# Operating Manual

# AMAZONE

## Catros 12003-2TS

**Mounted compact disc harrow**

MG5316
BAG0110.15 06.23
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: | MG5316 |
| Compilation date: | 06.23 |

## 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. Send us your suggestions by fax.

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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.

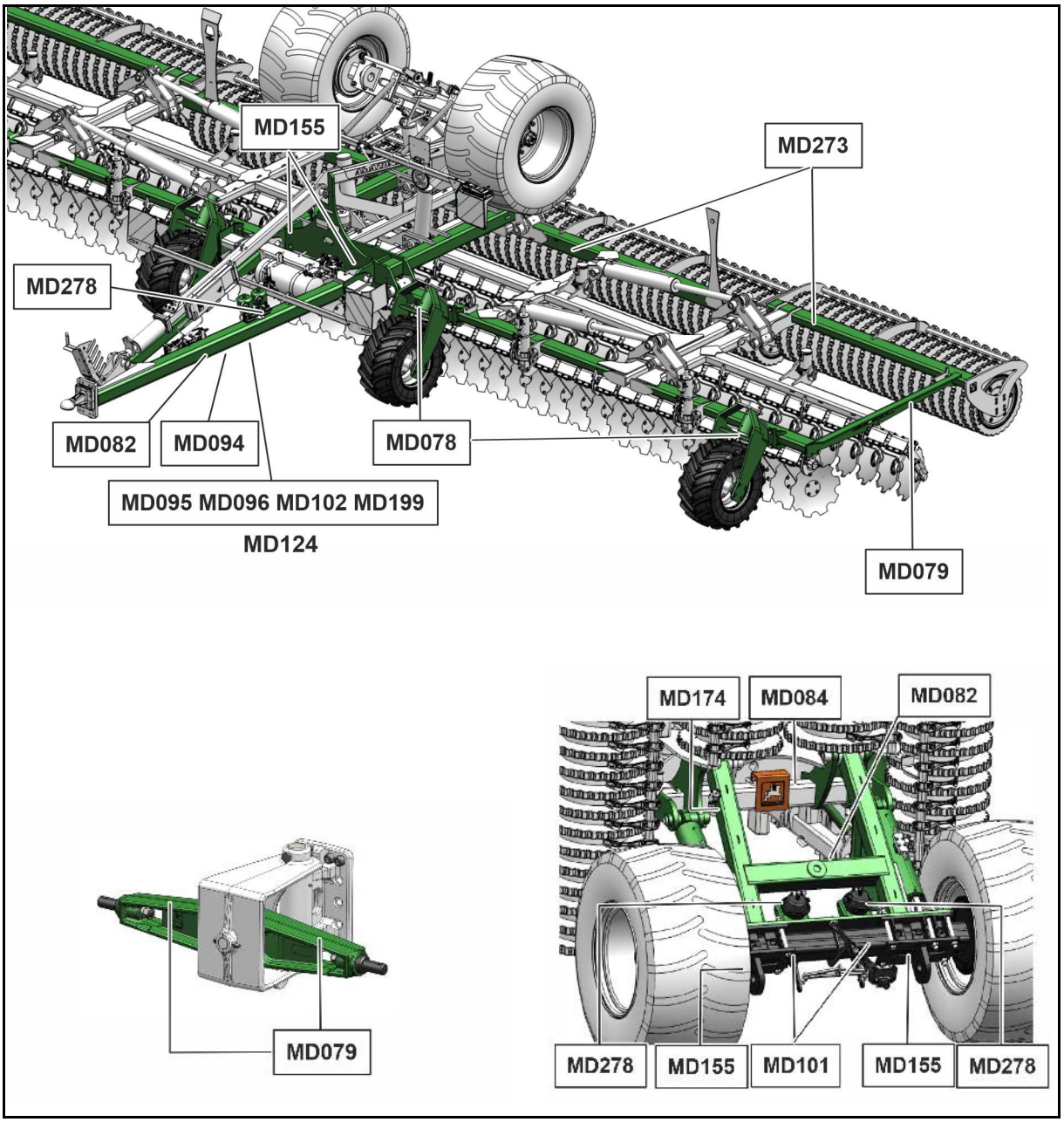
## 2.12 User workstation

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.

