONE original hydraulic hose lines.
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural ageing, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose connections made from thermoplastics, other guide values may be decisive.
- Never attempt to plug leaks in hydraulic lines using your hand or fingers.

  Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!

  If you are injured by hydraulic fluid, contact a doctor immediately. Danger of infection.
- When searching for leakage points, use suitable aids, to avoid the serious risk of infection.

2.16.3 Electrical system

- When working on the electrical system, always disconnect the battery (negative terminal).
- Only use the prescribed fuses. If fuses are used with too high a rating, the electrical system will be destroyed – danger of fire.
- Ensure that the battery is connected correctly - firstly connect the positive terminal and then connect the negative terminal. When disconnecting the battery, disconnect the negative terminal first, followed by the positive terminal.
- Always place the appropriate cover over the positive battery terminal. Contact with earth may cause an explosion
- Risk of explosion: avoid the production of sparks or the presence of naked flames in the vicinity of the battery.
- The machine can be equipped with electronic components, the function of which may be influenced by electromagnetic interference from other units. Such interference can pose risks to people, if the following safety information is not followed.
  - In the case of retrofitting of electrical units and/or components on the machine, with a connection to the on-board power supply, the user must check whether the installation might cause faults on the vehicle electronics or other components.
  - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 2004/108/EC in the appropriate version and carry the CE label.

2.16.4 Attached machines

- Comply with the approved combination options for the attachment equipment on the tractor and the machine drawbar.

  Only couple approved combinations of vehicles (tractor and attached machine).
- In the case of single axle machines, observe the maximum permitted drawbar load of the tractor on the attachment equipment.
- Ensure that the tractor has sufficient steering and braking power.

  Machines connected to a tractor can influence your driving behaviour, as well as the steering and braking power of the tractor, in particular in the case of single axle machines with the drawbar load on the tractor.
- Only a specialist workshop may adjust the height of the drawbar on yoke bars with a drawbar load.
- Implements without brake system:

  Observe the national regulations for implements without brake system.

2.16.5 Brake system

- Only specialist workshops or recognised brake services can carry out adjustment and repair work on the brake system.
- Have the brake system thoroughly checked regularly.
- If there are any malfunctions, stop the tractor immediately using the brake system. Have the malfunction rectified immediately.
- Before performing any work on the braking system, park the machine safely and secure the machine against unintentional lowering or rolling away (wheel chocks).
- Be particularly careful when carrying out any welding, torch cutting or drilling work in the area of the brake lines.
- Always carry out a braking test after any adjusting or repair work on the braking system.

Pneumatic braking system

- Before coupling the machine, clean the sealing rings on the hose couplings of the supply and brake line.
- Only move off with the machine connected when the pressure gauge on the tractor shows 5.0 bar.
- Drain the air reservoir every day.
- Before driving without the machine, lock the hose couplings on the tractor.
- Hang the hose couplings of the machine supply and brake lines in the appropriate empty couplings.
- When filling up or replacing the brake fluid, use the prescribed fluid. When replacing the brake fluid, comply with the appropriate regulations.
- Do not make any changes to the specified settings on the brake valves.
- Replace the air reservoir if:
  - the air reservoir can be moved in the tensioning belts
  - the air reservoir is damaged
  - the rating plate on the air reservoir is rusty, loose or missing.

Hydraulic brake system for export machines

- Hydraulic brake systems are prohibited in Germany.
- When filling up or replacing the brake fluid, use the prescribed hydraulic fluids. When replacing the hydraulic fluids, comply with the appropriate regulations.

2.16.6 Tyres

- Repair work on tyres and wheels may only be carried out by specialists with suitable installation tools.
- Check the air pressure at regular intervals.
- Inflate tyres to the specified pressure. If the air pressure in the tyres is too high, then there is a risk of explosions.
- Park the machine in a safe place and lock the machine against unintentional lowering and rolling (parking brake, wheel chocks), before carrying out work on the tyres.
- Tighten or retighten all the fixing screws and nuts in accordance with the specifications of AMAZONEN-WERKE.

2.16.7 Cleaning, maintenance and repairs

- Only carry out cleaning, maintenance and repair work on the machine when:
  - the drive is switched off
  - the tractor engine is at a standstill
  - the ignition key has been removed
  - the connector to the machine has been disconnected from the on-board computer
- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- If the machine or parts of the machine are raised, secure them against unintentional lowering before cleaning, maintaining or repairing the machine.
- When replacing work tools with blades, use suitable tools and gloves.
- Dispose of oils, greases and filters in the appropriate way.
- Disconnect the cable to the tractor generator and battery, before carrying out electrical welding work on the tractor and on attached machines.
- Spare parts must meet at least the specified technical requirements of AMAZONEN-WERKE! This is ensured through the use of AMAZONE original spare parts.

3 Loading and unloading

Loading and unloading with a tractor

WARNING

There is a risk of an accident when the tractor is unsuitable and the machine brake system is not connected to the tractor or is filled.

- Correctly couple the machine to the tractor, before loading the machine onto a transport vehicle or unloading it from a transport vehicle.
- You may only couple and transport the machine with a tractor for loading and unloading, as long as the tractor fulfils the power requirements.
- Compressed air brake system:

  You may only move off with the machine connected if the pressure gauge on the tractor shows 5.0 bar.

If the machine is to be loaded onto or unloaded from a transport vehicle, it must be coupled to a suitable tractor.

Loading:

A person to help with manoeuvring is required for loading.

Secure the machine according to instructions.

Then disconnect the tractor from the machine.

Unloading:

Remove the transportation safety equipment.

A person is required to help with manoeuvring when unloading.

After unloading, park the machine and uncouple the tractor.

4 Product description

This section:

- Provides a comprehensive overview of the machine structure.
- Provides the names of the individual modules and controls.

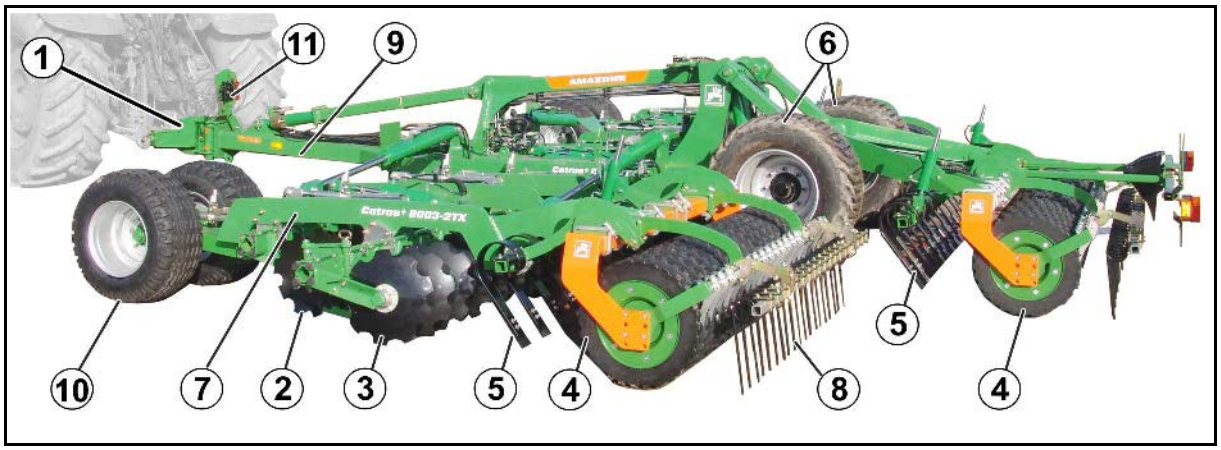
Read this section when actually at the machine. This helps you to understand the machine better.

The machine is composed of the following main components:

- Hydraulically foldable frame
- Two-row concave-disc arrangement
- Trailing roller
- Swinging chassis

4.1 Overview of subassemblies

Machine in working position



(1) Draw rail

(2) 1 st row of discs

(3) 2nd row of discs

(4) Roller

The middle part of the roller can be designed to be hydraulically folded or rigid.

(5) Crushboard

(6) Swinging chassis

(7) Foldable machine wings

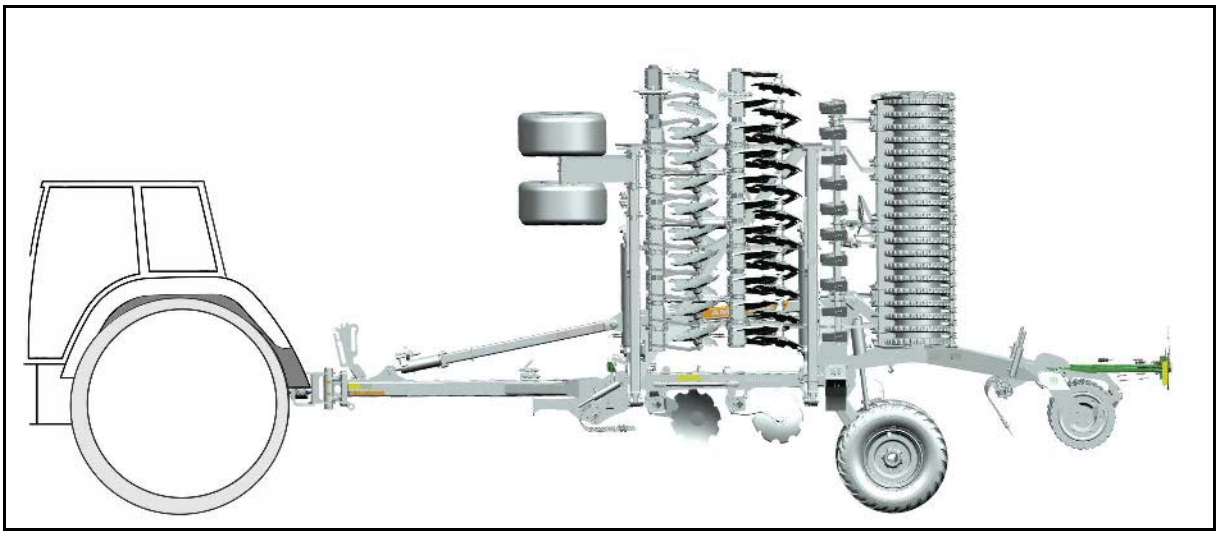
(8) Rear harrow

(9) Hydraulic drawbar for headlands position or rigid

(10) Support wheel

(11) Hose cabinet

Machine in working position

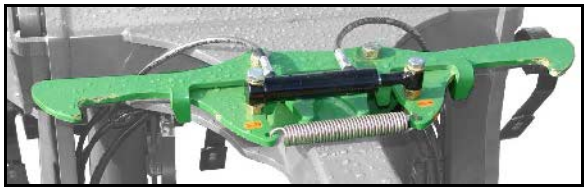


4.2 Safety and protection equipment

Safeguard against hose rupture

ContourFrame: Locking hook.

No ContourFrame: Locking blocks on hydraulic cylinders



4.3 Supply lines Safety and protection equipment

- Hydraulic hose lines
- Electric cable for lighting
- Connection to hydraulic brake or
- dual-circuit pneumatic braking system:
  - Brake line with coupling head (yellow)
  - Supply line with coupling head (red)

4.4 Transportation equipment

(1) Rear lights; brake lights; turn indicators

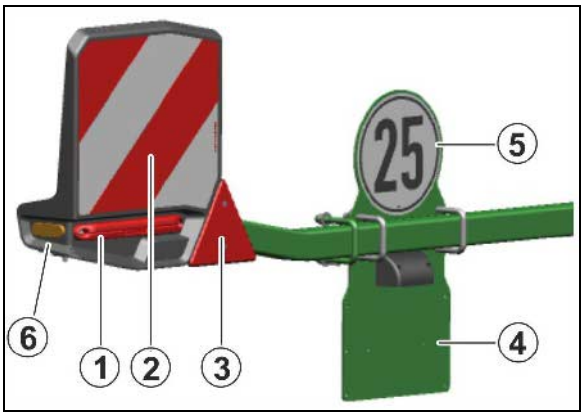
(2) Warning signs

(3) Red reflectors

(4) Number plate holder

(5) Labelling of the max. permissible speed

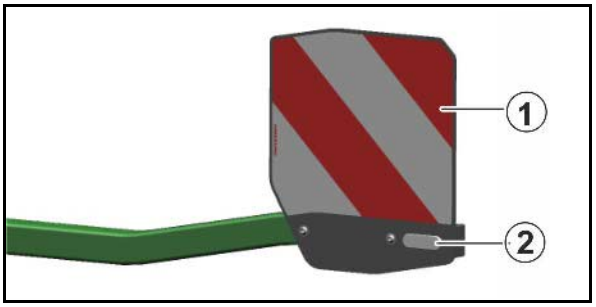
(6) Side reflectors
with maximum spacing of 3 m.



(1) Warning signs

(2) Front reflectors

Connect the lighting system to the 7-pin tractor socket via the pin.



4.5 Intended use

The machine

- is intended exclusively for normal use in intensive, shallow soil cultivation.
- is operated by one person.
- depending on equipment, is coupled to
  - o the tractor lower link, Category I 3, 4, 5 K700
  - o the ball head coupling 80
  - o a tractor drawbar

Optimum soil tillage can only be achieved up to a soil hardness of 3.0 MPa (in the range of the selected working depth).

Slopes can be travelled

- Along the contours

Direction of travel to left	15 %
Direction of travel to right	15 %

- Along the gradient

Up the slope	15 %
Down the slope	15 %

The intended use also includes:

- Compliance with all the instructions in this operating manual.
- Execution of inspection and maintenance work.
- Exclusive use of AMAZONE original spare parts.

Other uses to those specified above are forbidden and shall be considered as improper.

For any damage resulting from improper use:

- the operator bears the sole responsibility,
- AMAZONEN-WERKE assumes no liability whatsoever.

4.6 Danger area and danger points

The danger area is the area around the machine in which people can be caught:

- By work movements made by the machine and its tools
- By materials or foreign objects ejected by the machine
- By tools rising or falling unintentionally
- By unintentional rolling of the tractor and the machine

Within the machine danger area, there are danger points with permanent or unexpected risks. Warning pictograms indicate these danger points and warn against residual dangers, which cannot be eliminated for construction reasons. Here, the special safety regulations of the appropriate section shall be valid.

No-one may stand in the machine danger area:

- as long as the tractor engine is running with a connected PTO shaft / hydraulic system.
- as long as the tractor and machine are not protected against unintentional start-up and running.

The operating person may only move the machine or switch or drive the tools from the transport position to the operational position or vice-versa when there is no-one in the machine danger area.

Danger points exist:

- between the tractor and the machine, especially when coupling and uncoupling.
- in the area of moving parts.
- when the machine is in motion.
- within the machine wings' pivoting range
- underneath raised, unsecured machines or parts of machines
- when folding the machine wing in the area of overhead cables

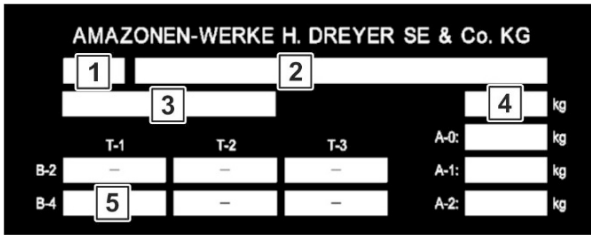
4.7 Rating plate

Machine rating plate

(1) Implement number
(2) Vehicle identification number
(3) Product
(4) Permissible technical implement weight
(5) Model year
(6) Year of manufacture

Additional rating plate

(1) Note for type approval
(2) Note for type approval
(3) Vehicle identification number
(4) Permissible technical total weight
(5) Permissible technical trailer load for a drawbar trailer vehicle with pneumatic brake
(A0) Permissible technical drawbar load A-0
(A1) Permissible technical axle load for axle 1
(A2) Permissible technical axle load for axle 2



4.8 Technical data

Catros[XL]	7003-2TX	8003-2TX
Working depth	7000 mm	8000 mm
Transport width	3000 mm	3000 mm
Transport height	3650 mm	3850 mm
Transport length	9010 mm	9010 mm
Permissible maximum speed	40 km/h	
Working speed	12 – 18 km/h	
Discs	gezackt / feingezackt	
• Disc diameter	610 mm	610 mm
• Disc spacing	250 mm	250 mm
• No. of discs	56 Stück	64 Stück
Working depth	50 - 160 mm	
Permitted mounting category	category 3, 4N, K700	

The specified working width is only reached, when all disks are set to the same working width.

4.8.1 Weights and tyre load capacity

- The permissible technical implement weight is specified on the implement rating plate.
- Weigh the empty implement to determine the tare weight.

Depending on the tyres, the tyre load capacity of both tyres can be lower than the permissible axle load.

In this case, the tyre load capacity limits the permissible axle load.

Tyre load capacity per wheel

- The load index on the tyre indicates the load capacity of the tyre.
- The speed index on the tyre indicates the maximum speed at which the tyre has the tyre load capacity according to the load index.
- The tyre load capacity is only achieved when the tyre inflation pressure matches the nominal pressure.

Load index	**140**	**141**	**142**	**143**	**144**	**145**	**146**	**147**
Tyre load capacity (kg)	2500	2575	2650	2725	2800	2900	3000	3075
Load index	**148**	**149**	**150**	**151**	**152**	**153**	**154**	**155**
Tyre load capacity (kg)	3150	3250	3350	3450	3550	3650	3750	3850
Load index	**156**	**157**	**158**	**159**	**160**	**161**	**162**	**163**
Tyre load capacity (kg)	4000	4125	4250	4375	4500	4625	4750	5000
Load index	**164**	**165**	**166**	**167**	**168**	**169**	**170**	**171**
Tyre load capacity (kg)	5000	5150	5300	5450	5600	5800	6000	6150
Load index	**172**	**173**	**174**	**175**	**176**	**177**	**178**	**179**
Tyre load capacity (kg)	6300	6500	6700	6900	7100	7300	7500	7750

Speed index	**A5**	**A6**	**A7**	**A8**	**B**	**C**	**D**	**E**
Permissible maximum speed (km/h)	25	30	35	40	50	60	65	70

Driving with reduced inflation pressure

- When the inflation pressure is lower than the nominal pressure, the tyre load capacity is reduced!

  In that case, observe the reduced payload of the implement.
- Please also follow the specifications of the tyre manufacturer!

WARNING

Danger of accident!

In event of too low inflation pressure, the stability of the vehicle is no longer guaranteed.

4.9 Necessary tractor equipment

For the machine to be operated as intended, the tractor must fulfil the following requirements:

Tractor engine power

	Minimum required:
Catos 7003-2TX	from 154 kW (210 PS)
Catos 8003-2TX	from 176 kW (240 PS)

Electrical system

Battery voltage:	• 12 V (volts)
Lighting socket:	• 7-pin

Hydraulic system

Maximum operating pressure:	• 210 bar
Tractor pump power:	• At least 30 l/min at 150 bar
Implement hydraulic fluid:	• HLP68 DIN 51524
	The implement hydraulic fluid is suitable for the combined hydraulic fluid circuits of all standard tractor brands.
Tractor control units	• See Seite 42
	• ⚠ For boom section folding, a lockable tractor control unit is required as the tractor-side protective device

Service brake system

Dual-circuit service brake system:	• 1 hose coupling (red) for the supply line
	• 1 hose coupling (yellow) for the brake line
Hydraulic braking system:	• 1 hydraulic coupling in accordance with ISO 5676

ℹ	The hydraulic braking system is not allowed in Germany and several other EU countries!

Connection fitting between the tractor and the machine:

- The lower link of the tractor must have lower link hooks.

4.10 Noise production data

The workplace-related emission value (acoustic pressure level) is 74 dB(A), measured in operating condition at the ear of the tractor driver with the cabin closed.

Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5 Structure and function

The following section provides information on the machine structure and the functions of the individual components.

5.1 Function

The Catros compact disc cultivator is suitable for

- shallow stubble cultivation directly after threshing
- seed bed preparation in spring for maize or sugar beet
- incorporation of catch crops, e.g. yellow mustard

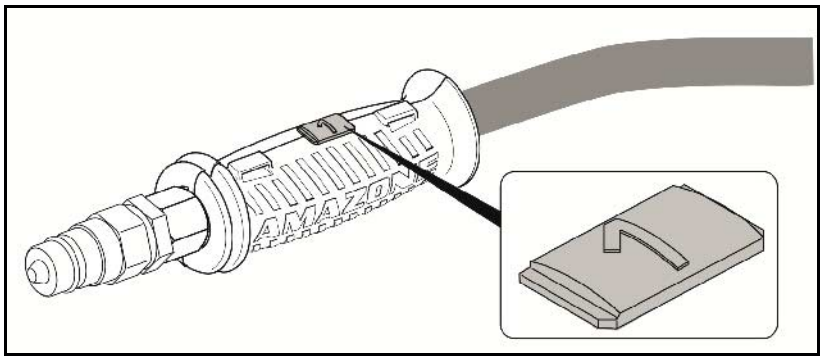
The two-row disc arrangement ensures soil cultivation and rotavation.

The trailing wedge ring roller serves to re-consolidate the soil.

5.2 Hydraulic system connections

- All hydraulic hose lines are equipped with grips.

  Coloured markings with a code number or code letter have been applied to the gripping sections in order to assign the respective hydraulic function to the pressure line of a tractor control unit!



  Films are stuck on the implement for the markings that illustrate the respective hydraulic function.

- The tractor control unit must be used in different types of activation, depending on the hydraulic function.

Latched, for a permanent oil circulation	
Tentative, activate until the action is executed	
Float position, free oil flow in the control unit	

Marking		Function			Tractor control unit	
Yellow	1		**Machine**	Move into working position / readjust the sections pressure	Double acting	
	2			Move into headlands position		
Blue	1		**Machine**	Fold out	Double-acting, lockable	
	2			Fold in		
Green	1		**Set working depth**	Increase	Double acting	
	2			Decrease		
Beige	1		**Crushboard Intensity rear**	Increase	Double acting	
	2			Decrease		
Beige	3		**Crushboard Intensity front**	Increase	Double acting	
	4			Decrease		

Marking		Function			Tractor control unit	
beige	3		Multi-point connector	Use	Double acting	
	4			Transport		

WARNING

Danger of infection from escaping hydraulic fluid at high pressure!

When coupling and uncoupling the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the machine and tractor sides.

If you are injured by hydraulic fluid, contact a doctor immediately.

5.2.1 Coupling the hydraulic hose lines

WARNING

Risk of being crushed, cut, caught, drawn in or struck due to faulty hydraulic functions when the hydraulic hose lines are connected incorrectly!

When coupling the hydraulic hose lines, observe the coloured markings on the hydraulic plugs.

- Check the compatibility of the hydraulic fluids before connecting the machine to the hydraulic system of the tractor.
  Do not mix any mineral oils with biological oils.
- Observe the maximum approved hydraulic fluid pressure of 210 bar.
- Only couple clean hydraulic connectors.
- Push the hydraulic plug(s) into the hydraulic sockets until the hydraulic plug(s) is (are) felt to lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Swivel the actuation lever on the control valve on the tractor to float position (neutral position).
2. Clean the hydraulic connectors of the hydraulic hose lines before you couple the hydraulic hose lines to the tractor.
3. Connect the hydraulic hose line(s) to the tractor control unit(s).

5.2.2 Uncoupling the hydraulic hose lines

1. Swivel the actuation lever on the control valve on the tractor to float position (neutral position).
2. Unlock the hydraulic connectors from the hydraulic sockets.
3. Protect the hydraulic connectors and hydraulic connector sockets against soiling with the dust protection caps.

5.3 Dual-circuit service brake system

Compliance with the maintenance intervals is essential for the correct function of the dual-circuit service brake system.

WARNING

If the machine is parked uncoupled from the tractor with a full compressed air tank, the compressed air of the compressed air tank acts on the brakes and the wheels are then blocked.

The compressed air in the compressed air tank and hence the braking force will drop continuously until there is a complete brake failure, if the compressed air tank is not refilled. The machine must therefore be parked only with wheel chocks.

The brakes are released immediately with a full compressed air tank when the supply line (red) is connected to the tractor. Before connection of the supply line (red) the machine must therefore be connected to the tractor's lower links and the tractor's handbrake must be applied. The wheel chocks must also not be removed until the machine is connected to the tractor's lower links and the tractor's handbrake is applied.

To activate the dual-circuit pneumatic braking system, the tractor requires a pneumatic braking system which is also dual circuit.

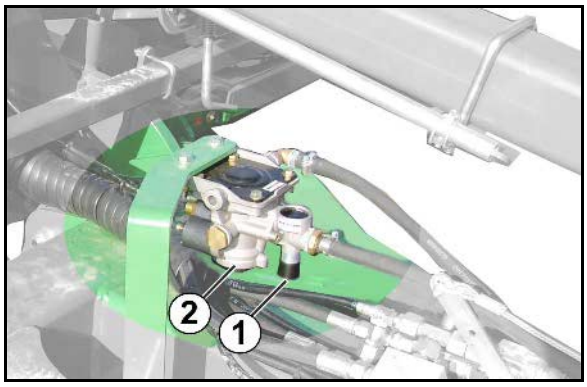
- Supply line with coupling head (red)
- Brake line with coupling head (yellow)

(1) Release valve with actuator button:

→ If the actuator button

- o is pressed in to the stop, the service brake system is released, e.g. for manoeuvring the uncoupled machine.
- o is pulled out to the stop, the machine is braked by the supply pressure coming from the air reservoir.

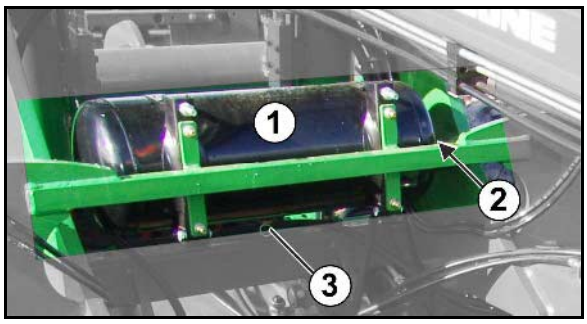
(2) Brake valve



(1) Compressed air tank

(2) Test connection for pressure gauge.

(3) Drain valve



5.3.1 Coupling the brake and supply lines

WARNING

Risk of contusions, cuts, dragging, catching or knocks from incorrectly functioning brake system.

- When coupling the brake and supply line, ensure that:
  - the coupling head seals are clean.
  - the sealing rings of the hose couplings form a proper seal.
- Always replace damaged seals immediately.
- Drain the air reservoir before the first journey each day.
- Only move off with the machine connected when the pressure gauge on the tractor shows 5.0 bar.

WARNING

Risk of contusions, cuts, dragging, catching or knocks from unintentionally rolling machine with the operating brake released!

Always couple the hose coupling of the brake line (yellow) first, followed by the hose coupling of the supply line (red).

The operating brake of the machine moves out of the brake position immediately the red hose coupling has been coupled.

1. Open the tractor coupling head caps.
2. Remove brake line coupling head (yellow) from the idle coupling.
3. Check coupling head seals for damage and cleanness.
4. Clean dirty seals, replace damaged seals.
5. Fasten the brake line coupling head (yellow) as directed in the tractor coupling with the yellow marking.
6. Remove the supply line coupling head (red) from the idle coupling.
7. Check coupling head seals for damage and cleanness.
8. Clean dirty seals, replace damaged seals.
9. Fasten the supply line coupling head (red) in the tractor coupling with the red marking, as instructed.

→ On coupling the supply line (red), the supply pressure coming from the tractor automatically pushes out the actuator button for the release valve on the trailer brake valve.

10. Remove wheel chocks.

5.3.2 Uncoupling the brake and supply lines

WARNING

Risk of contusions, cuts, dragging, catching or knocks from unintentionally rolling machine with the operating brake released!

Always uncouple the hose coupling of the supply line (red) first followed by the hose coupling of the brake line (yellow).

The operating brake of the machine only moves into the brake position when the red hose coupling has been uncoupled.

Always keep to this order, as otherwise the service brake system will trip and may set the unbraked machine moving.

When the machine is uncoupled or pulled away from the trailer, air is vented from the trailer brake valve supply line. The trailer brake valve is automatically switched and operates the service braking system independently of the automatic, load-dependent braking force regulator.

1. Secure the machine against unintentionally rolling away. Use wheel chocks.
2. Release supply line coupling head (red).
3. Release brake line coupling head (yellow).
4. Fasten coupling heads in the idle coupling points.
5. Close tractor coupling head caps.

5.4 Hydraulic service brake system

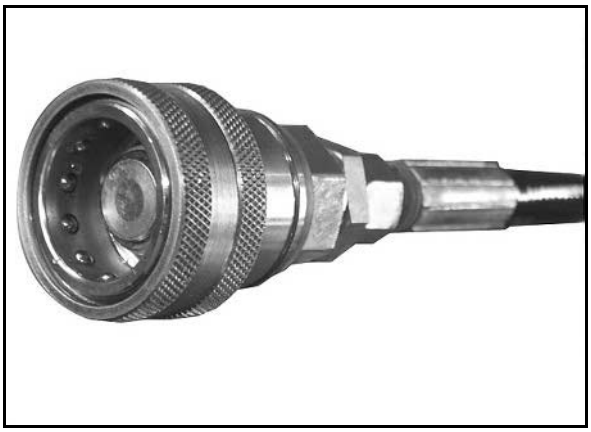
The machine has no parking brake!

Always secure the machine with the wheel chocks before you uncouple the machine from the tractor!

5.4.1 Coupling the hydraulic service brake system

Only couple clean hydraulic couplings.

1. Remove the protective caps.
2. If necessary, clean the hydraulic connector and hydraulic socket.
3. Connect the hydraulic socket on the machine face with the hydraulic connector on the tractor face.
4. Tighten the hydraulic screw union hand tight (if present).

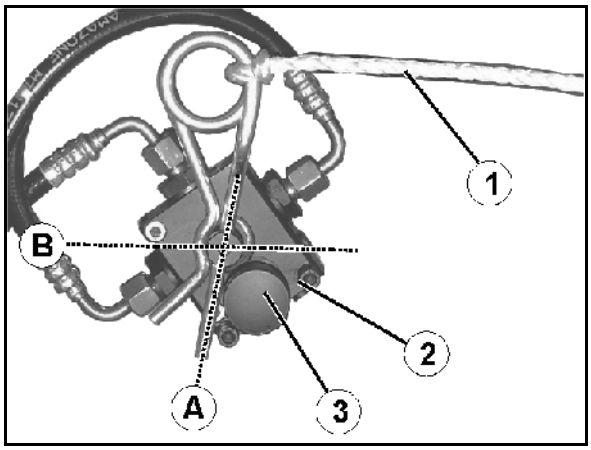


5.4.2 Uncoupling the hydraulic service brake system

1. Release the hydraulic screw union (if present).
2. Protect the hydraulic connectors and hydraulic sockets against soiling with the dust protection caps.
3. Place the hydraulic hose line in the hose cabinet.

5.4.3 Emergency brake

In event of the machine being released from the tractor during travel, the emergency brake will brake the machine.



(1) Pulling cable

(2) Brake valve with pressure accumulator

(3) Hand pump to relieve the brake

(A) Brake released

(B) Brake applied

DANGER

Before travel, set the brake to the application position.

For this purpose:

1. Secure the pulling cable to a fixed point on the tractor.
2. Apply the tractor brake with the tractor engine running and hydraulic brake connected.

→ Pressure accumulator of the emergency brake is being charged.

DANGER

Risk of accident through brake malfunction!
After withdrawing the safety splint (e.g. when activating the emergency brake), it is essential to insert the safety splint into the brake valve from the same side. Otherwise the brake will not function.

After reinserting the safety splint, carry out a brake test for the service brake and the emergency brake.

When the implement is uncoupled, the pressure accumulator presses hydraulic oil:

- into the brake and decelerates the implement, or
- into the hose line to the tractor and impedes the coupling of the brake line to the tractor.

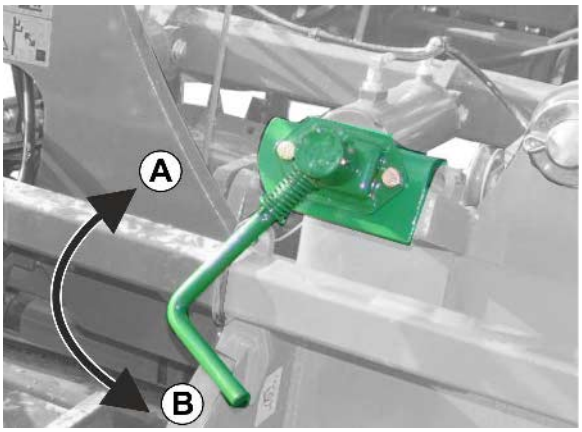
In these cases, relieve pressure using the hand pump on the brake valve.

5.5 Parking brake

When the parking brake is on, it secures the uncoupled machine against unintentional rolling. The parking brake is operated by turning the crank, which in turn operates the spindle and bowden cable.

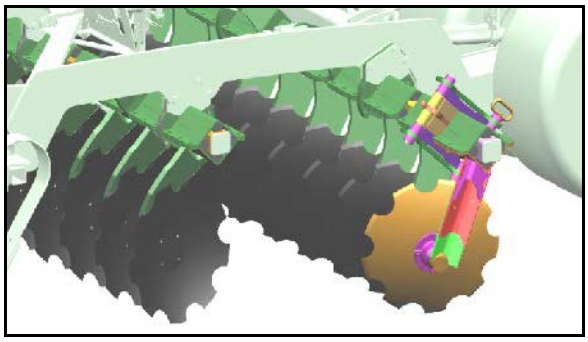
(A) Apply the tractor parking brake.

(B) Release parking brake.



- Correct the setting of the parking brake if the spindle's tension is no longer sufficient.
- Ensure that the bowden cable is not lying or rubbing against other vehicle parts.
- When the parking brake is off, the bowden cable must be slightly slack.

5.6 Two-row disc cultivator



Cultivator with smooth or serrated discs and 610 mm diameter.

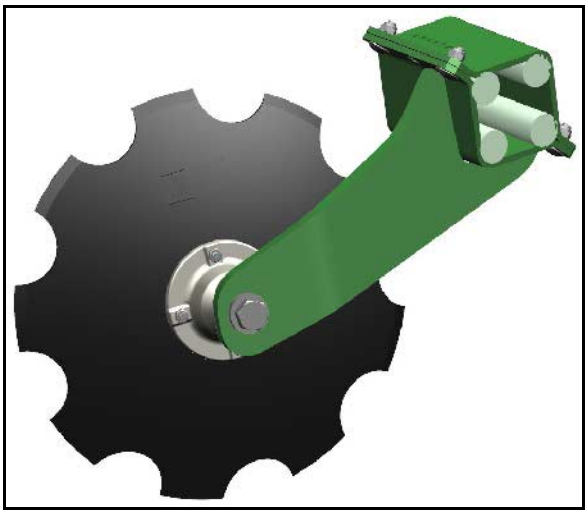
The mounting of the concave discs (1) consists of a two-row angular contact ball bearing with slide seal and oil filling and is maintenance-free.

The elastic rubber sprung suspension of the individual discs enables

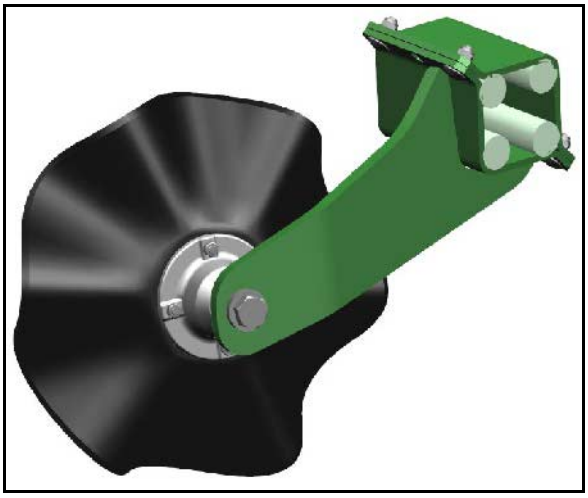
- adaptation to soil unevenness
- evasion by the discs when hard obstacles are encountered, e.g. stones.

  This protects the individual discs against damage.

Concave discs as a work tool with smooth or serrated outer contour.



X-Cutter disk as working tool with reduced working depth for shallow stubble cultivation.



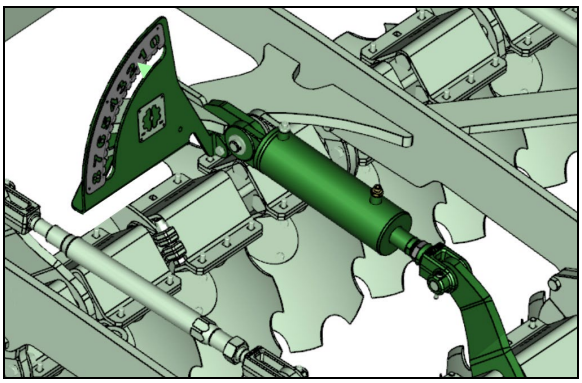
The working depth can be adjusted:

- hydraulically with display on a scale
- manually using the threaded spindle

The alignment of the disc gangs to one another can be adjusted using threaded spindles.

This serves

- as compensation for discs with different degrees of wear,
- to eliminate lateral pull.



5.7 Side disc

Levelling in the boundary areas is performed using side discs.

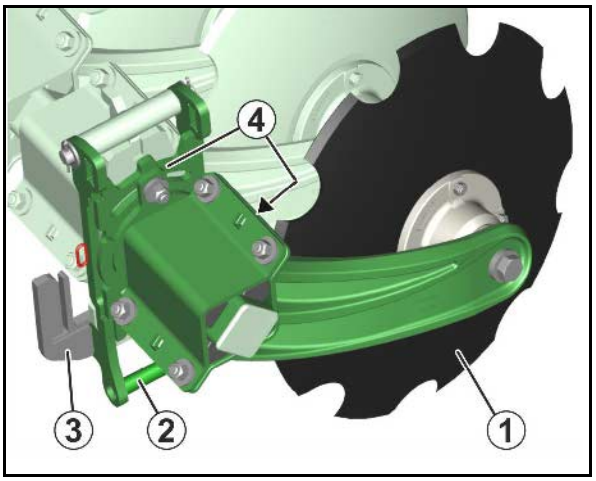
The side elements can be folded. This ensures compliance with the maximum authorised transport height of 4 m.

(1) Side disc

(2) Handle for lifting and lowering the side disc

(3) Locking mechanism for locking the transport and working position

(4) Working depth adjustment

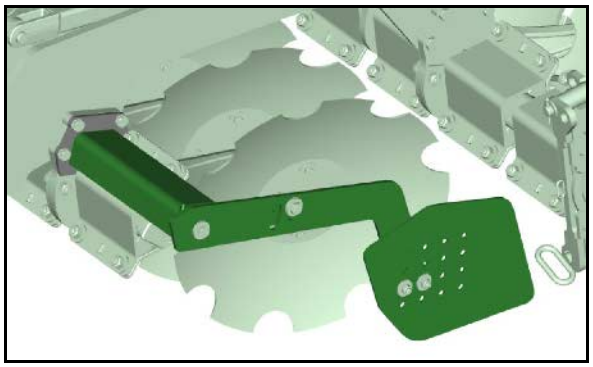


5.8 Deflector guides

Deflector guides on the front disc gang, installed on the left and rear right.

The deflector guides ensure a level work pattern at the boundary of the worked area.

The deflector guides are adjustable.



5.9 Crushboard (optional

The crushboard serves to level and crumble the soil.

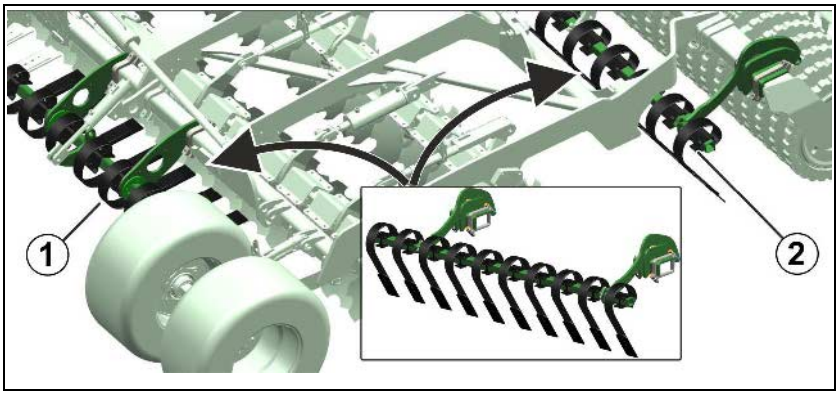
It is located

- between the discs and the roller,
- In front of the discs

The working intensity can be hydraulically adjusted.

(1) Crushboard at the front

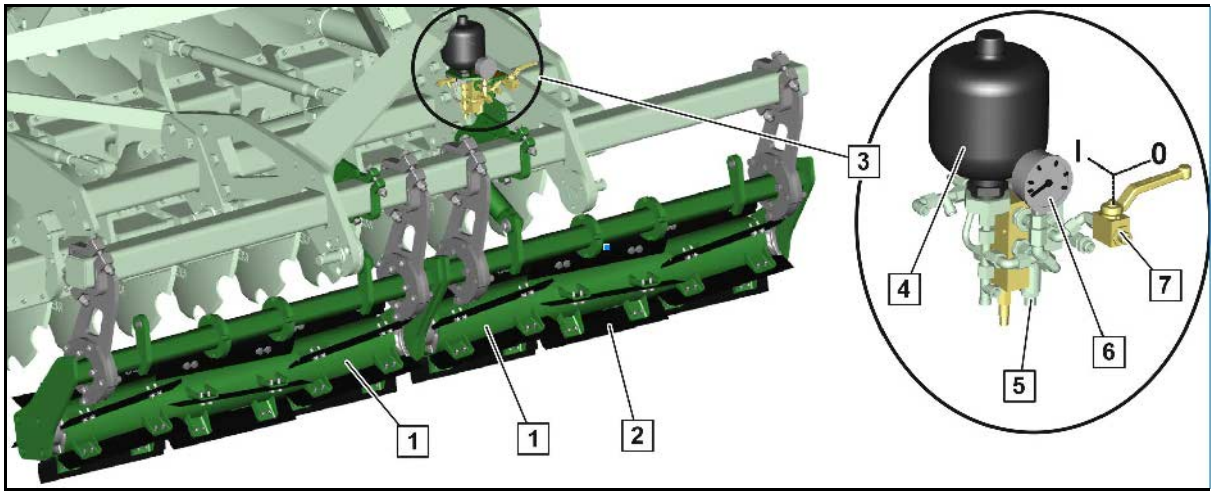
(2) Crushboard at the rear



5.10 Cutting roller

The cutting roller is pressed onto the ground with a preload pressure and it chops up plant residues.