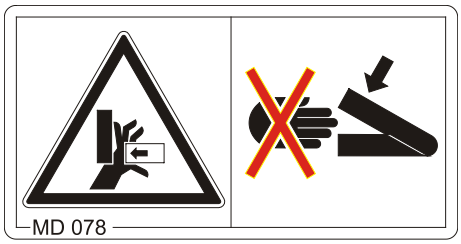
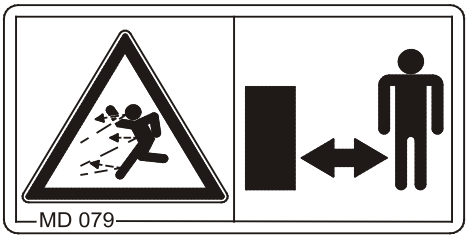
**Field 2**

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**<br>**Risk of contusions for fingers or hands through accessible moving machine parts!**<br>This danger causes extremely serious injuries with the loss of body parts such as fingers or hands.<br>Never reach into the danger area when the tractor engine is running with PTO shaft / hydraulic system connected. |  |
| **MD 079**<br>**Risk of materials or foreign objects being flung away from or out of the implement when entering or remaining in the danger area of the implement!**<br>These dangers can inflict severe injuries on all parts of the body.<br>• Stay well clear of the danger area of the implement.<br>• Ensure that all persons maintain a sufficient safety distance from the danger area of the implement as long as the tractor engine is running. |  |
| **MD082**<br>**Danger of falling from treads and platforms when riding on the machine!**<br>This danger will cause serious injuries anywhere on the body or death.<br>It is forbidden to ride on the machine and/or climb the running machine. This ban also applies to machines with treads or platforms.<br>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.

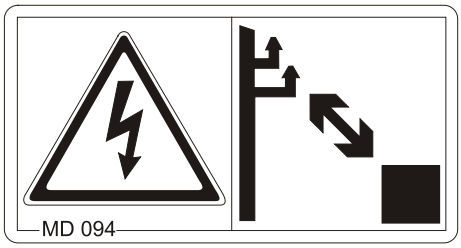
- It is forbidden to stand in the swivel area of moving machine parts.
- Instruct people to leave the swivel area of moving machine parts before the machine parts move down.


**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.

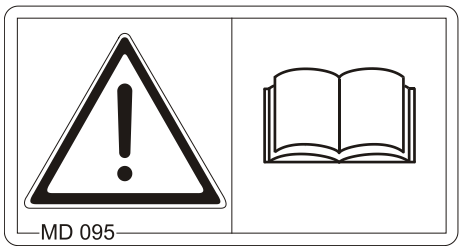
Keep a safe distance to the electric overhead power lines when swinging machine parts in and out.




| 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**

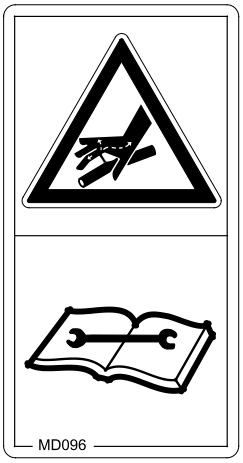
**Danger of infection to the whole body from liquids escaping at a high pressure (hydraulic fluid)!**

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**

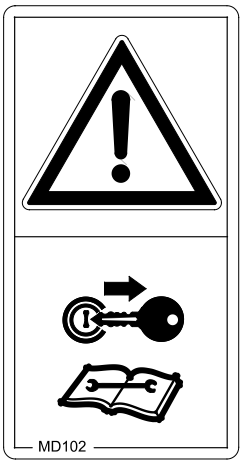
This symbol indicates jacking points for lifting gear (jack).


**MD102**

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

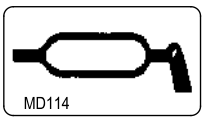
This danger will cause serious injuries anywhere on the body or death.

- 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 symbol indicates a lubrication point



**MD 155**

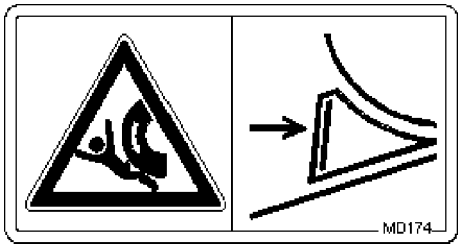
This icon designates the restraint points for tieing the implement to a transport vehicle allowing the implement to be transported in a safe manner.


**MD174**

**Danger resulting from the unintentional movement of the machine!**

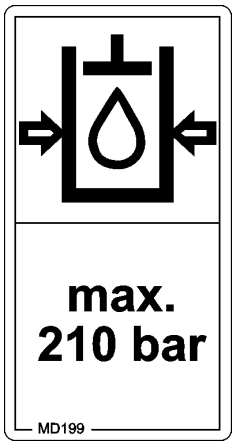
Causes serious injuries anywhere on the body or death.

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**

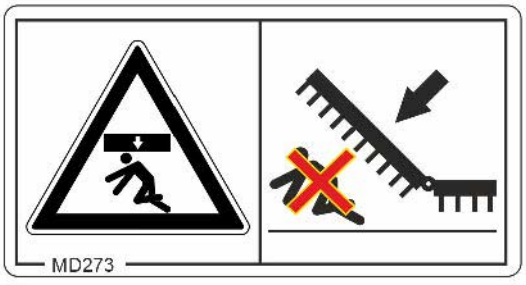
The maximum operating pressure of the hydraulic system is 210 bar.




**MD 273**

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

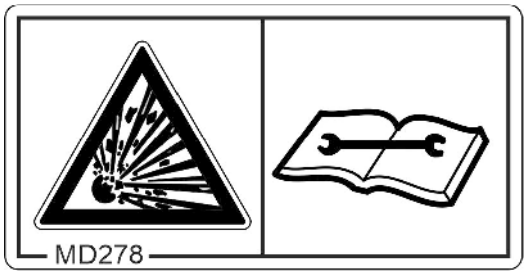
Make sure that nobody is standing in the danger area.



**MD 278**

**Risk of explosion or hydraulic fluid escaping under high pressure, caused by the gas and oil pressure applied onto the pressure accumulator!**

These dangers can cause serious and potentially fatal injuries if highly pressurised, escaping hydraulic fluid penetrates the skin and passes into the body.




Causes serious, potentially fatal injuries anywhere on the body.

- Read and observe the instructions in the operating manual before carrying out any maintenance or repair work.
- If you are injured by hydraulic fluid, contact a doctor 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 accident if the tractor is unsuitable and the machine brake system is not connected to the tractor or filled.**

- Couple the machine to the tractor correctly 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, if the tractor meets the necessary power requirements.

**Pneumatic braking system**:

- Only move off with the machine connected when the pressure gauge on the tractor shows 5.0 bar.

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

**Loading:**

A marshalling person is required for loading.

Secure the machine according to instructions.

Then disconnect the tractor from the machine.