When it is taken out of service, the cutting roller is lifted and secured by a stop tap.



(1) Individual hydraulically activated segments

(2) If cutters are worn, reverse the cutters

(3) Hydraulic preloading

(4) Hydraulic accumulator

(5) Pressure control valve

(6) Pressure gauge for preload pressure

(7) Stop tap

5.11 Wedge ring tyre roller

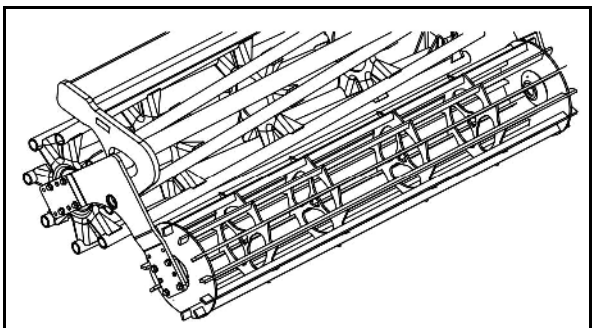
The roller assumes the depth control of the tools.

- **Tandem roller TW520/380**

The tandem roller consists of

  - o the front spiral tube roller installed in the top group of holes.
  - o the rod roller installed in the bottom group of holes.

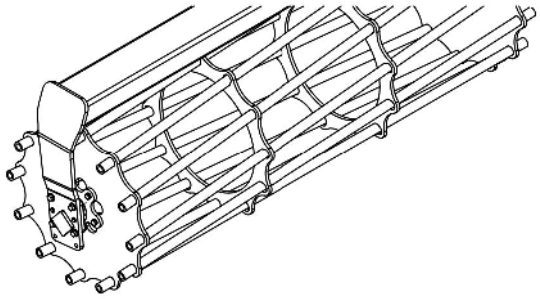
→ Provides very good crumbling.



- **Cage roller SW600**

→ The cage roller can be used where lighter reconsolidation of the soil is required.

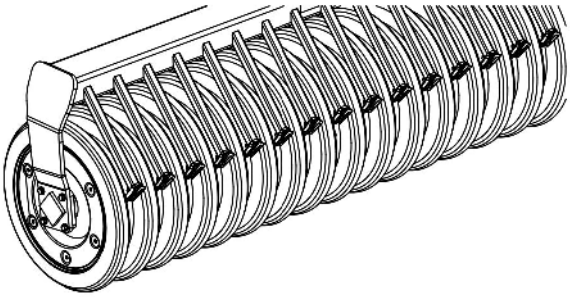
→ Disposes of a very good self-propulsion.



- **Wedge ring roller KW580**

with adjustable scraper.

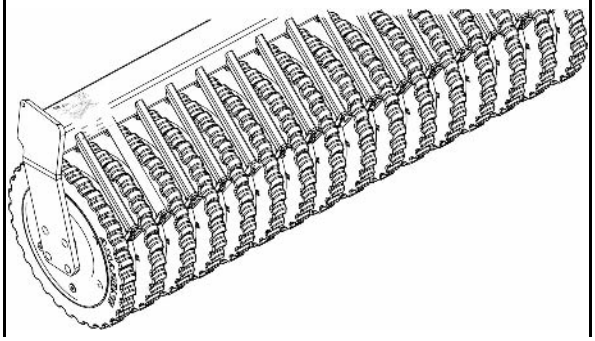
→ Very well suited for medium soils.



- **Wedge ring roller KWM600**

with Matrix profile and adjustable scraper.

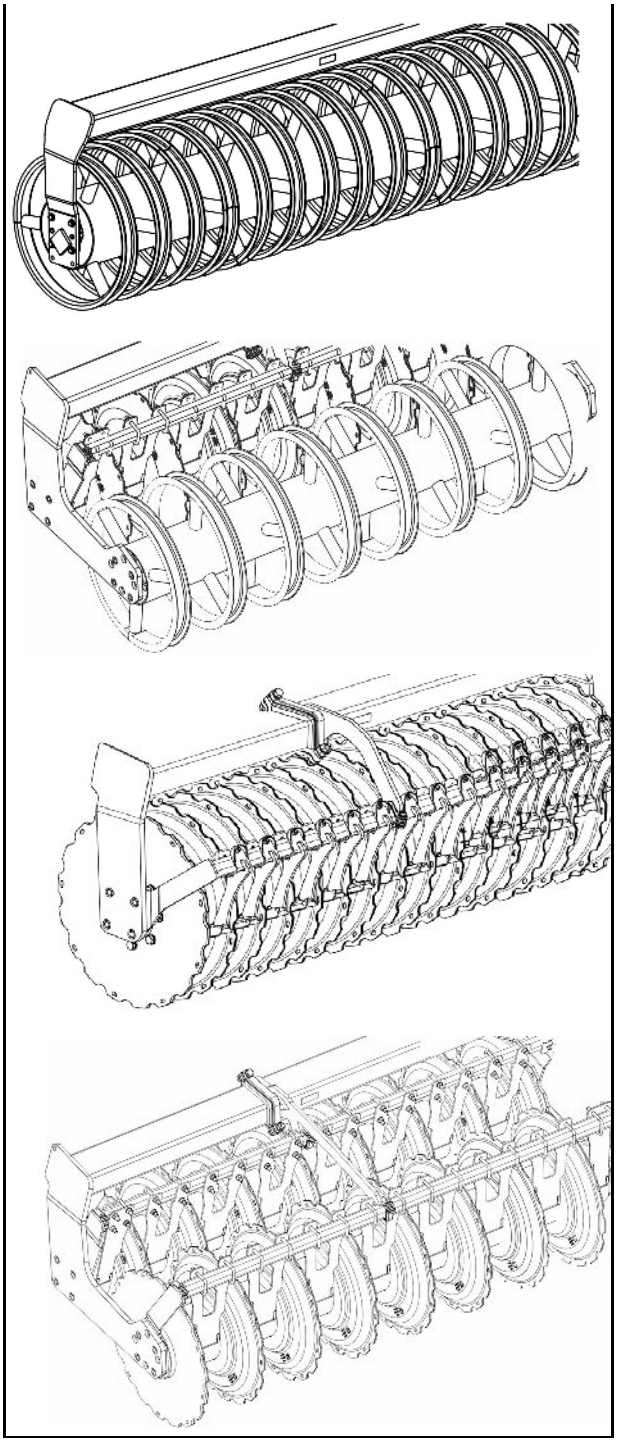
→ Very well suited for light, medium and heavy soils.



- **U-profile roller UW580**

→ Very well suited for light soils.

→ Resistant to clogging and good load-bearing capacity.



- **Double-disc U-profile roller DDU 600**

→ Very well suited for light, medium and heavy soils.

→ Insensitive to stones and good load-bearing capacity.

- **Disc roller DW600**

→ Very well suited for light, medium and heavy soils.

- Provides very good crumbling.

→ Resistant to clogging and sticking, offers a good load-bearing capacity.

- Double-Disc-roller DDW

→ Very well suited for light, medium and heavy soils.

→ Resistant to clogging and sticking, offers a good load-bearing capacity.

5.12 Rear harrow (optional)

The rear harrow is used to crumble and level the soil.

The working intensity can be adjusted by inserting the pins into different holes.

Secure the pin with a linch pin.

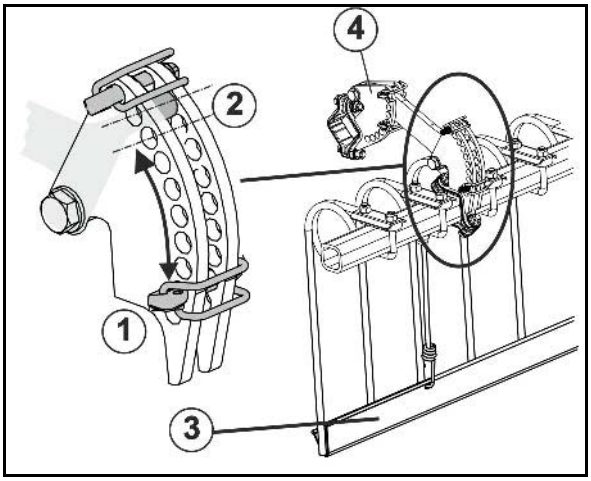
(1) Positioning pin for adjusting the working intensity.

→ Peg the positioning pin so that the harrow is resting and can swing freely to the front.

(2) Position of the positioning pin to lock the exact following harrow during road transport.

(3) Install the road safety bar for road transport.

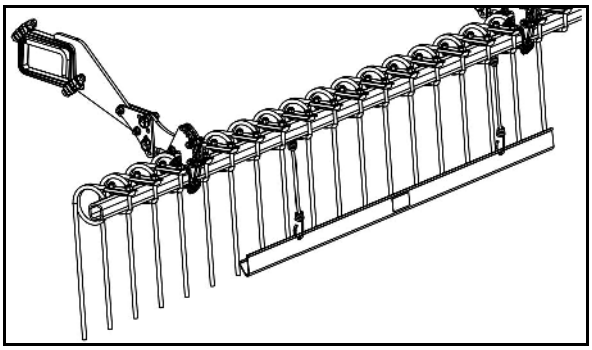
(4) Depending on the harrow system, adjust the harrow height so that it is free of play



- Make the same adjustments on all of the setting points.
- Raise and peg the harrow to take it out of operation.
- Attach the transport safety bars on the roller during operation.

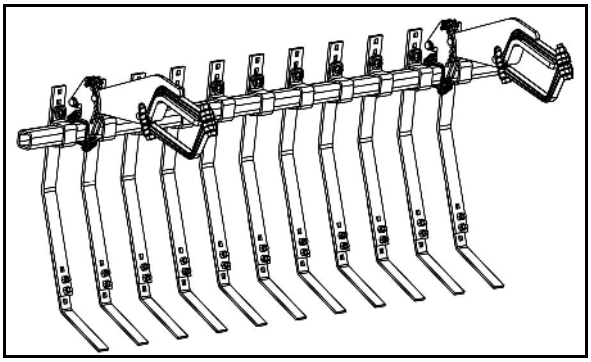
Harrow system 12-125 Hi

For rollers: SW520, SW600, KW580, KWM600, UW580



Spring-mounted clearing system 167

For roller: UW580



5.13 Running gear and drawbar

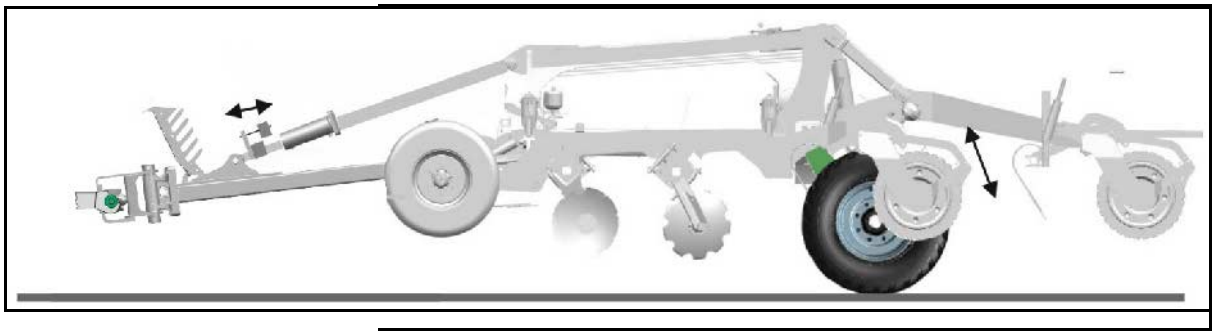
Implement with rigid drawbar:

The hydraulic system for the running gear in combination with the tractor lower links bring the implement into operating position, transport position, and headlands position.

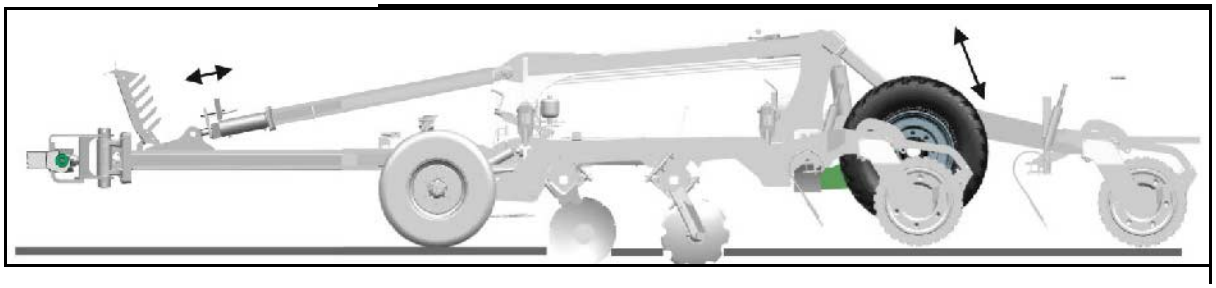
Implement with hydraulic drawbar:

The shared hydraulic system for the running gear and drawbar move the implement into operating position, transport position and headlands position.

- Headlands: Implement lifted via running gear and drawbar



- Operation: Implement lowered via running gear and drawbar, running gear completely lifted



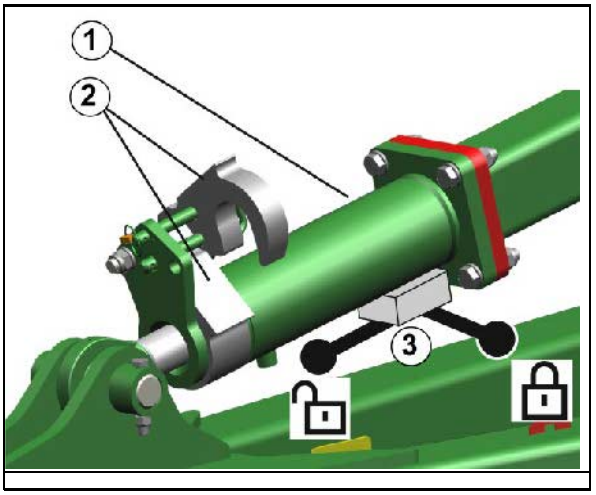
Drawbar cylinder

(1) Drawbar cylinder

(2) Spacer elements

(3) Stop tap

Spacer elements for securing the transport position of the drawbar and for alignment of the implement behind the tractor.



- Lift the drawbar to couple and uncouple the connecting device:

1. Open the stop tap.
2. Switch the yellow tractor control unit to float position.

- Close the stop tap to uncouple the hydraulic hoses

5.14 ContourFrame (CF) - Folding sections with compressive preloading

On implements with ContourFrame, the folding sections are hydraulically preloaded during operation via the hydropneumatic pressure accumulator.

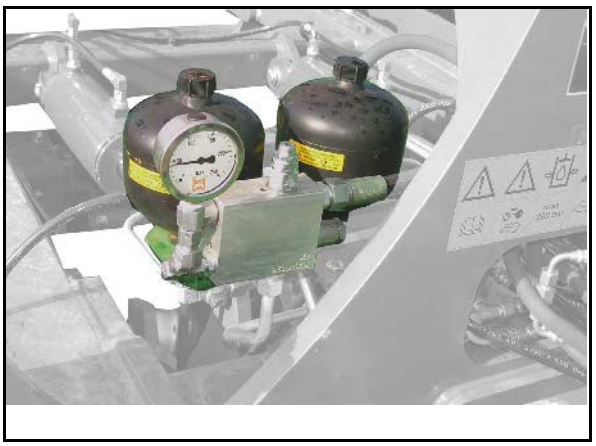
Before operation, the pressure reservoir must be pressurized using the *blue* tractor control unit.

After unfolding, actuate the tractor control unit until the displayed pressure (observe the pressure gauge) is greater than the value for the correct pre-load pressure.

During operation, the *blue* tractor control unit is operated in float position and the hydraulic loading is active.

Correct pre-load pressure: 50 bar is set as soon as the *blue* control unit is in float position.

Pressure reservoir with pressure gauge, pressure reservoir and adjustable pressure relief valve



The sections pressure can drop on long fields.

Here's how:

1. Actuate the yellow tractor control unit (1 / raise running gear) to bring the section pressure back to the set value.
2. Put the tractor control unit back into float position.

5.15 No ContourFrame (CF) - Folding sections without pre-load pressure

On implements without ContourFrame, the folding sections are hydraulically locked during operation.

5.16 Jack

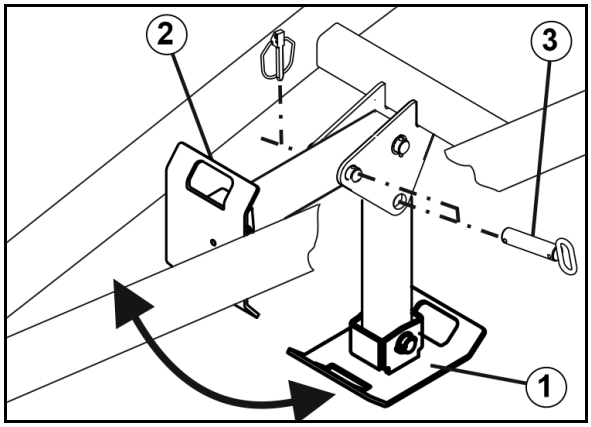
The jack is raised during operation or transport.

The lowered jack supports the uncoupled implement.

(1) Swivel-mounted jack

(2) Handle

(3) Bolt with linch pin.



Bring the jack into the desired position:

1. Grasp and hold the jack with handle from above.
2. Pull the linch pin and the pin.
3. Swing the jack to the end position.
4. Fix the position of the jack with the pin and secure using the linch pin.

5.17 Moveable jack

(1) Moveable jack

(2) Handle

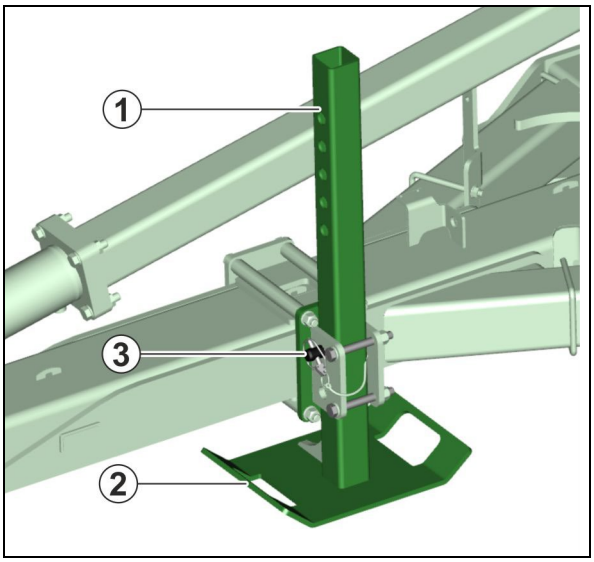
(3) Positioning pin with linch pin

During operation or transport:

Jack fixed in raised position with a positioning pin and linch pin.

With machine uncoupled:

Jack fixed in lowered position with a positioning pin and linch pin.



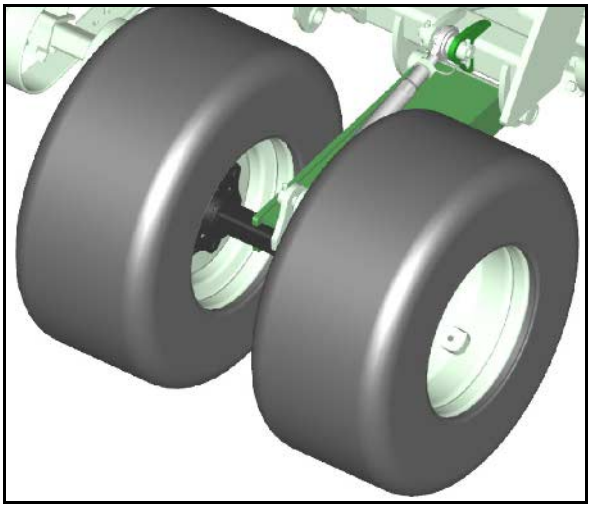
5.18 Support wheels

The support wheels

- stabilise the implement under uneven ground conditions.
- prevents oscillations and the development of waves.
- have spindles to align the implement horizontally.

Equipment variations:

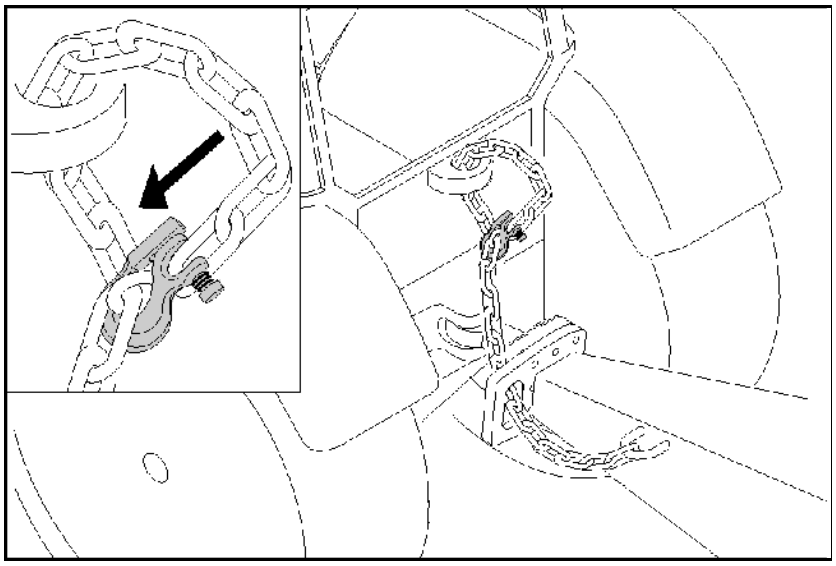
- o Support wheel, single
- o Support wheel, double



5.19 Safety chain between tractor and implements

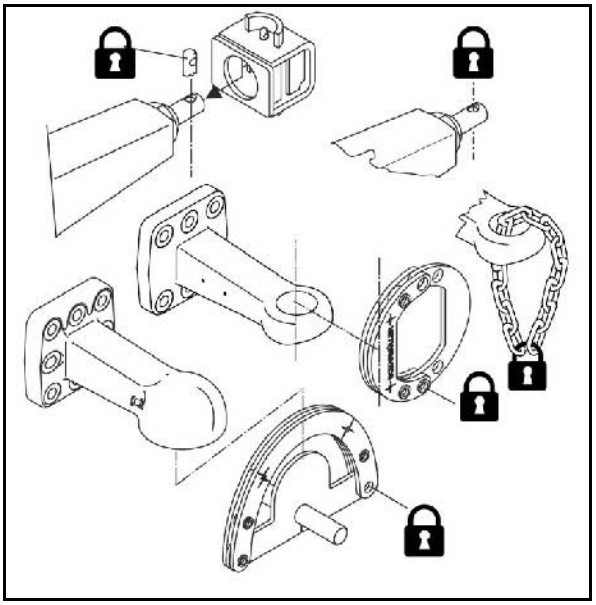
Depending on country-specific regulations, implements are equipped with a safety chain.

The safety chain must be mounted at a suitable point on the tractor as prescribed before travelling.



5.20 Safety device against unauthorised use

Lockable device for the drawbar eye, ball bracket, or lower link crosspiece, prevents unauthorised use of the machine.



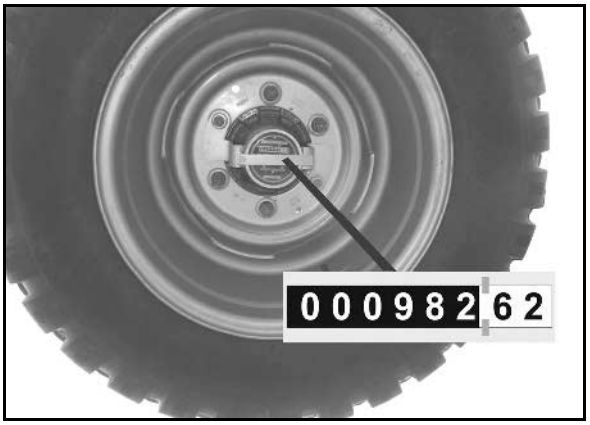
5.21 Hectare counter (optional)

The hectare counter is a mechanical counter on the support wheel for determination of the worked area.

The counter shows the distance run in the working position in kilometres.

Trailing of the feeler wheel and driving backwards distort the area calculation.

The counter also continues counting when driving backwards.



Area [ha] = 0.1 x displayed value [km] x working width [m]

5.22 Central lubrication (optional)

Only for Catros Pro

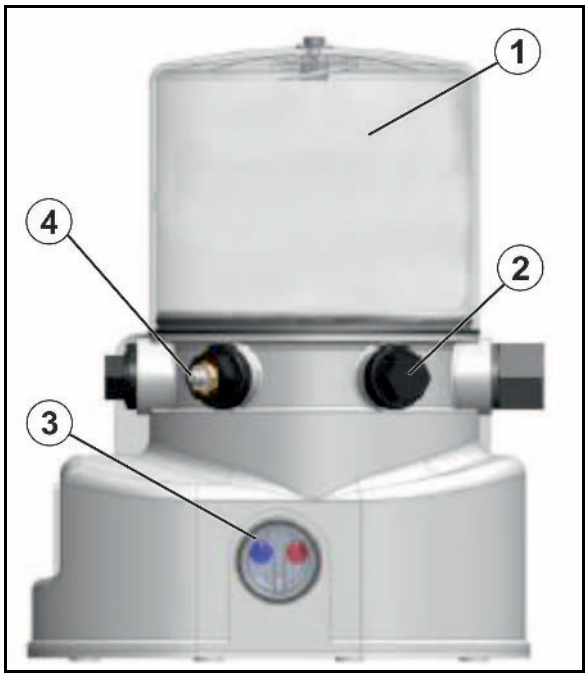
The implement is lubricated electrically with a central pump.

(1) Tank

(2) Connection for filling with cartridge/return line

(3) Rotary knob for time interval with sealing cap

(4) Grease nipple for filling the tank

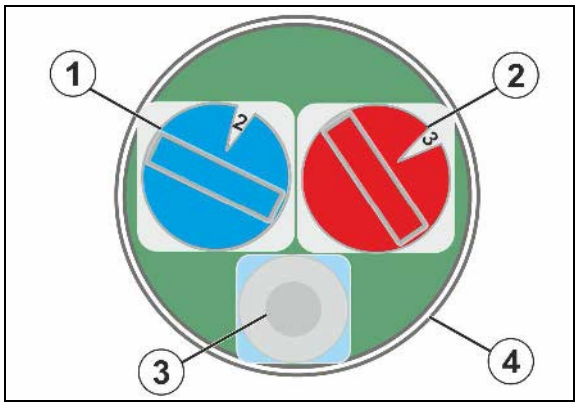


(1) Rotary knob, blue
(pause time: standard 2 hours)

(2) Rotary knob, red
(lubrication time: standard 6 minutes)

(3) Button for starting the lubrication cycle

(4) Sealing cap



- Set the rotary knob according to the table.
- Do not set the rotary knob to 0!

Pause times

Rotary knob **blue**	1	**2**	3	4	5	6	7	8	9	A	B	C	D	E	F
Hours	1	**2**	3	4	5	6	7	8	9	10	11	12	13	14	15

Lubrication times

Rotary knob **red**	1	2	**3**	4	5	6	7	8	9	A	B	C	D	E	F
Minutes	2	4	**6**	8	10	12	14	16	18	29	22	24	26	28	30

Lubrication recommendation

- When applying slurry:

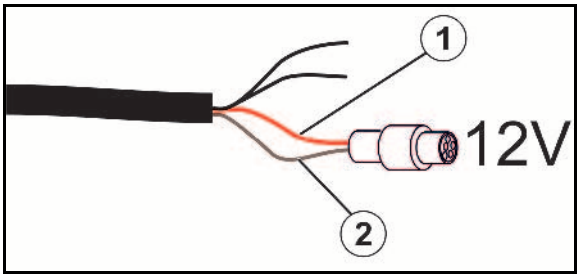
  Initial use: Pause time 2 hours
  Later: Pause time 2-4 hours

- No slurry: Lubricate once a day

Connection

(1) red (+)

(2) brown (-)



The direction of rotation of the pump must match with the arrow on the hopper.

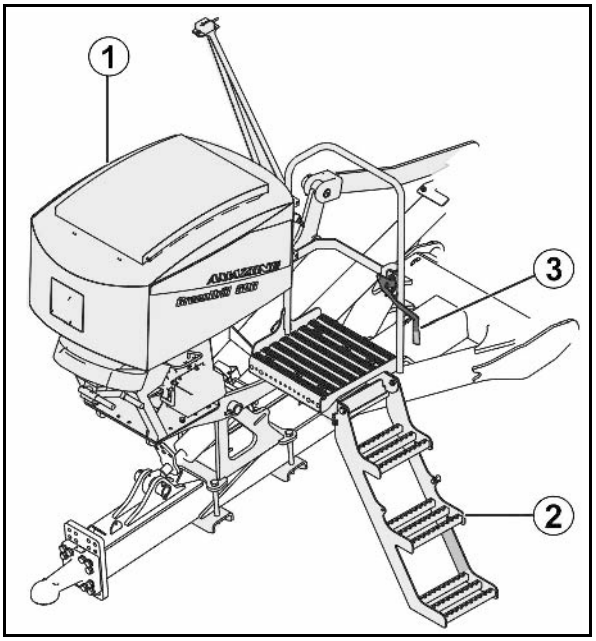
5.23 GreenDrill catch crop sowing unit

The GreenDrill catch crop sowing unit enables the sowing of fine seeds and catch crops during soil cultivation with the Catros disc cultivator.

(1) GreenDrill

(2) Foldable ascent

(3) Locking pin for securing the foldable ascent



See also the GreenDrill operating manual.

Fold the access ladder to the transport position before driving.

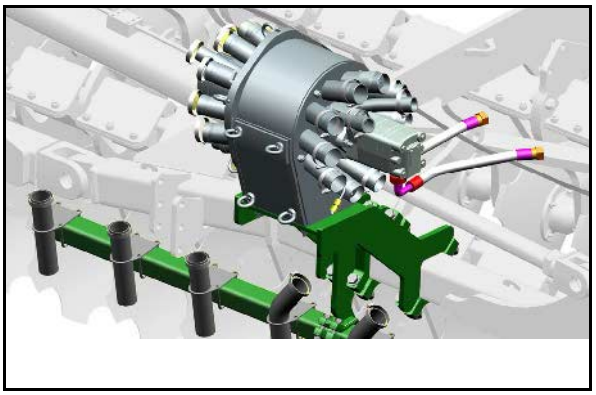
Use the step of the ladder as handle.

5.24 Liquid manure equipment

The liquid manure equipment makes it possible to mounted approved liquid manure spreaders manufactured by Vogelsang on the implement.

The liquid manure equipment includes:

- Left / right distributor
- 2 liquid manure pump brackets
- Spreading tube with bracket for mounting in front of the first disc gang
- Hose connection



6 Commissioning

This section contains information

- on operating your machine for the first time.
- on checking how you may connect the machine to your tractor.

- Before operating the machine for the first time the operator must have read and understood the operating manual.
- Follow the instructions given in the section "Safety instructions for the operator" on page 24 onwards when
  - connecting and disconnecting the machine,
  - transporting the machine and
  - using the machine
- Only couple and transport the machine to/with a tractor which is suitable for the task.
- The tractor and machine must meet the national road traffic regulations.
- The operator and the user shall be responsible for compliance with the statutory road traffic regulations.

WARNING

Risk of contusions, cutting, catching, drawing in and knocks in the area of hydraulically or electrically actuated components.

Do not block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:

- are continuous or
- are automatically locked or
- necessarily require an open centre or pressure position to operate correctly

6.1 Checking the suitability of the tractor

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

- Check the suitability of your tractor before you attach or hook up the machine.

  You may only connect the machine to tractors suitable for the purpose.

- Carry out a brake test to check whether the tractor achieves the required braking delay with the machine connected.

Requirements for the suitability of a tractor are, in particular:

- The approved total weight
- The approved axle loads
- The approved drawbar load at the tractor coupling point
- The load capacity of the installed tyres
- The approved trailer load must be sufficient

  You can find this data on the rating plate or in the vehicle documentation and in the tractor operating manual.

The front axle of the tractor must always be subjected to at least 20% of the empty weight of the tractor.

The tractor must achieve the brake delay specified by the tractor manufacturer, even with the machine connected.

6.1.1 Calculating the actual values for the total tractor weight, tractor axle loads and load capacities, as well as the minimum ballast

The approved total tractor weight specified in the vehicle documentation must be greater than the sum of the

- empty tractor weight
- ballast weight and
- machine's total weight when attached or supported weight when hitched.

This note only applies to Germany:

If, having tried all possible alternatives, it is not possible to comply with the axle loads and / or the approved total weight, then a survey by an officially recognised motor traffic expert can, with the approval of the tractor manufacturer, be used as a basis for the responsible authority to issue an exceptional approval according to § 70 of the German Regulations Authorising the Use of Vehicles for Road Traffic and the required approval according to § 29, paragraph 3 of the German Road Traffic Regulations.

6.1.1.1 Data required for the calculation

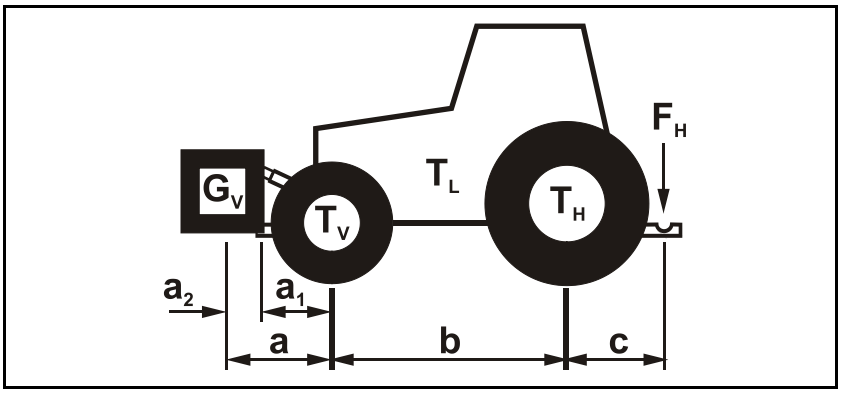


Fig. 1

T_L	[kg]	Empty tractor weight	See tractor operating manual or vehicle documentation
T_V	[kg]	Front axle load of the empty tractor	
T_H	[kg]	Rear axle load of the empty tractor	
G_V	[kg]	Front weight (if available)	See front weight in technical data, or weigh
F_H	[kg]	Actual drawbar load	determining
a	[m]	Distance between the centre of gravity of the front machine mounting or the front weight and the centre of the front axle (total $a_1 + a_2$)	See technical data of tractor and front machine mounting or front weight or measurement
a_1	[m]	Distance from the centre of the front axle to the centre of the lower link connection	See tractor operating manual or measurement
a_2	[m]	Distance between the centre of the lower link connection point and the centre of gravity of the front machine mount or front weight (centre of gravity distance)	See technical data of front machine mounting or front weight or measurement
b	[m]	Tractor wheel base	See tractor operating manual or vehicle documents or measurement
c	[m]	Distance between the centre of the rear axle and the centre of the lower link connection	See tractor operating manual or vehicle documents or measurement

6.1.1.2 Calculation of the required minimum ballasting at the front $G_{V\ min}$ of the tractor for assurance of the steering capability

$$G_{V\ \min} = \frac{F_H \bullet c - T_V \bullet b + 0{,}2 \bullet T_L \bullet b}{a + b}$$

Enter the numeric value for the calculated minimum ballast $G_{V\ min}$, required on the front side of the tractor, in the table (Section 6.1.1.7).

6.1.1.3 Calculation of the actual front axle load of the tractor $T_{V\ tat}$

$$T_{V\ tat} = \frac{G_V \bullet (a + b) + T_V \bullet b - F_H \bullet c}{b}$$

Enter the numeric value for the calculated actual front axle load and the approved tractor front axle load specified in the tractor operating manual in the table (Section 6.1.1.7).

6.1.1.4 Calculation of the actual total weight of the combined tractor and machine

$$G_{tat} = G_V + T_L + F_H$$

Enter the numeric value for the calculated actual total weight and the approved total tractor weight specified in the tractor operating manual in the table (Section 6.1.1.7).

6.1.1.5 Calculation of the actual rear axle load of the tractor $T_{H\ tat}$

$$T_{H\ tat} = G_{tat} - T_{V\ tat}$$

Enter the numeric value for the calculated actual rear axle load and the approved tractor rear axle load specified in the tractor operating manual in the table (Section 6.1.1.7).

6.1.1.6 Tyre load capacity

Enter the double value (two tyres) of the approved load capacity (see, for example, tyre manufacturer's documentation) in the table (Section 6.1.1.7).

6.1.1.7 Table

	Actual value according to calculation		Approved value according to tractor instruction manual		Double approved load capacity (two tyres)
Minimum ballast front / rear	/ kg		--		--
Total weight	kg	≤	kg		--
Front axle load	kg	≤	kg	≤	kg
Rear axle load	kg	≤	kg	≤	kg

- You can find the approved values for the total tractor weight, axle loads and load capacities in the tractor registration papers.
- The actually calculated values must be less than or equal to (≤) the permissible values!

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and insufficient tractor steering and brake power.

It is forbidden to couple the machine to the tractor used as the basis for calculation, if

- One of the actual, calculated values is greater than the approved value.
- There is no front weight (if required) attached to the tractor for the minimum front ballast ($G_{V\,min}$).

- Ballast your tractor with weights at the front or rear if the tractor axle load is exceeded on only one axle.
- Special cases:
  - If you do not achieve the minimum ballast at the front (GV min) from the weight of the front-mounted machine (GV), you must use ballast weights in addition to the front-mounted machine.
  - If you do not achieve the minimum ballast at the rear (GH min) from the weight of the rear-mounted machine (GH), you must use ballast weights in addition to the rear-mounted machine.

6.1.2 Requirements for tractor operation with attached machines

WARNING

Risk of breakage during operation of components through unapproved combinations of connecting equipment!

- Ensure:
  - that the connection fittings on the tractor possess sufficient permissible support capability for the supported weight actually present.
  - that the axle loads and weights of the tractor altered by the drawbar load are within the approved limits. If necessary, weigh them.
  - that the tractor's actual static rear axle weight does not exceed the permissible rear axle weight.
  - that the permissible total weight of the tractor is observed.
  - that the approved load capacities of the tractor tyres are not exceeded.

6.1.2.1 Combination options of coupling devices

The table shows the permitted combination options of coupling devices for the tractor and implement.

Coupling device				
Tractor		**AMAZONE implement**		
Upper hitch				
Pin coupling, form A, B, C A not automatically B automatic smooth pin C automatic curved pin	(ISO 6489-2)	Drawbar eye	Socket ⌀ 40 mm	(ISO 5692-2)
		Drawbar eye	⌀ 40 mm	(ISO 8755)
		Drawbar eye	⌀ 50 mm, only compatible with form A	(ISO 1102)
Upper / lower hitch				
Ball head coupling Ø 80 mm	(ISO 24347)	Ball coupling	⌀ 80 mm	(ISO 24347)
Lower hitch				
Towing hooks / hitch hooks	(ISO 6489-19)	Drawbar eye	Centre bore Ø 50 mm Eyelet Ø 30 mm	(ISO 5692-1)
		Swivel drawbar eye	compatible only with form Y, hole Ø 50 mm,	(ISO 5692-3)
		Drawbar eye	Centre bore Ø 50 mm Eyelet Ø 30 - 41 mm	(ISO 20019)
Drawbar - Category 2	(ISO 6489-3)	Drawbar eye	Centre bore Ø 50 mm Eyelet Ø 30 mm	(ISO 5692-1)
			Socket ⌀ 40 mm	(ISO 5692-2)
			⌀ 40 mm	(ISO 8755)
			⌀ 50 mm	(ISO 1102)
Drawbar	(ISO 6489-3)	Drawbar eye		(ISO 21244)
Drawbar / Piton-fix	(ISO 6489-4)	Drawbar eye	Centre bore Ø 50 mm Eyelet Ø 30 mm	(ISO 5692-1)
		Swivel drawbar eye	compatible only with form Y, hole Ø 50 mm	(ISO 5692-3)
Yoke that cannot be rotated	(ISO 6489-5)	Swivel drawbar eye		(ISO 5692-3)
Lower link hitch	(ISO 730)	Lower link traverse		(ISO 730)

6.1.2.2 Compare the permissible D_C value with actual D_C value

WARNING

Danger from breaking the coupling devices between the tractor and the implement when the tractor is not used for its intended purpose!