**Unloading:**

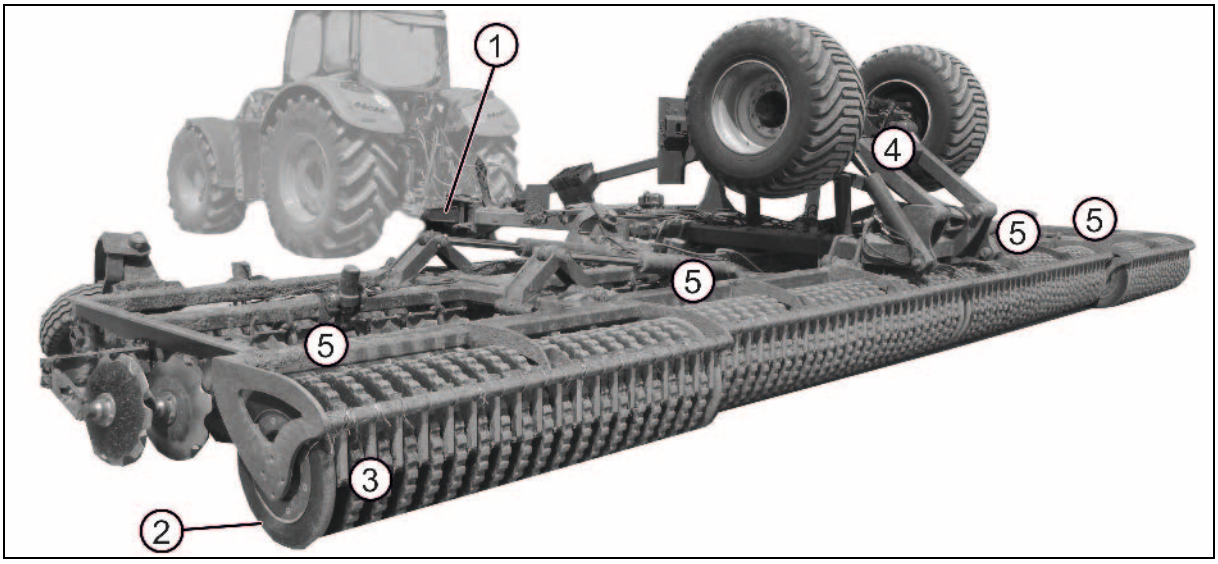
Remove the transportation locks.

A person is required to help with manoeuvring when unloading.

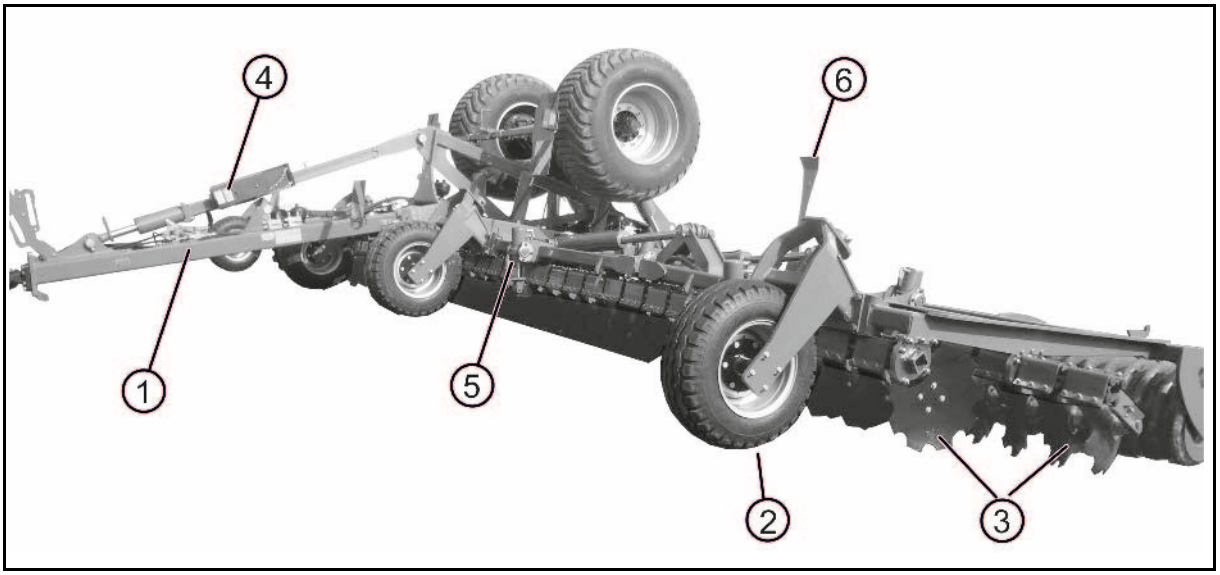
After unloading, park the machine and uncouple the tractor.

# 4 Product description

## 4.1 Overview of subassemblies

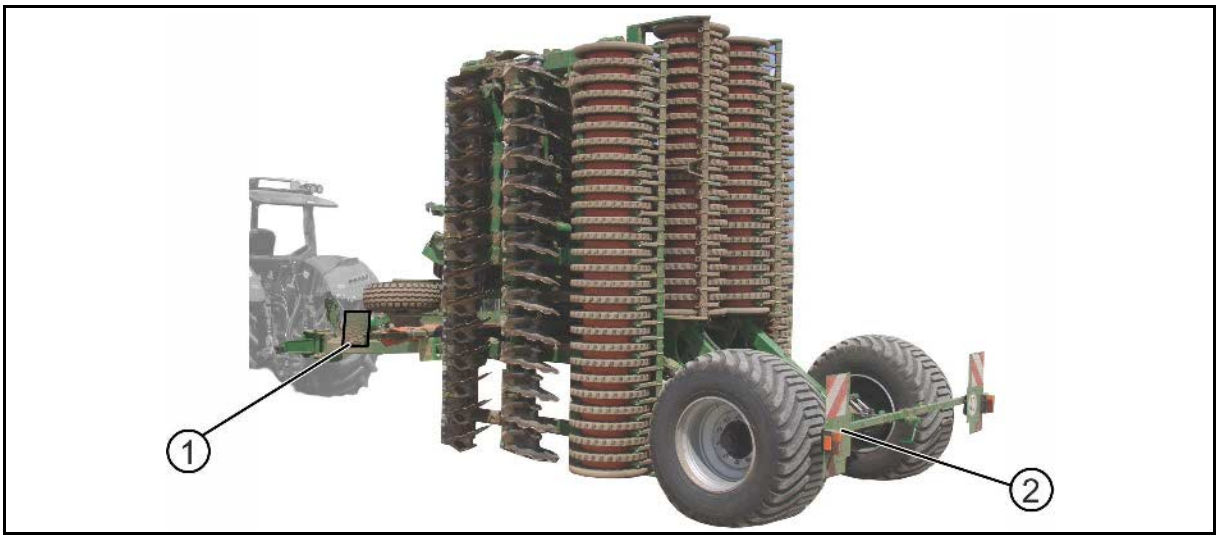



(1) Draw rail
(2) Wedge ring tyre roller
(3) Scraper bar for wedge ring tyre roller
(4) Swivelling running gear
(5) 4 foldable implement booms




(1) Hydraulic drawbar
(2) Support wheel
(3) 2 disc gangs
(4) Wheel chocks
(5) Hydraulic depth adjustment of the discs with mechanical stop
(6) Transport lock

**Implement in transport position:**

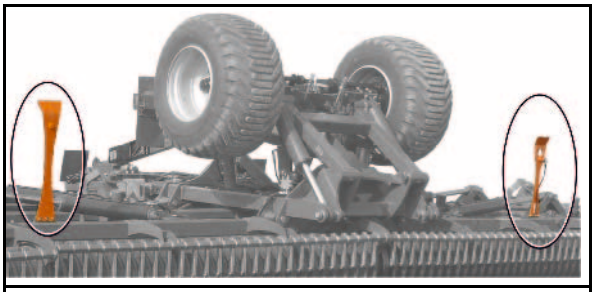



(1) Front lighting

(2) Rear lighting

## 4.2 Safety and protection equipment

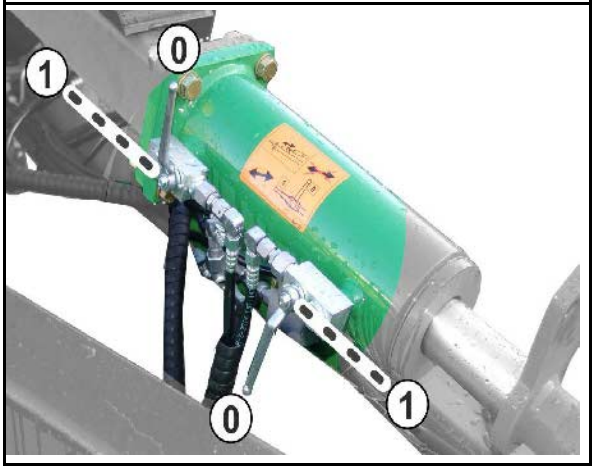
- Stop valve to prevent activating an unintentional unfolding action from the tractor via the cable winch.



- Stop tap on the drawbar cylinder for locking the transport height during transport.