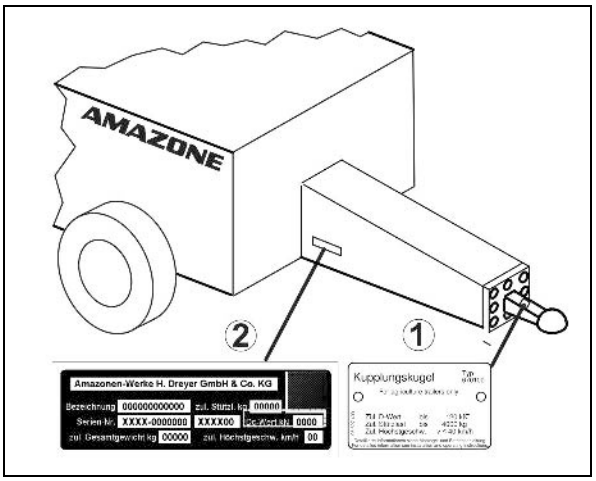
1. Calculate the actual D_C value of your combination, comprising tractor and implement.
2. Compare the actual D_C value with the following permissible D_C values:

- Coupling device of the implement
- Drawbar of the implement
- Coupling device of the tractor

The actual D_C value calculated for the combination must be less than or equal (≤) to the D_C values specified.

The permissible D_C values of the implement can be found on the rating plate of the coupling device (1) and the drawbar (2).

The permissible D_C value of the tractor coupling device can be found directly on the coupling device / in the operating manual of your tractor.



actually calculated D_C value for the combination		**specified D_C value**
kN	≤	Coupling device on the tractor: kN
	≤	Coupling device of the implement: kN
	≤	Drawbar of the implement: kN

Calculate the actual D_C value for the combination to be coupled

The actual D_C value of a combination to be coupled is calculated as follows:

$$D_C = g \times \frac{T \times C}{T + C}$$

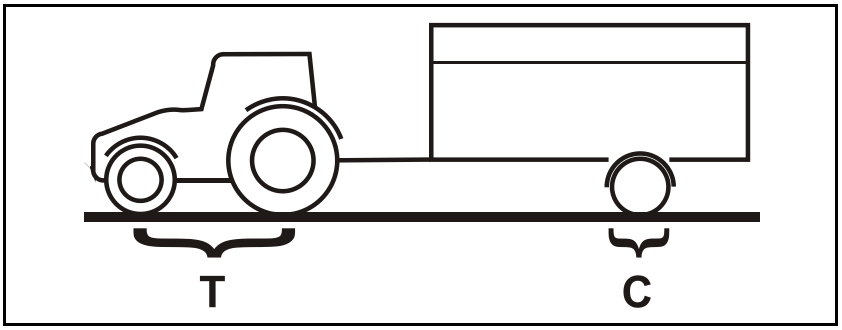


Fig. 2

T: permissible total weight of your tractor in [t] (See tractor operating manual or vehicle documentation)

C: axle load of the implement [t] loaded with the permissible mass without drawbar load (working load).

g: Gravity (9.81 m/s²)

6.2 Securing the tractor / machine against unintentional start-up and rolling

WARNING

Risk of contusions, cutting, catching, drawing in and knocks when making interventions in the machine through

- **unintentional lowering of the machine when it is raised with the tractor's three-point hydraulic system and unsecured.**
- **unintentional lowering of parts of the machine when in a raised position and unsecured.**
- **unintentional start-up and rolling of the tractor-machine combination.**
- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- It is forbidden to make any intervention in the machine, such as installation, adjustment, troubleshooting, cleaning, maintenance and repairs
  - o when the machine is being operated.
  - o as long as the tractor engine is running with the PTO shaft / hydraulic system connected.
  - o if the ignition key is in the tractor and the tractor engine can be started unintentionally with the PTO shaft / hydraulic system connected.
  - o if the tractor and machine have not each been prevented from unintentionally rolling away by applying their parking brakes and/or securing them with wheel chocks
  - o if moving parts are not blocked against unintentional movement.

  When carrying out such work, there is a high risk of contact with unsecured components.

1. Lower the machine and machine parts when raised and unsecured.

→ This prevents unintentional falling:

2. Turn off the tractor engine.
3. Remove the ignition key.
4. Apply the tractor's parking brake.
5. Secure the implement against rolling away unintentional (only if the implement is hitched)
   - o By using the wheel chocks on level terrain or with the parking brake if fitted.
   - o By using wheel chocks and the parking brake on very uneven terrain or on a slope.

7 Coupling and uncoupling the machine

When coupling and uncoupling machines, follow the instructions given in the section "Safety instructions for the operator" page 24.

WARNING

Risk of contusions from unintentional starting and rolling of the tractor and machine when coupling or uncoupling the machine!

Secure the tractor and machine against unintentional start-up and rolling away before entering the danger area between the tractor and machine to couple or uncouple the machine. See page 76.

WARNING

Risk of contusions between the rear of the tractor and the machine when coupling and uncoupling the machine!

Only actuate the operator controls for the tractor's three-point hydraulic system:

- only from the intended workstation.
- only if you are outside of the danger area between the tractor and the machine.

7.1 Coupling the machine

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

You may only connect the machine to tractors suitable for the purpose. See section "Checking tractor suitability", page 68.

WARNING

Risk of contusions when coupling the machine and standing between the tractor and the machine!

Instruct people to leave the danger area between the tractor and the machine before you approach the machine.

Any helpers may only act as guides standing next to the tractor and the machine, and may only move between the vehicles when both are at a standstill.

WARNING

Risk of crushing, drawing in, catching or contusions if the machine unexpectedly comes away from the tractor!

- Use the intended equipment to connect the tractor and the machine in the proper way.
- When coupling the machine to the tractor's three-point hydraulic system, ensure that the attachment categories of the tractor and the machine are the same.

WARNING

Risk of power supply failure between the tractor and the machine through damaged supply lines!

During coupling, check the course of the power lines. The power lines

- must give slightly without tension, bending or rubbing on all movements of the connected machine.
- may not scour other parts.

Couple the implement with draw rail on the lower link of the tractor

DANGER

Danger of injury from coulters breaking and coulter pieces being ejected!

Do not rest the implement on the tines!

Park the folded implement with running gear and jack on a level parking surface with solid ground.

1. Slide ball sleeves onto the lower link pins of the implement and secure them with linch pins.
2. Direct people out of the danger area between the tractor and implement before you approach the implement with the tractor.
3. First couple the supply lines to the tractor before coupling the implement to the tractor.
   - 3.1 Drive the tractor up to the implement in such a manner that a free space (approx. 25 cm) remains between tractor and implement.
   - 3.2 Secure the tractor against unintentional starting and rolling away.
   - 3.3 Couple supply lines to the tractor.
   - 3.4 Position the lower link hooks so that they are aligned with the lower pivot points on the implement.
4. Now drive the tractor in reverse further towards the implement, so that the lower link hooks of the tractor automatically take up the lower pivot points of the implement.

→ The lower link hooks lock automatically.

5. Visually inspect to ensure whether the lower link hooks are correctly locked.
6. Lift stand.
7. Open the stop tap on the drawbar cylinder.
8. Remove wheel chocks.
9. Disengage parking brake.

Couple the implement with ball bracket on the tractor ball head

1. Instruct persons to get out of the danger area between the tractor and the implement.
2. First couple the supply lines before coupling the implement to the tractor.
   - 2.1 Drive tractor up to the implement in such a manner that a free space (approx. 25 cm) remains between tractor and implement.
   - 2.2 Secure the tractor against unintentional starting and rolling away.
   - 2.3 Couple supply lines to the tractor.
3. Drive the tractor in reverse to the implement so that the coupling device can be coupled.
4. Open the stop tap on the drawbar cylinder.
5. Actuate the tractor control unit *yellow*.

→ Lower drawbar.

6. Couple the coupling device.
7. Lift the stand into transport position.
8. Remove wheel chocks
9. Release the parking brake.

7.2 Uncoupling the machine

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and possible tilting of the uncoupled machine!

Park the empty machine on a horizontal space with a hard surface.

When uncoupling the machine, there must always be enough space in front of the machine, so that you can align the tractor with the machine if necessary.

Uncoupling the implement with tensioned crosspiece

1. Safeguard tractor and implement against rolling off unintentionally. See page 76.
2. Lower the jack.
3. Decouple the implement from the tractor.
   - 3.1 Release the lower link.
   - 3.2 Unlock and uncouple the lower link hooks from the tractor seat.
   - 3.3 Move the tractor forward by approx. 25 cm.
   - → This will allow more clearance between tractor and implement and give better access for uncoupling the supply lines.
   - 3.4 Safeguard tractor and implement against rolling off unintentionally.
   - 3.5 Close the stop tap on the drawbar cylinder.
   - 3.6 Switch the *yellow* tractor control unit to float position and depressurise the hydraulic hose lines.
   - 3.7 Uncouple the supply lines.

Uncouple the implement with ball bracket

1. Safeguard tractor and implement against rolling off unintentionally. See page 76.
2. Lower the jack.
3. Decouple the implement from the tractor.
   - 3.1 Uncouple the connection device.
   - 3.2 Actuate the *yellow* tractor control unit.
     → Lift the drawbar.
   - 3.3 Move the tractor forward by approx. 25 cm.
   - → This will allow more clearance between tractor and implement and give better access for uncoupling the supply lines.
   - 3.4 Safeguard the tractor and implement against unintentionally rolling off.
   - 3.5 Close the stop tap on the drawbar cylinder.
   - 3.6 Switch all tractor control units to float position and depressurise the hydraulic hose lines.
   - 3.7 Uncouple the supply lines.

8 Adjustments

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- **unintentional falling of the machine raised using the tractor's three-point hydraulic system.**
- **unintentional falling of raised, unsecured machine parts.**
- **unintentional start-up and rolling of the tractor-machine combination.**

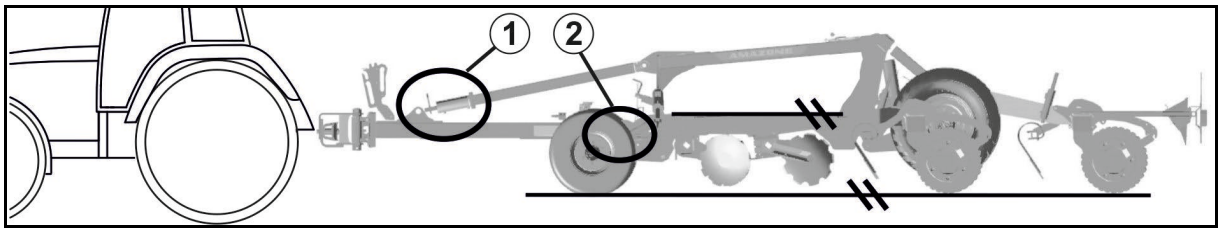
Secure the tractor and the machine against unintentional start-up and rolling before making adjustments to the machine. See Page 76.

8.1 Aligning the implement horizontally

The implement is aligned horizontally by:

(1) Only with ContourFrame: supporting the retracted drawbar cylinder on the spacer elements.

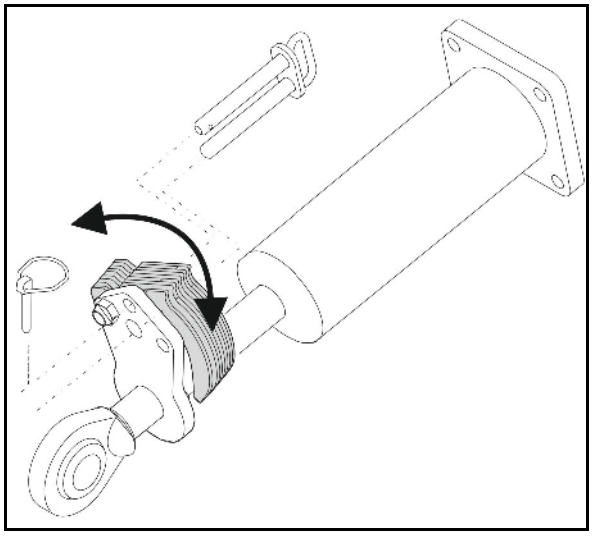
(2) adjusting the spindle on the support wheels.



- The implement only needs to be aligned horizontally when changing tractors.
- For road transport, swivel in all of the spacer elements on the drawbar cylinder.

Aligning the main frame using the drawbar cylinder

Attaching / removing the spacer elements on the drawbar cylinder.



1. Actuate *yellow* tractor control unit.

→ Completely lift out the implement.

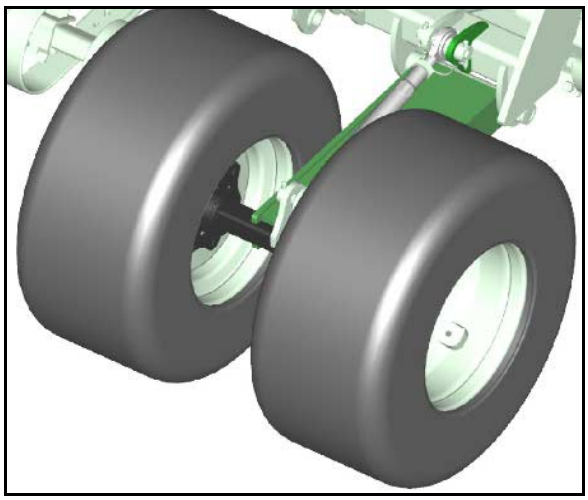
2. Secure the tractor against unintentional starting and unintentional rolling away.
3. Pull out the bolt.
4. Swivel in the required number of spacer elements on the drawbar cylinder.

When swivelling in the spacer elements, the recesses must completely enclose the piston rod.

5. Remount the pin and secure it with the linch pin.

Aligning the sections using the support wheels

The sections are aligned horizontally by adjusting the spindle length on the support wheel.



Adjust the same spindle length on both support wheels.

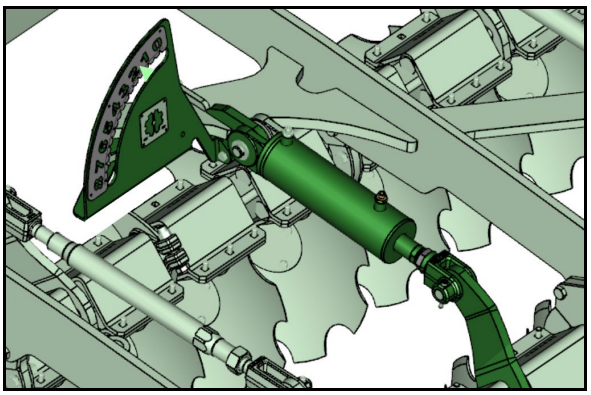
1. Loosen the lock nut.
2. Use the hexagonal spanner to lengthen or shorten the spindle..
3. Re-tighten the lock nut.

8.2 Working depth of the discs

If the front and rear disc gangs work at different depths, adjust a uniform working depth using the spindles.

Hydraulic working depth adjustment

The working depth is hydraulically adjusted using the *green* tractor control unit.



The values of the scale only indicate the approximate working depth.

If a uniform working depth cannot be adjusted, see page **98**.

8.2.1 Manual working depth adjustment

WARNING

Risk of falling off the implement.

Do not climb onto the implement parts.

Set the working depth evenly using 2 spindles in the centre and 2 spindles in the outer area of the implement.

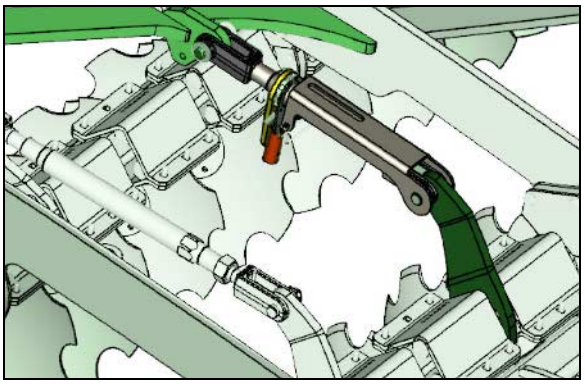
Set working depth, see on page 85

1. Lift implement into headlands position..

→ Lower the front part of the implement for better accessibility.

2. Secure the tractor against unintentional starting and unintentional rolling away.
3. Shorten spindle → Increases the working depth.

   Lengthen spindle → Reduces the working depth.

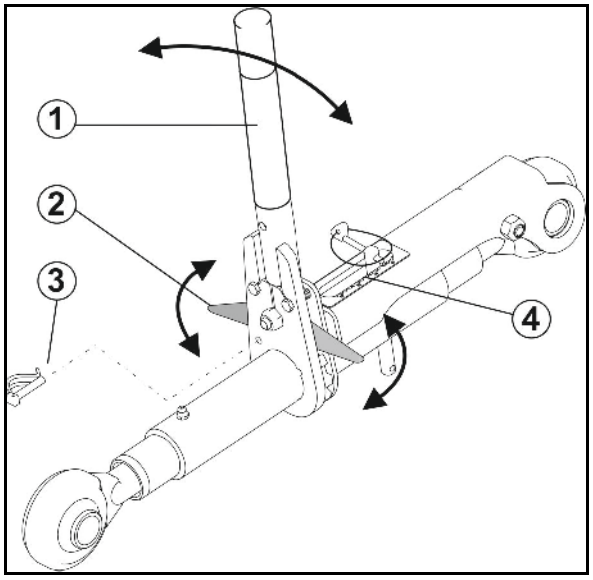


Adjust the spindles to the same length.

Adjusting the spindle using the ratchet

1. Remove the linch pin (3).
2. Engage the turning lever (2) in the required direction.
3. Use the hand lever (1) to lengthen or shorten the spindle.
4. Secure the adjustment using the linch pin (3).
5. Rest the hand lever in parking position on the frame and secure with a linch pin.

The scale (4) serves for orientation during adjustment.



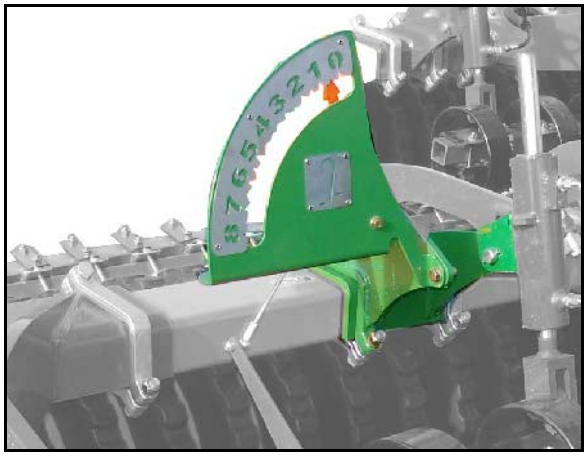
8.3 Intensity of the crushboard

Hydraulic adjustment

The intensity of the crushboard is hydraulically adjusted using the *beige* tractor control unit.

The display shows the set intensity.

A high displayed value indicates high intensity.



If a uniform intensity cannot be adjusted, see page 98.

- Set both adjustment units to the same values.
- The values on the scale do not specify the working depth set in mm.

8.4 Adjusting the preload pressure of the cutting roller

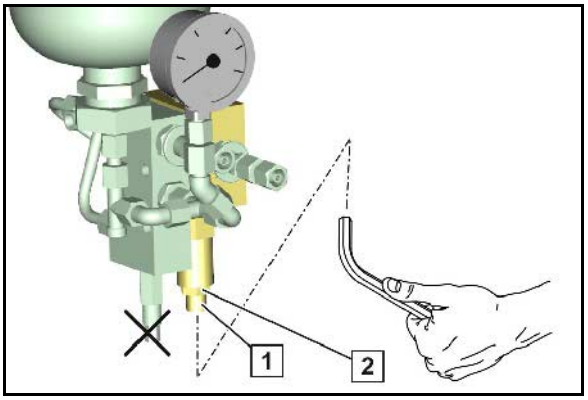
1. Actuate the *beige* tractor control unit and lock it.

→ Lower the cutting roller and build up preload tension.

2. Loosen the lock nut (2).
3. Adjust the preload pressure using the hexagon socket head screw (1).

→ Observe the pressure gauge.

4. Re-tighten the lock nut.



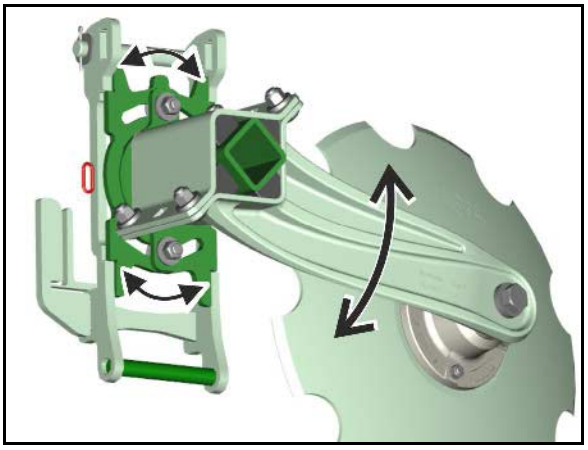
- Factory setting: 25 bar
- Setting range: 25 – 35 bar

Maximum preload pressure: 60 bar
Higher preload pressure can result in damage.

8.5 Working depth of the border elements

The raised side elements must be adjusted via 2 bolts in elongated slots.