  Position (0) Close the stop tap

  Position (1) Open the stop tap




## 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

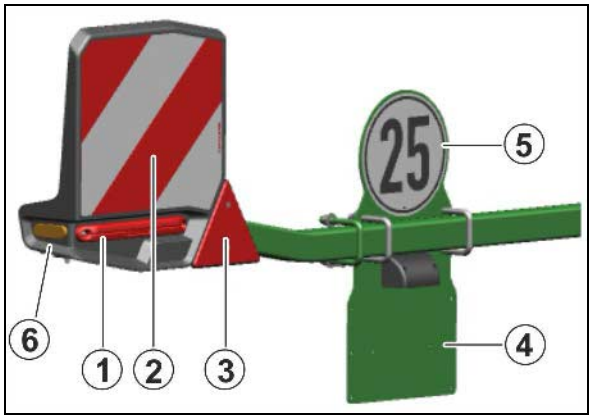
(2) Warning signs

(3) Red reflectors

(4) Number plate holder

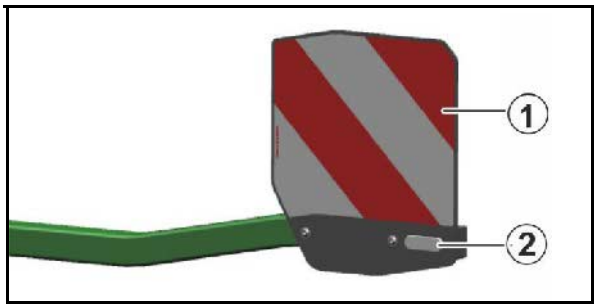
(5) Labelling of the max. permissible speed

(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
  - a tractor drawbar
  - the tractor lower link, Category III
  - the tractor pin coupling D = 40/50.
  - the ball coupling

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 % |

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

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

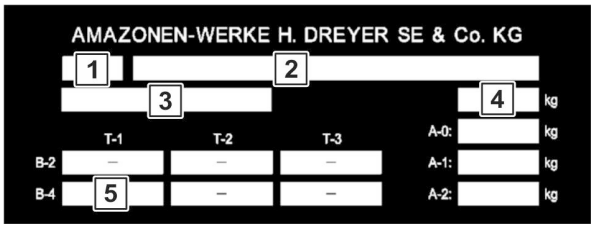
## 4.7 Rating

### 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 Conformity

| | Directives/Standards | designation |
|---|---|---|
| The implement complies with the | • Implement directive | 2006/42/EC |
| | • EMC directive | 2014/30/EU |

## 4.9 Technical data

| | |
|---|---|
| **Working width** | 12000 mm |
| **Transport width** | 3000 mm |
| **Transport height** | < 4000 mm |
| **Total length** | 6900 mm |
| **Total width** | 12600 mm |
| **Max. permitted speed** | 40 km/h |
| **Max. working speed** | 10-18 km/h |
| **Disc spacing** | 250 mm |
| **Disc diameter** | 510 mm |
| **Number of discs** | 2 x 48 |
| **Working depth** | 30 – 140 mm |
| **Permitted mounting category** | category 3<br>category 4N<br>K700 / category 5 |

The specified working width is only achieved when all of the discs are set to the same working depth.

### 4.9.1 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.**

## 4.10 Necessary tractor equipment

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

### Tractor engine power

from 260 kW (360 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.

Control units:
- see page 42.

### 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

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

## 4.11 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.

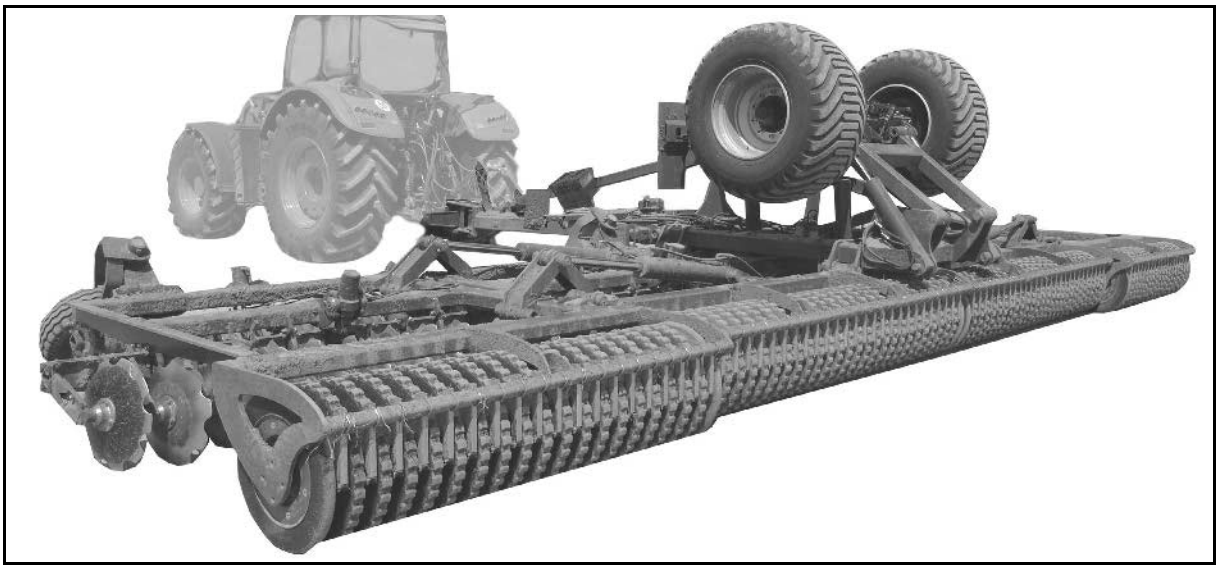
Measuring unit: OPTAC SLM 5.

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 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

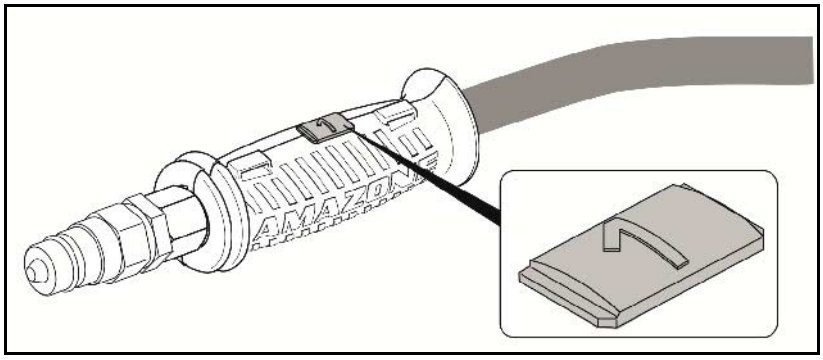
The two-row disc arrangement ensures soil cultivation and rotavation.

The trailing roller serves to re-consolidate the soil.

## 5.2 Hydraulic system connections

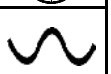
- All hydraulic hose lines are equipped with grips.

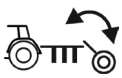
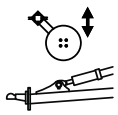
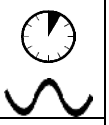
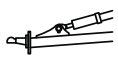
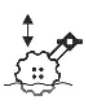
  Coloured markings with a code number or code letter have been applied to the gripping sections in order to assign the respective hydraulic function to the pressure line of a tractor control unit!



  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 |  | Running gear / drawbar | Put in working position | Double acting |  |
| | 2 | | | Put in transport position | | |
| blue | 1 |  | Machine | Fold out | Double acting |  |
| | 2 | | | Fold in | | |
| green | 1 | Pre-selection via switch tap |  | Put in working position | Double acting |  |
| | 2 | | | Put in headlands position. | | |
| green | 1 | |  | Lower the implement at the front | Double acting |  |
| | 2 | | | Lift implement at the front | | |
| green | 1 |  | Working depth | Greater | Double acting |  |
| | 2 | | | Smaller | | |
| red | 1 |  | Unlock section folding | | Single-acting |  |

**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)

### 5.3.1 Control elements of the dual-circuit pneumatic braking system

**DANGER**

**Never release the parking brake of the uncoupled machine on sloping ground.**

After the supply line (red) is detached, the implement is braked automatically.