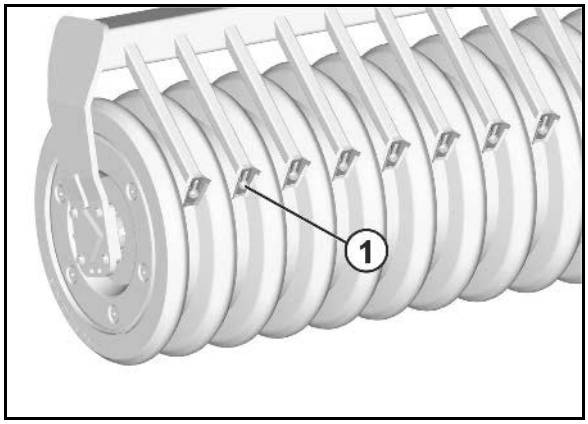
1. Secure the tractor against unintentional starting and unintentional rolling away.
2. Slightly loosen the bolts.
3. Raise or lower the side elements.
4. Retighten the screw unions.



8.6 Adjusting the scraper of the rollers

The scraper is set at the factory. To adjust the setting to the working conditions:

1. Secure the tractor and the machine against unintentional start-up and rolling
2. Release bolt under the scraper.
3. Adjust the scraper in the slot.
4. Tighten the bolt again.



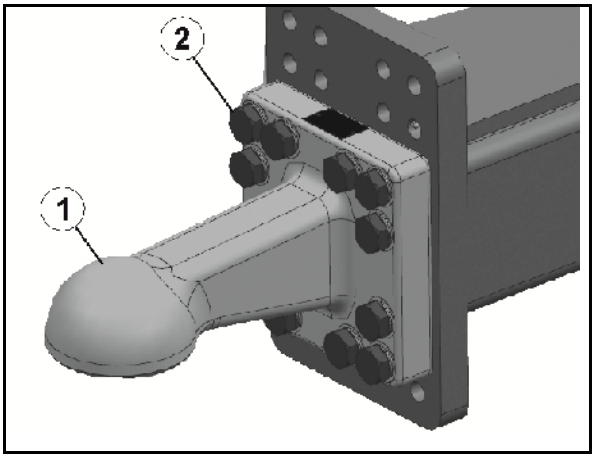
Wedge ring roller:

Do not adjust the distance between scraper and spacer ring to less than 10 mm to avoid excessive wear.

8.7 Height of towing eye

With the machine removed, the height of the towing eye (1) can be adjusted to the tractor.

Release the screws (2) and screw on the towing eye at the required height.



9 Transportation

WARNING

Do not exceed the maximum permissible speed. The permissible speed depends on the actual axle load of the implement, see Technical Data, page 37.

- During transportation, follow the instructions given in the section "Safety instructions for the operator", page 26.
- Before moving off, check:
  - that the supply lines are connected correctly.
  - the lighting system for damage, proper operation and cleanness,
  - the hydraulic systems visually for obvious defects
  - the bearing frame parts for damage.

WARNING

Risk of being crushed, cut, caught, drawn in or struck if the machine is unintentionally released from its attached or hitched position.

Before transportation, carry out a visual check that the upper and lower link pins are secured with a lynch pin against unintentional release.

WARNING

Risk of contusions, cutting, catching, drawing in and knocks when making interventions in the machine through unintentional machine movements.

- On folding machines, check that the transport locks are locked correctly.
- Secure the machine against unintentional movements before starting transportation.

WARNING

Risk of contusions, cuts, dragging, catching or knocks from tipping and insufficient stability.

- Drive in such a way that you always have full control over the tractor with the attached machine.

  In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.
- Before transportation, fasten the side locking of the tractor lower link, so that the connected or coupled machine cannot swing back and forth.

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

These risks pose serious injuries or death.

Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor. If necessary, drive only with a partially-filled hopper.

WARNING

Risk of falling from the machine if riding against regulations!

It is forbidden to ride on the machine and/or climb the running machine.

Rear harrow (optional)

WARNING

Risk of injury due to unprotected pointed ends of the harrow

Before folding the implement, install the road safety bar.

10 Use of the machine

When using the machine, observe the information in the sections

- "Warning signs and other labels on the machine", from page 17 and
- "Safety instructions for operators", from page 24

Observing this information is important for your safety.

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor.

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and tipping of the tractor and/or the connected machine.

Drive in such a way that you always have full control over the tractor with the attached machine.

In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the driver and the connected machine.

WARNING

Risk of being crushed, cut, caught, drawn in or struck if the machine is unintentionally released from its attached or hitched position. Each time before the machine is used, carry out a visual check whether the lower link pins are secured with linch pins to prevent them from falling out.

WARNING

Risk of falling from the machine if riding against regulations!

It is forbidden to ride on the machine and/or climb the running machine.

CAUTION

Use of tractors with centre-pivot steering or caterpillar tractor for towing the implement:

- Set the connection device to swing freely during operation.

→ Otherwise, side impacts can cause damage to the implement.

- Fix the connection device during transport.

10.1 Transport and operational position

WARNING

Instruct people to leave the swivel area of the machine wing before you fold the machine wing out or in.

WARNING

Damage to the centre disc gangs!

Do not put the folded implement down on the centre disc gangs!

The execution of some hydraulic functions can take a little longer. Make sure that the hydraulic cylinders are able to move in and out to the limit of their stop positions.

ContourFrame During operation, the sections are pressed onto the ground by the pre-load pressure.

10.1.1 Changeover from transport position to working position

1. Activate the *yellow* tractor control unit.

→ Completely lift out the implement.

2. Additionally lift the implement with rigid drawbar via the tractor lower links.
3. X-Cutter disk: Activate the green tractor control unit.

→ Set the working width to a moderate value, to avoid collision when folding.

4. Activate the *blue* tractor control unit.

→ Unfold the implement.

ContourFrame: After unfolding, activate the tractor control unit until the pressure gauges of the pressure preload show 100 bar.

If the section locking mechanism blocks the unfolding:

Briefly activate the *blue* tractor control unit.

→ Fold the implement, and then unfold it.

5. ContourFrame: Switch the *blue* tractor control unit to float position.
6. Bring the side elements into working position.

7.Bring the edge harrow into working position.

8. No ContourFrame: Pivot all spacer elements away from the drawbar cylinder and secure them.

   ContourFrame: Pivot the required number of spacer elements away from the drawbar cylinder and secure them.

→ In working position the implement must be aligned horizontally.

9. Activate the *yellow* tractor control unit.

→ Lower the implement into working position.

→ Completely lift the running gear.

10. For implements with rigid drawbar, bring the tractor lower links into float position.
11. In use:
    - o Put the *yellow* tractor control unit in float position.
    - o ContourFrame: *Blue* tractor control unit in float position.
12. X-Cutter disk: Activate the green tractor control unit.

→ Adjust the working depth.

10.1.2 Changeover from transport position to working position

1. Activate the *yellow* tractor control unit.

→ Completely lift out the implement.

2. Additionally lift the implement with rigid drawbar via the tractor lower links.
3. X-Cutter disk: Activate the green tractor control unit.

→ Set the working width to a moderate value to avoid collision when folding.

4. Implements with mechanical depth adjustment: Set the most shallow working depth.
5. Reduce the spindle length of the support wheels to 550 mm.

This is the only way to comply with the permissible transport width.

6. Bring edge elements into transport position.
7. Bring the edge harrow into working position.
8. Pivot-in and secure all spacer elements on the drawbar cylinder.
9. Rear harrow (option): Before folding the implement, mount the road safety bar.
10. Lift and secure cutter roller.
11. Activate the *blue* tractor control unit.

→ Fold the implement.

12. Prevent the *blue* tractor control unit from being actuated unintentionally.
13. X-Cutter disk: Activate the green tractor control unit.

→ Set the working depth to the most shallow value.

This is the only way to comply with the permissible transport width.

14. Activate the *yellow* tractor control unit.

→ Lower the implement so that the transport height does not exceed 4 m.

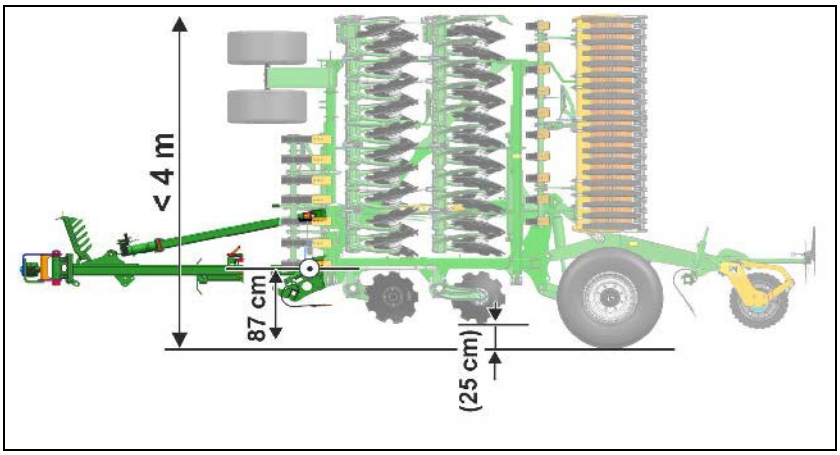
15. For an implement with rigid drawbar, additionally lower via the tractor lower links.

The values specified for the ground clearance and for the height of the drawbar pivot point define the transport position.

When the values are observed, the maximum permitted transport height of 4 m is maintained.

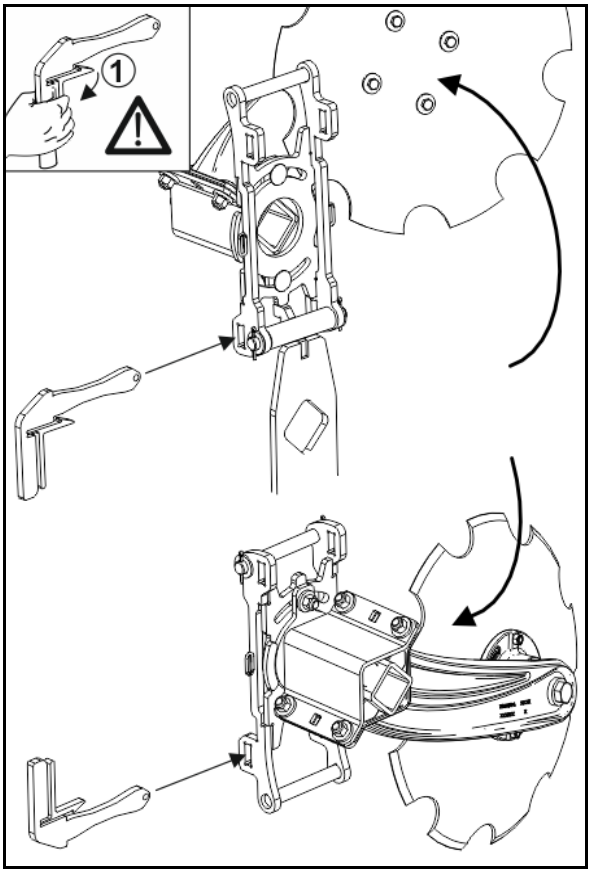
Catros / Catros+ 7003 XL -2TX

Catros / Catros+ 8003 XL -2TX



10.1.3 Putting the side elements into transport position/working position

- During operation, the border elements are positioned parallel to the disc gang.
- In transport position, the side elements are swivelled to be able to maintain the maximum authorised transport height of 4 m.



1. Unlock the safety catch (1) and pull on the locking device.
2. Use the handle to fold the side elements into transport position / unfold into working position.
3. Insert the locking device until the safety catch is locked.

WARNING

Crushing hazard for hands.

Be particularly careful when folding the border elements.

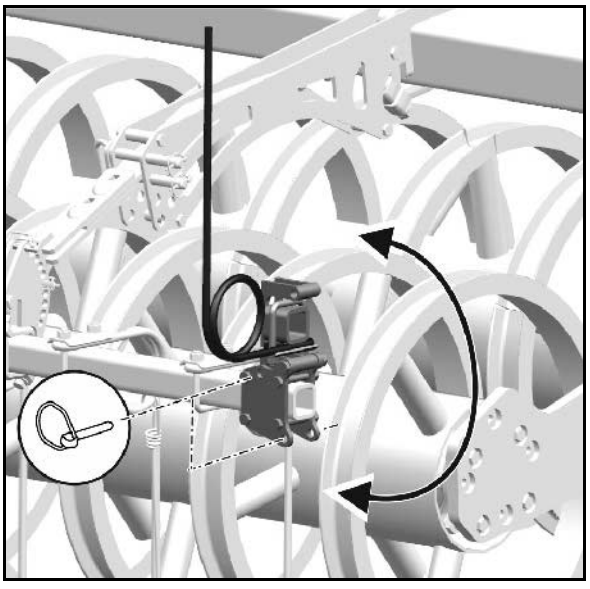
10.1.4 Moving the edge harrow into transport position / working position

1. Remove the linch pin.
2. Swivel up the edge harrow into transport position on the left and right,

or

swivel down into working position.

3. Secure the edge harrow position with a linch pin.



10.1.5 Lifting and securing the cutting roller

1. Actuate the *beige* tractor control unit.

→ Lift the cutting roller.

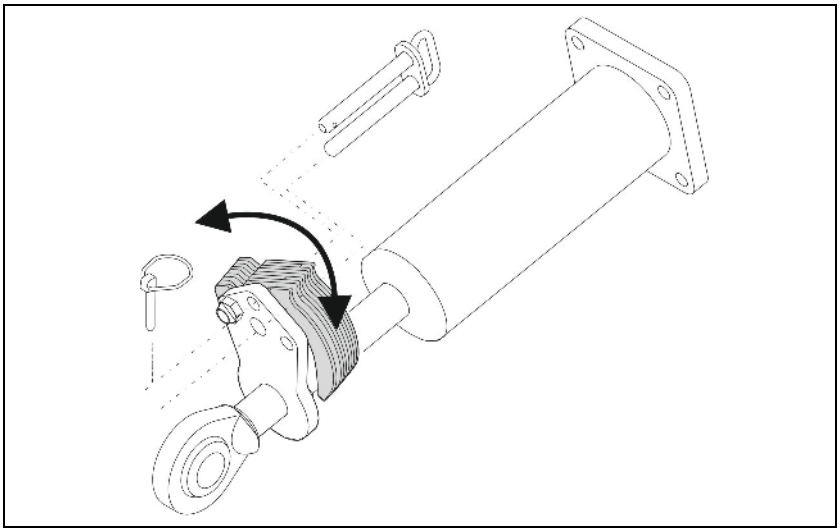
2. Close the stop tap of the preload device.

10.1.6 Transport and operating position of the drawbar cylinder

- Spacer elements for securing the transport position swivelled in.
- Spacer element swivelled out in operating horizontal position to align the implement behind the tractor.

When swivelling in the spacer elements, the recesses must completely enclose the piston rod.

Attaching / removing the spacer elements on the drawbar cylinder.



1. Actuate *yellow* tractor control unit.

→ Completely lift out the implement.

2. Pull out the bolt.
3. Transport position: swivel in the spacer elements on the drawbar cylinder.

or

Operating position: swivel the spacer elements away from the drawbar cylinder.

→ Always attach / remove all of the spacer elements.

4. Remount the pin and secure it with the linch pin.

10.2 Use on the field

Implement with tensioned crosspiece:

Work with the tractor lower links locked to the sides.

- It is forbidden to drive in reverse when the implement is in working position!
- Put the *yellow* tractor control unit into float position.

ContourFrame

- Put the *blue* tractor control unit into float position.

→ The pre-load pressure acts on the sections

- The drawbar cylinder is resting on the spacer elements.

The sections pressure can drop on long fields.

→ Actuate the *yellow* tractor control unit to raise the sections pressure back up to the set value.

No ContourFrame

- The drawbar cylinder must be able to move freely; it must not rest on a surface in the end position.
- **For implements with rigid drawbar, place the tractor lower links in float position.**

10.2.1 Using the cutting roller

1. Align the implement horizontally.

If the implement is working too deep at the front, the cutting roller can be damaged.

2. Open the stop tap of the preload device.
3. Actuate the *beige* tractor control unit.

→ Lower the cutting roller and build up preload tension.

4. Switch the *beige* tractor control unit to the float position.

10.3 Driving on the headlands

Prior to turning on headlands:

- Activate the *yellow* tractor control unit.
- For an implement with rigid drawbar, additionally lift via the tractor lower links.

→ Lift out the implement.

After turning:

- Activate the *yellow* tractor control unit.
- For an implement with rigid drawbar, additionally lower via the tractor lower links and place tractor lower links in float position.

→ Completely lower the implement.

- Switch *yellow* tractor control unit to float position.

→ Work now continues.

Use at the headland only when the direction of the implement corresponds to the direction of working.

11 Faults

11.1 Different working depths across the working width?

→ Synchronise the hydraulic cylinders!

For a uniform working depth across the entire implement width, the corresponding hydraulic cylinders must have the same length.

If this is not the case, the hydraulic cylinders can be synchronised:

1. Keep actuating the *green* tractor control unit until the hydraulic cylinders are completely extended.
2. Continue actuating the control unit for another 10 s.

→ An overflow process is initiated that flushes all of the cylinders. This adjusts the cylinders to the same length.

This procedure should also be performed before operation after a longer period of standstill.

12 Cleaning, maintenance and repairs

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- **unintentional falling of the machine raised using the tractor's three-point hydraulic system.**
- **unintentional falling of raised, unsecured machine parts.**
- **unintentional start-up and rolling of the tractor-machine combination.**

Secure the tractor and machine against unintentional starting and unintentional rolling away before you perform any cleaning, servicing or maintenance work on the machine. See page 76.

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through unprotected danger points!

- Mount protective equipment, which you removed when cleaning, maintaining and repairing the machine.
- Replace defective protective equipment with new equipment.

WARNING

Risk of tipping!

Do not carry out repair work when the machine is folded in or partially folded in if the machine has been parked slanting.

12.1 Cleaning

- Pay particular attention to the brake, air and hydraulic hose lines.
- Never treat brake, air and hydraulic hose lines with petrol, benzene, petroleum or mineral oils.
- After cleaning, grease the machine, in particular after cleaning with a high pressure cleaner / steam jet or liposoluble agents.
- Observe the statutory requirement for the handling and removal of cleaning agents.

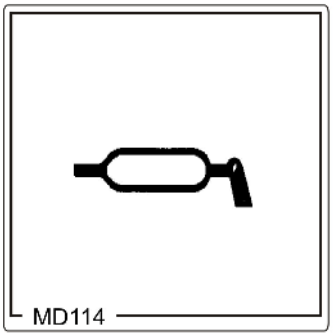
Cleaning with a high pressure cleaner / steam jet

- Always observe the following points when using a high pressure cleaner / steam jet for cleaning:
  - Do not clean any electrical components.
  - Do not clean any chromed components.
  - Never aim the cleaning jet from the nozzle of the high pressure cleaner / steam jet directly on lubrication and bearing points.
  - Always maintain a minimum jet distance of 300 mm between the high pressure cleaning or steam jet cleaning nozzle and the machine.
  - Comply with safety regulations when working with high pressure cleaners.

12.2 Lubrication regulations

Lubrication points on the machine are indicated with the foil.

Carefully clean the lubrication nipple and grease gun before lubrication so that no dirt is pressed into the bearings. Press the dirty grease out of the bearings completely and replace it with new grease.



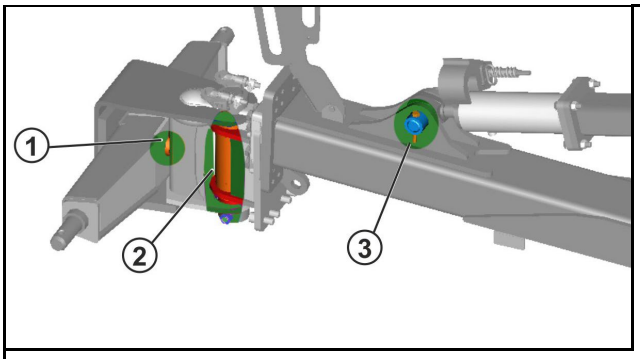
Lubricants

For lubrication work, use a lithium saponified multipurpose grease with EP additives:

Company	Lubricant name
ARAL	Aralub HL2
FINA	Marson L2
ESSO	Beacon 2
SHELL	Retinax A

Lubrication schedule

	Name	Number	Lubrication interval [h]
1	Tensioned crosspiece	1	50
2		2	50
3	Drawbar	1	50
4	Boom	1	50
5		2	50
6	Running gear wheel / support wheel bearing	4	50
7	Running gear	2	50
8		2	50
9		2	50
10	Rear unit	2	50
11		2	50
12	Axle	6	200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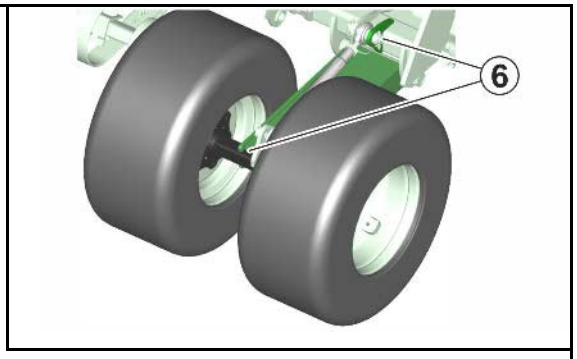
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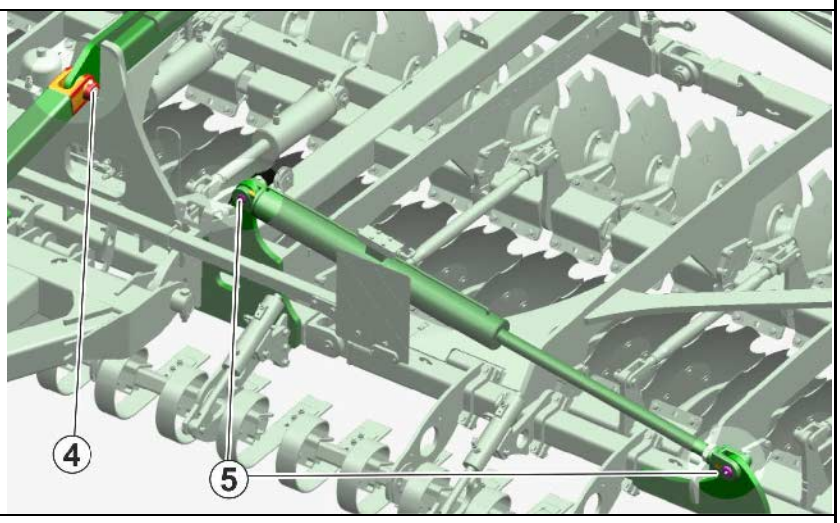
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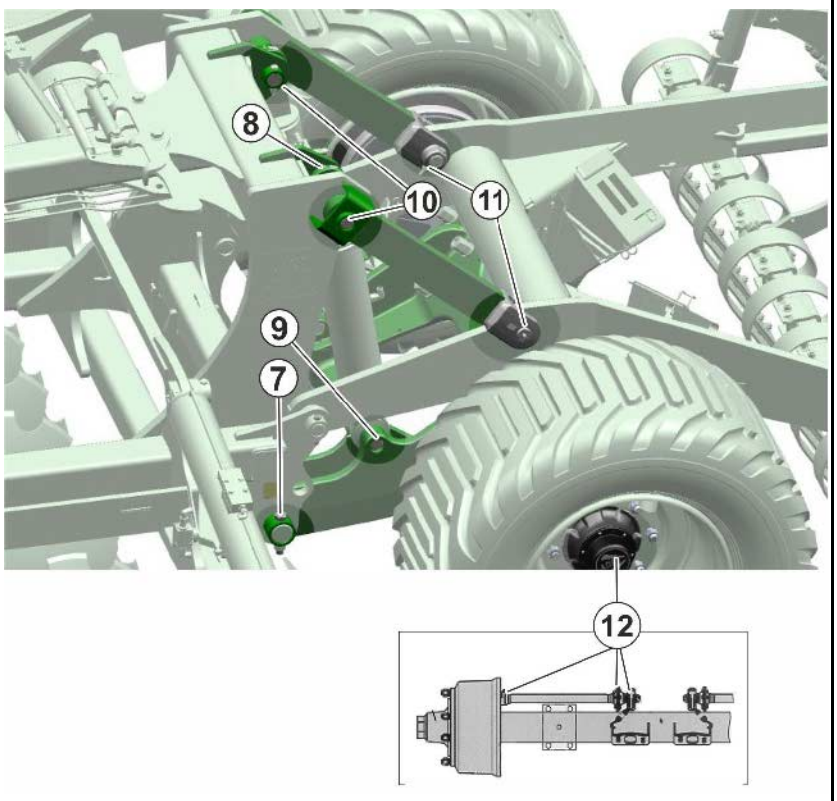
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12.3 Service plan – overview

- Carry out maintenance work when the first interval is reached.
- The times, continuous services or maintenance intervals of any third party documentation shall have priority.

After the first working run

Component	Servicing work	see page	Workshop work
Wheels	• Wheel nut check	114	
Hydraulic system	• Inspection for defects • Inspect for leaks	**119**	**X**
Axle	• Check the axle bolts	106	

On a daily basis

Component	Maintenance work	see page	Specialist workshop
Whole implement	• Visual inspection before operation		
Brake system	• Drain	**111**	

Weekly/every 50 working hours

Component	Servicing work	see page	Workshop work
Hydraulic system	• Inspection for defects	**119**	**X**
Wheels	• Chec k the air pressure • Wheel nut check	114	
Brake system	• Perform visual inspection	94	
Coupling device	• Check for damage, deformation and cracks	113	

Every 2 months

Component	Servicing work	See page	Workshop work
Central lubrication	• Check the central lubrication	117	**X**

Every three months / 200 operating hours

Component	Servicing work	see page	Workshop work
Dual-circuit service brake system	• Visual inspection of brake cylinder	**111**	**X**
	• Clean line filter	110	
Brake system	• Brake pad check	108	
	• Adjustment of the slack adjuster	97	
Axle	• Check the axle bolts	106	
Roller	• Check the roller	112	
Coupling device	• Check the fastening bolts for wear and tight fit	113	

Every 6 months / 500 operating hours

Component	Servicing work	See page	Workshop work
Axle (running gear / support wheel)	• Retighten the bolts on the hub cap	--	**X**
	• Check / adjust the play on the hub bearing	**107**	**X**

Every year / 1000 operating hours

Component	Servicing work	See page	Workshop work
Brake system	• Check the brake drum for dirt	**107**	**X**
	Automatic slack adjuster • Functional check • Settings	**108**	**X**
Wheel hub bearing	• Change the grease • Check the taper roller bearing for wear		**X**

Every 2 years

Component	Servicing work	See page	Workshop work
Axle (running gear / support wheel)	• Checking the hub bearing	**93**	**X**

As required

Component	Servicing work	see page	Workshop work
Scraper	• Adjust	**87**	
Upper/lower link pin	• Replace	**108**	
Disc	• Check wear	**101**	
Disc gangs	• Align the disc gangs relative to each other	**116**	**X**
Cutting roller	• Replace	116	

12.4 Axle (running gear / support wheel) and brake

For optimum brake performance with a minimum of wear, we recommend that the brakes on the tractor are balanced with those on the machine. After the service braking system has been run in for a suitable period, arrange for the brakes to be balanced by a specialist workshop.

To avoid problems with the brakes, adjust all vehicles in accordance with EC Guideline 71/320 EEC.

WARNING

- **Repair and adjustment work on the service braking system should only be carried out by trained specialist personnel.**
- **Special care is required for welding, torch cutting and drilling work in the vicinity of brake lines.**
- **Always carry out a braking test after any adjusting or repair work on the braking system**

General visual inspection

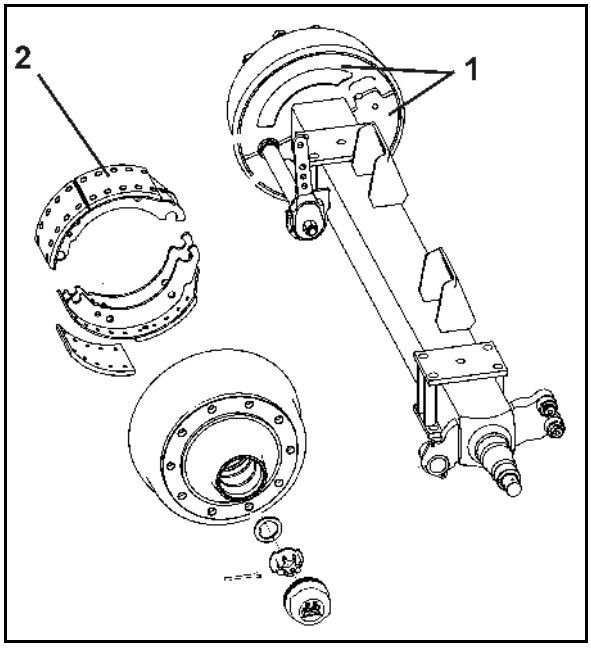
WARNING

Carry out a general visual inspection of the brake system. Observe and check the following criteria:

- **Pipe lines, hose lines and coupler heads must not be externally damaged or corroded.**
- **Hinges, e.g. on fork heads, must be properly secured, easy to move, and not worn out.**
- **Ropes and cables**
  - **must be properly run.**
  - **may not have any visible cracks.**
  - **may not be knotted.**
- **Check the piston stroke on the brake cylinders, and adjust as necessary.**
- **The air reservoir must not**
  - **move around in the tensioning belts.**
  - **be damaged.**
  - **show any outward signs of corrosion damage.**

Checking the brake drum for dirt

1. Unscrew the two cover plates (1) on the inside of the brake drum.
2. Remove any dirt and plant debris which may have entered the drum.
3. Refit the cover plates.



CAUTION

Dirt entering the drums may be deposited on the brake pads (2) and thus die appreciably reduce brake performance.

Risk of accident.

If dirt is discovered in the brake drum, the brake pads must be inspected by a specialist workshop.

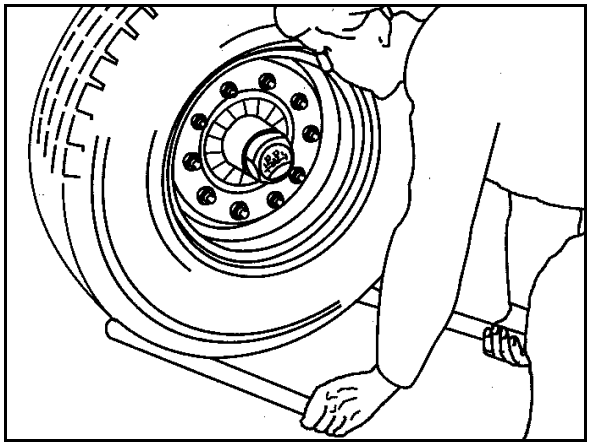
For this to happen, the wheel and brake drum must be removed.

Checking the play on wheel hub bearings

(1) To check the play on wheel hub bearings, raise the axle until the

(2) wheels turn freely.

(3) Place a lever between the tyre and the ground and check the play.



If bearing play can be detected:

Adjust the bearing play

(1) Remove the dust cup or hub cap.

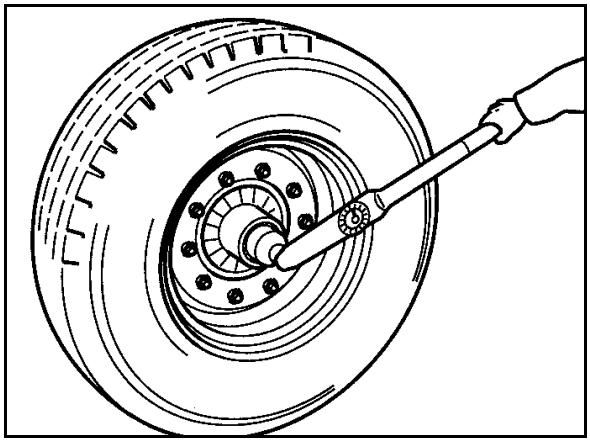
(2) Remove the split pin from the axle nut.

(3) Tighten the wheel nut while turning the wheel at the same time until the wheel hub is lightly braked as it turns.

(4) Turn axle nut back to the next available split pin hole. To the next matching hole (max. 30°).

(5) Fit split pin and bend slightly open.

(6) Top up the dust cap with high melting point grease and drive it into, or screw it onto the wheel hub.



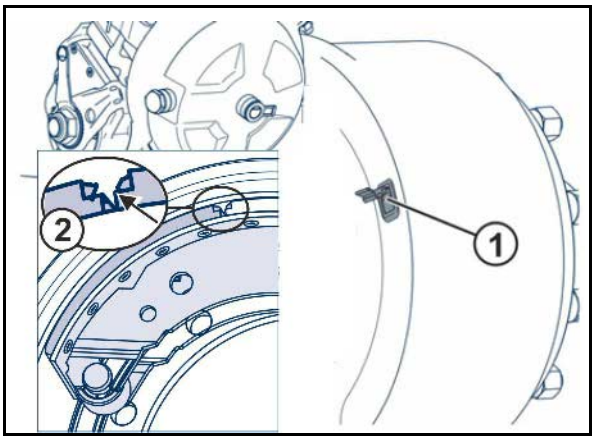
Brake pad check

To check the brake pad thickness, open the inspection hole (1) by opening the rubber tab.

Changing the brake pads → Workshop work

Criterion for changing the brake pads:

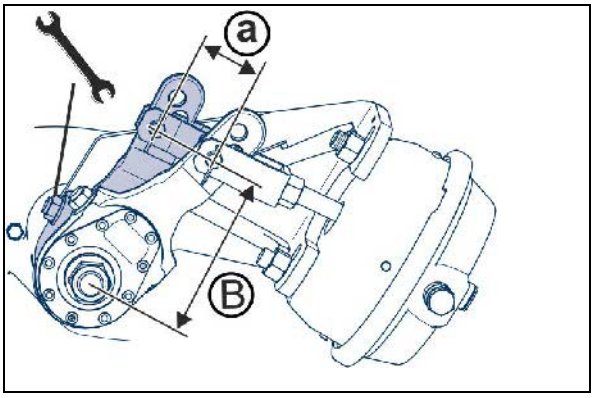
- Minimum pad thickness of 5 mm was reached.
- Wear edge (2) was reached.



Adjustment on the slack adjuster (workshop work)

Manually actuate the slack adjuster in the push direction. If the free travel of the long-stroke diaphragm cylinder pressure rod is max. 35 mm, the wheel brake must be readjusted.

The setting is carried out on the hexagonal adjusting screw of the slack adjuster. Set the free travel "a" to 10-12 % of the connected brake lever length "B",
e.g. lever length 150 mm = free travel 15 - 18 mm.

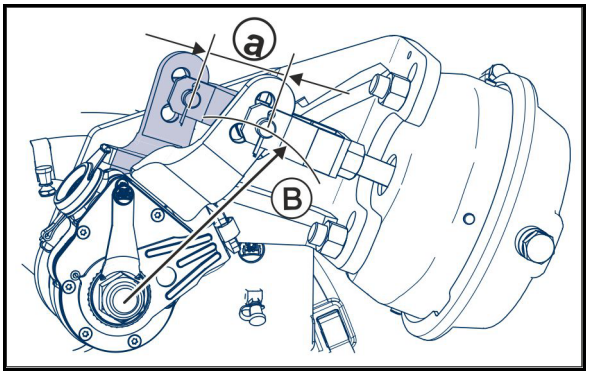


Checking the function of the automatic slack adjuster

1. Secure the machine against rolling away and release the service brake and parking brake.
2. Manually actuate the slack adjuster.

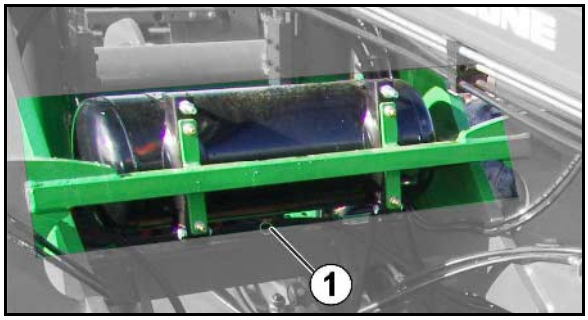
The free travel (a) may not exceed 10- 15% of the connected brake lever length (B) (e.g. brake lever length 150 mm = free travel 15 – 22 mm).

Readjust the slack adjuster if the free travel is outside of the tolerance. → Workshop work



Draining the air reservoir

1. Run the tractor engine (approx. 3 mins.) until the compressed air tank has filled.
2. Switch off the tractor engine, apply the handbrake and remove the ignition key.
3. Pull the drainage valve (1) in a sideways direction by the ring until no more water escapes from the compressed air tank.
4. If the escaping water is dirty, let off air, unscrew the drainage valve from the compressed air tank and clean the compressed air tank.



The compressed air tank must not

- move around in the tensioning belts
- be damaged
- show any outward signs of corrosion damage

The rating plate must not

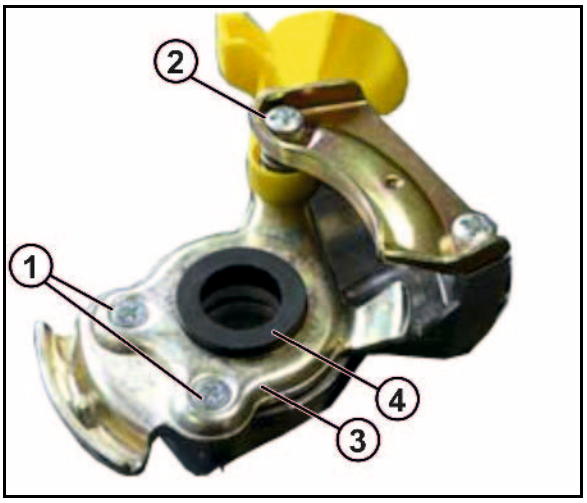
- show signs of corrosion
- be loose
- be missing

Replace the compressed air tank (workshop), if one of the above-stated points applies!

Cleaning the line filter

Perform work in an unpressurized state. Secure the implement against rolling away.

1. Remove the bolt locking compound by hammering and remove the bolts (1).
2. Unscrew the bolts (2) by a few turns.
3. Lift the plate (3) over the rubber seal (4) and turn to the side.

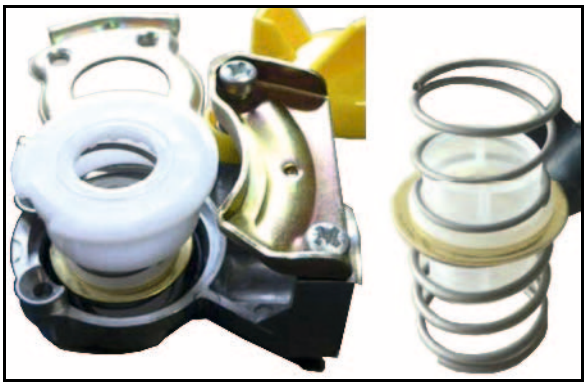


The unit is under spring tension.

4. Remove the rubber seal.

5. Clean and grease the sealing surfaces, O-ring and filter.

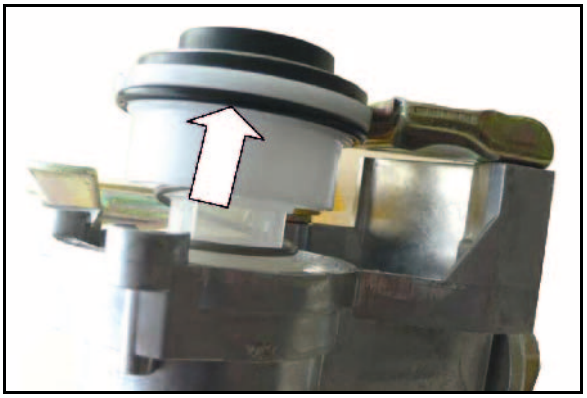
→ Replace the rubber seal if necessary.



Correctly position the O-ring on the plastic ring.

6. Reassemble in the reverse sequence.

- Bolt tightening torque (1): 2.5 Nm
- Bolt tightening torque (2): 7 Nm



12.4.1 Inspection instructions for the dual-circuit service brake system

1. Leak tightness check

1. Check all connections, pipe lines, hose lines and screw connections for leak tightness.
2. Remedy leakages.
3. Repair any areas of chafing on pipes and hoses.
4. Replace porous and defective hoses.
5. The dual-circuit service brake system may be considered leakproof if the drop in pressure is no more than 0.15 bar after 10 minutes.
6. Seal any leaking areas or replace leaking valves.

2. Check pressure in the air reservoir

1. Connect a pressure gauge to the test connection on the air reservoir.

   Set value 6.0 to 8.1 $^{+\ 0.2}$ bar

3. Check brake cylinder pressure

1. Connect a pressure gauge to the test connection on the brake cylinder.

   Set value: with brake not applied 0.0 bar

4. Visual inspection of brake cylinder

1. Check the dust collars or bellows for damage.
2. Replace damaged parts.

5. Joints on brake valves, brake cylinders and brake linkages

Joints on brake valves, brake cylinders and brake linkages must move freely. Grease or lightly oil, if necessary.

12.4.2 Hydraulic brakes

Check of the hydraulic brake

- Check all brake hoses for wear
- check all screw unions for seal tightness
- renew any worn or damaged parts.

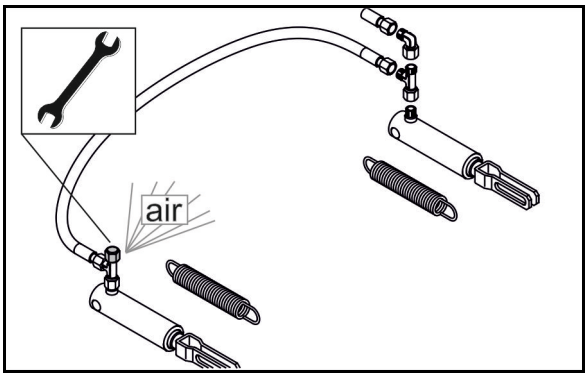
Venting the brake system (workshop work)

After each brake repair, for which the system has been opened, bleed the brake system, because air may have entered the pressure hoses.

1. Slightly loosen the vent valve.
2. Actuate the tractor brake.
3. Close the vent valve as soon as oil escapes.

→ Collect the escaping oil.

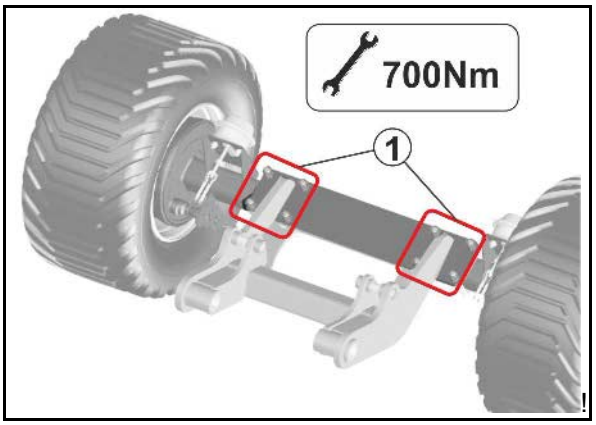
4. Perform a brake check.



12.5 Axle bolts

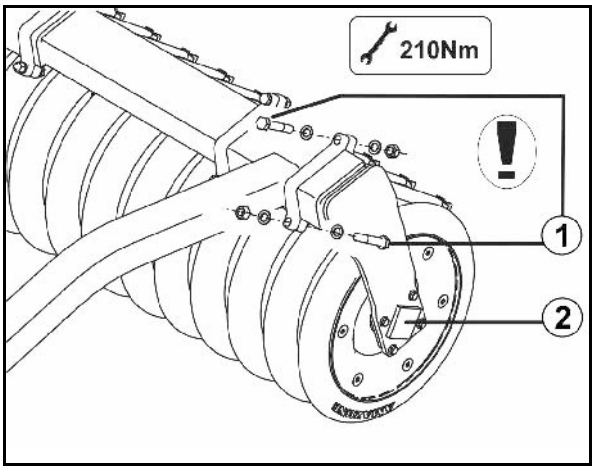
(1) Axle bolts with clamping plates

Check the bolts for tightness.



12.6 Checking the roller

- Check the alignment of the bolts (1).
- Check the bolts (1) for tightness.
- Check the roller bearing (2) for ease of movement.



12.7 Check the coupling device

DANGER!

- **Replace a damaged drawbar with a new one immediately - for road traffic safety reasons.**
- **Repairs may only be carried out by the manufacturer factory.**
- **For safety reasons, it is forbidden to weld on and drill holes in the drawbar.**

Check the coupling device (drawbar, lower link traverse, ball coupling, drawbar eye) for the following:

- damage, deformation, cracks
- wear
- tight fit of the fastening bolts

Coupling device	Wear dimension	Fixing bolts	Number	Tightening torque
Lower link traverse	Cat. 3: 34.5 mm Cat. 4: 48.0 mm Cat. 5: 56.0 mm	M20 8.8	8	410 Nm
Ball coupling				
K80 (LI009)	82 mm	M16 10.9	8	300 Nm
K80 (LI040)	82 mm	M20 10.9	8	560 Nm
K80 (LI015)	82 mm	M20 10.9	12	560 Nm
Drawbar eye				
D35 (LI038)	42 mm	M16 12.9	6	340 Nm
D40 (LI017)	41.5 mm	M16 10.9	6	300 Nm
D40 (LI006)	42.5 mm	M20 8.8	8	395 Nm
D46(LI034)	48 mm	M20 10.9	12	550 Nm
D50 (LI037)	60 mm	M16 12.9	4	340 Nm
D50 (LI010)	51.5 mm	M16 10.9	8	300 Nm
D50 (LI059)	51,5 mm	M20 10.9	4	560 Nm
D50 (LI011)	51,5 mm	M20 8.8	8	410 Nm
D50 LI060)	52,5 mm	M20 10.9	8	560 Nm
D51 (LI039)	53 mm	M20 10.9	12	600 Nm
D51 (LI069)	53 mm	M16 10.9	6	290 Nm
D58 (LI031)	60 mm	M20 10.9	12	550 Nm
D62 (LI007)	63.5 mm	M20 10.9	8	590 Nm
D79 (LI021)	81 mm	M20 10.9	12	550 Nm

12.8 Tyres / wheels

- Check chassis wheels regularly for damage and firm seating on the wheel rim.

Running gear tyres / Support wheels:	Required tightening torque for wheel nuts or bolts
M18 x 1,5	**270 Nm (-0/+20)**
M20 x 1,5	**350 Nm (- 0/+30)**
M22 x 1,5	**450 Nm (-0/+60)**

- Regularly check
  - o that wheel nuts are firmly seated.
  - o tyre pressures.
- Only use the tyres and wheels which we have specified.
- Repair work on tyres must only be carried out by specialists using suitable assembly tools.
- Tyre fitting requires sufficient skills and proper assembly tools.
- Use the jack only at the jacking points indicated.

12.8.1 Tyreinflation pressure

Inflate the tyres with the indicated nominal pressure.

- The value for the nominal pressure can be read on the rim.
- The value for the nominal pressure can be obtained from the tyre manufacturer.

- Check tyre pressures regularly when the tyres are cold, i.e. before starting a run.
- The difference in pressure between the tyres on one axle must be no greater than 0.1 bar.
- Tyre pressure can be raised by up to 1 bar after a fast run or in warm weather. Tyre pressure should on no account be reduced as it is then too low when the tyres cool down.

12.8.2 Mounting tyres (workshop work)

- Remove any outbreaks of corrosion from the wheel rim seating surfaces before fitting a new/another tyre. Corrosion can cause damage to the wheel rims when the vehicle is in operation.
- When fitting new tyres, always use new valves for tubeless tyres or new inner tubes.
- Always fit the valves with valve caps which have a gasket insert.

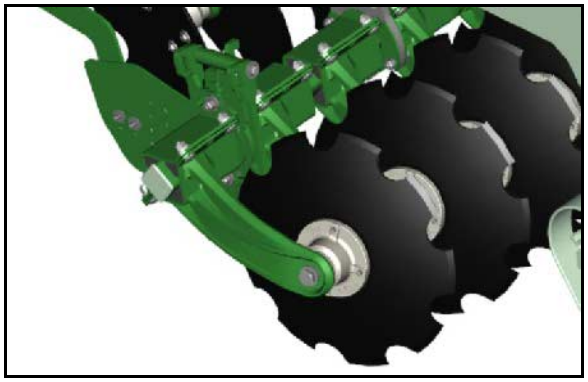
12.9 Replacing discs (workshop work)

Replace if minimum diameter 360mm

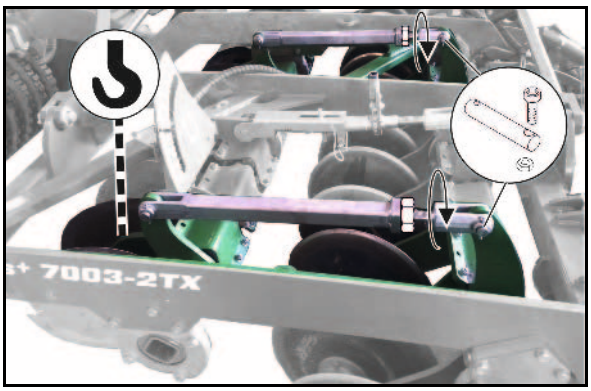
The discs are replaced with

- the machine folded out
- the discs raised
- the machine secured against unintentional lowering

To replace the discs, release the four screw unions and then retighten.



12.10 Aligning the disc gangs relative to each other



It may be necessary to align the disc gangs

- to adjust the working depth of the two disc gangs relative to each other.
- to prevent lateral pull on the implement.
- to compensate for different degrees of wear in the disc gangs.

Adjusting the disc gangs relative to each other using the spindles.

Adjust both spindles for a disc segment together.

1. Align the unfolded implement horizontally.
2. Set the working depth to the smallest value.

→ The discs are not standing on the ground.

3. Secure the tractor against unintentional starting and unintentional rolling away.
4. Hook the rear disc segment into a lifting crane.
5. Pull the bolts of the spindles on the front support.
6. Loosen the lock nut and adjust the spindle length, retighten the lock nut.

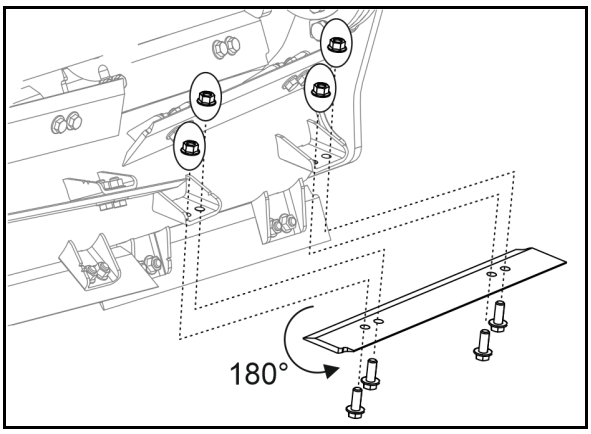
→ Adjust the spindles to the same length.

7. Refit the spindles.

12.11 Replacing or turning the cutters of the cutting roller

The cutters of the cutting roller have blades on both sides.

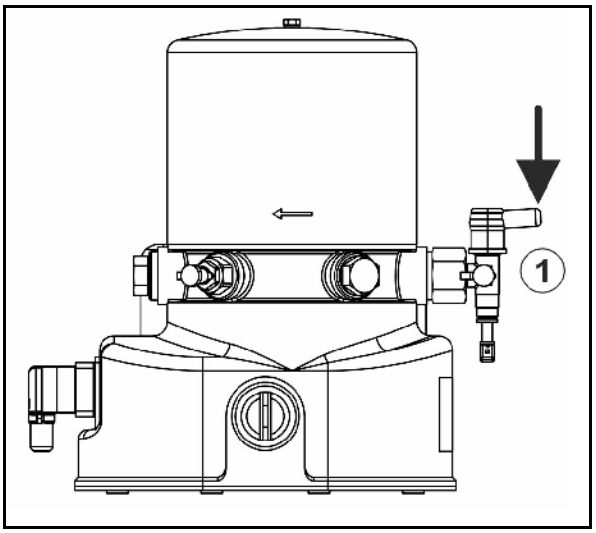
This means that worn blades can be turned once.



12.12 Check the central lubrication

Check the pressure relief valve on the pump (1) to determine whether grease escapes.

→ If grease escapes, this indicates incorrect lubrication.



Cause	Remedy
Lubricating pump with incorrect power supply	Ensure power supply of 9.6 V – 15.6 V
Pause times that are too long and lubricating intervals that are too short	Use the blue rotary knob to reduce the pause interval Use the red rotary knob to extend the lubrication interval
Grease nipple blocked	Eliminate the blockage on the grease nipple

Starting with the last distributor in the lubricating sequence, pump in grease via grease nipple (2).

If this is possible, all lubrication points on the distributor are functional.

If a non-functioning distributor was found, the lubrication points of the distributor are checked.

Here's how:

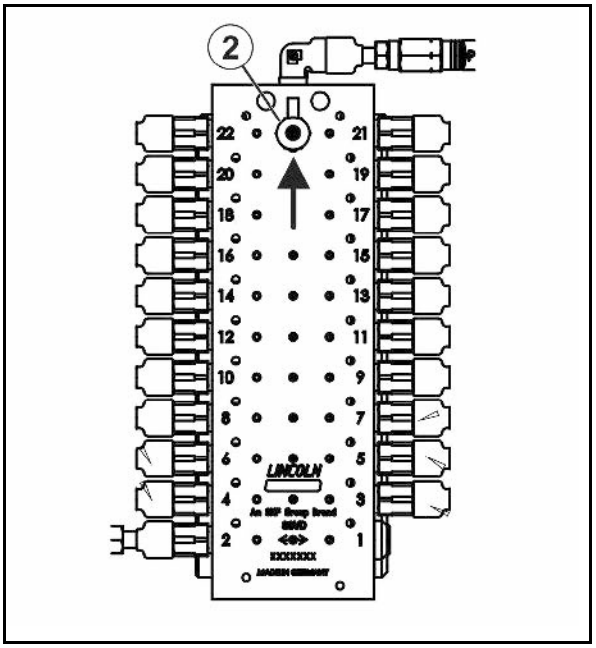
Dismount the screw-in element of a lubrication point and replace it with an M8x1 grease nipple.

Pump in grease with a grease gun.

If this is possible, the lubrication point on the distributor is functional.

If this is not possible, dismount and and clean the lubrication point.

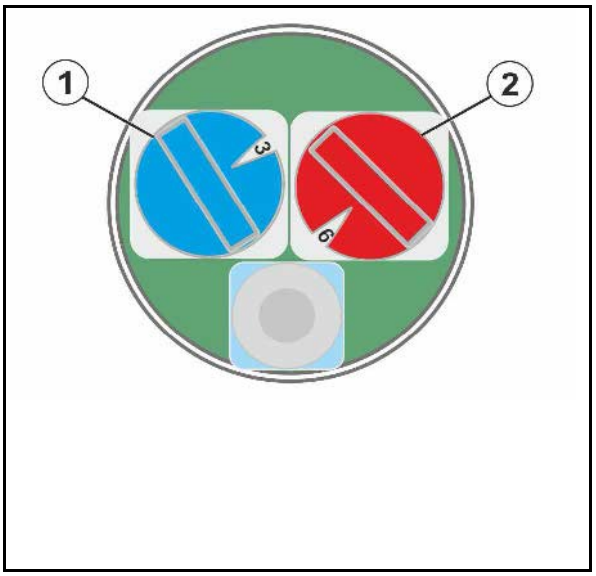
Then check the central lubrication.



Checking the central lubrication overnight:

1. Adjust the rotary knobs for time intervals as follows:
   - Rotary knob blue (1):
     3 = 3 hour pause
   - Rotary knob red (2):
     9 = 18 minute lubrication interval
2. Let the central lubrication system run overnight.

   Ensure that there is a 12 V connection in the workshop.
3. Check for grease escape at all lubrication points.
4. Restore the original settings.



12.13 Hydraulic system

WARNING

Risk of infection through the high pressure hydraulic fluid of the hydraulic system entering the body!

- Only a specialist workshop may carry out work on the hydraulic system.
- Depressurise the hydraulic system before carrying out work on the hydraulic system.
- When searching for leak points, always use suitable aids.
- Never attempt to plug leaks in hydraulic lines using your hand or fingers.

  Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!

  If you are injured by hydraulic fluid, contact a doctor immediately. Risk of infection!

- When connecting the hydraulic hose lines to the hydraulic system of connected machines, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line if it is damaged or worn. Only use AMAZONE original hydraulic hose lines.
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural ageing, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose connections made from thermoplastics, other guide values may be decisive.
- Dispose of old oil in the correct way. If you have problems with disposal, contact your oil supplier.
- Keep hydraulic fluid out of the reach of children!
- Ensure that no hydraulic fluid enters the soil or waterways.

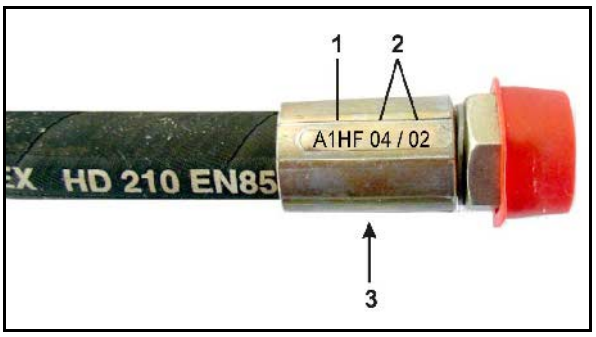
12.13.1 Labelling hydraulic hose lines

The assembly labelling provides the following information:

(1) Manufacturer's marking on the hydraulic hose line (A1HF)

(2) Date of manufacture of hydraulic hose line (04 / 02 = year / month = February 2004)

(3) Maximum approved operating pressure (210 BAR).



12.13.2 Maintenance intervals

After the first 10 operating hours, and then every 50 operating hours

1. Check all the components of the hydraulic system for tightness.
2. If necessary, tighten screw unions.

Before each start-up:

1. Check hydraulic hose lines for visible damage.
2. Eliminate any scouring points on hydraulic hose lines and pipes.
3. Replace any worn or damaged hydraulic hose lines immediately.

12.13.3 Inspection criteria for hydraulic hose lines

For your own safety, comply with the following inspection criteria!

Replace hydraulic hose lines, on determining any of the following during the inspection:

- Damage to the outer layer up to the ply (e.g. scouring points, cuts, cracks).
- Brittleness of the outer layer (crack formation of the hose material).
- Deformations which do not match the natural shape of the hose or the hose line. Both in a depressurised and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
- Leak points.
- Damage or deformation of the hose assembly (sealing function restricted); minor surface damage is not a reason for replacement.
- Movement of the hose out of the assembly.
- Corrosion of assembly, reducing the function and tightness.
- Installation requirements not complied with.

- Life span of 6 years has been exceeded.

  The date of manufacture of the hydraulic hose line on the assembly is decisive for determining these six years. If the date of manufacture on the assembly is "2004", then the hose should not be used beyond February 2010. See also "Labelling of hydraulic hose lines".

12.13.4 Installation and removal of hydraulic hose lines

When installing and removing hydraulic hose lines, always observe the following information:

- Only use AMAZONE original hydraulic hose lines.
- Ensure cleanliness.
- You must always install the hydraulic lines so that, in all states of operation:
  - There is no tension, apart from the hose's own weight.
  - There is no possibility of jolting on short lengths.
  - Outer mechanical influences on the hydraulic hose lines are avoided.

    Use appropriate arrangements and fixing to prevent any scouring of the hoses on components or on each other. If necessary, secure hydraulic hose lines using protective covers. Cover sharp-edged components.
  - The approved bending radii may not be exceeded.
- When connecting a hydraulic hose line to moving parts, the hose length must be appropriate so that the smallest approved bending radius is not undershot over the whole area of movement and/or the hydraulic hose line is not over-tensioned.
- Fix the hydraulic hose lines to the intended fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- It is forbidden to paint over hydraulic hose lines!

12.14 Lower link pins check

DANGER!

Risk of contusions, catching, and knocks when the implement unexpectedly releases from the tractor!

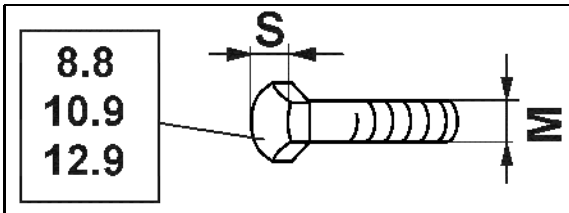
Replace damaged top link pins and lower link pins immediately for road traffic safety reasons.

Test criteria for top link pins and lower link pins:

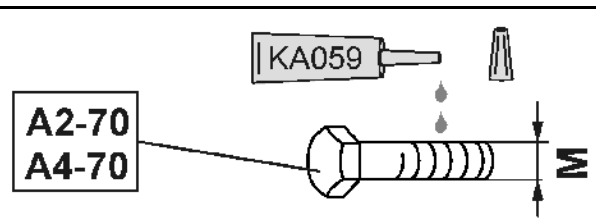
- Visual check for cracks
- Visual check for fractures
- Visual check for permanent deformations
- Visual check and measurements for wear. The permissible wear is 2 mm.
- Visual check for wear on the ball sleeves
- If applicable: check the fastening bolts for tightness

If a wear criterion is met, replace the top link pin or lower link pin.

12.15 Screw tightening torques



M	S	Nm 8.8	10.9	12.9
M 8	13	25	35	41
M 8x1		27	38	41
M 10	16 (17)	49	69	83
M 10x1		52	73	88
M 12	18 (19)	86	120	145
M 12x1,5		90	125	150
M 14	22	135	190	230
M 14x1,5		150	210	250
M 16	24	210	300	355
M 16x1,5		225	315	380
M 18	27	290	405	485
M 18x1,5		325	460	550
M 20	30	410	580	690
M 20x1,5		460	640	770
M 22	32	550	780	930
M 22x1,5		610	860	1050
M 24	36	710	1000	1200
M 24x2		780	1100	1300
M 27	41	1050	1500	1800
M 27x2		1150	1600	1950
M 30	46	1450	2000	2400
M 30x2		1600	2250	2700



M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
Nm	2,4	4,9	8,4	20,6	40,7	70,5	112	174	242	342	470	589

Coated screws have different tightening torques.Note special information for tightening torques in chapter Maintenance.

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