If it is necessary to manoeuvre the implement while it is uncoupled from the tractor (on a level surface only), e.g. while it is in the specialist workshop, you can actuate the dual-circuit pneumatic braking system using the control elements.

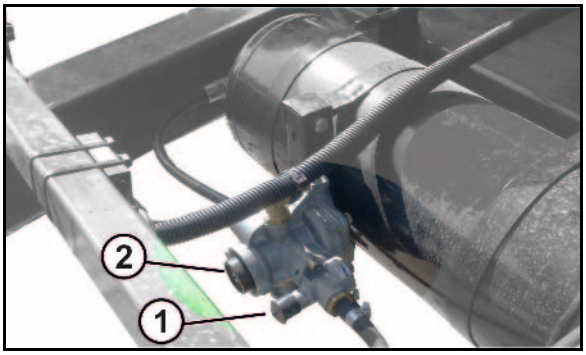
For this purpose, the compressed air tank must be filled. If the compressed air tank is empty, the parking brake cannot be disengaged using the control elements.

(1) Release valve with actuator button:

→ If the actuator button

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

(2) Brake valve



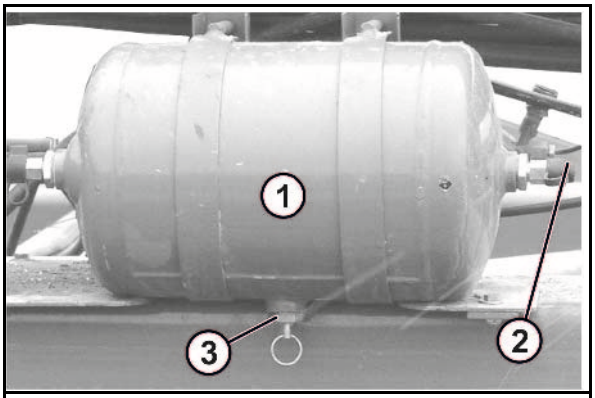

When the supply line (red) is coupled to the tractor, the parking brake is released automatically, and as soon as the operating pressure has built up, the black button will be automatically pulled out of the assembly.

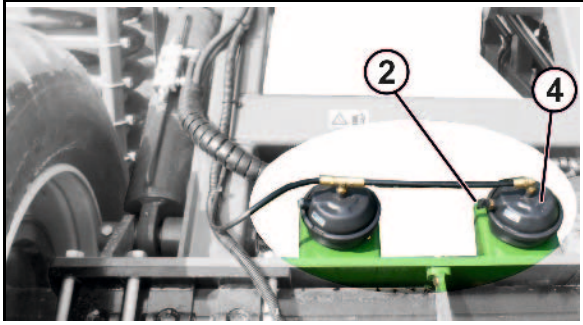
(1) Compressed air tank

(2) Test connection for pressure gauge.

(3) Drain valve.

(4) Brake cylinder



### 5.3.2 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.

### 5.3.3 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!**

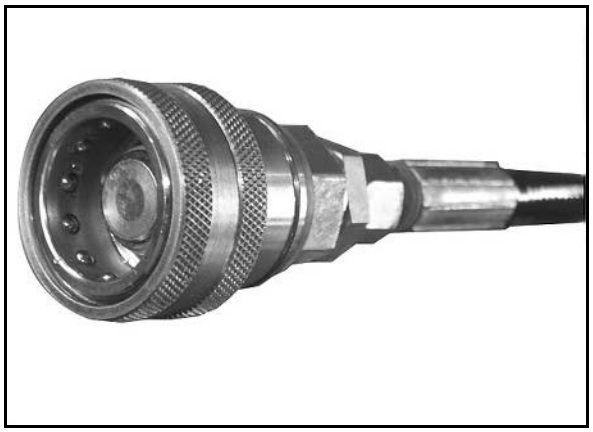
Always secure the machine with the wheel chocks before you uncouple the machine from the tractor!

To control the hydraulic service brake system, the tractor requires hydraulic braking equipment.

### 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).

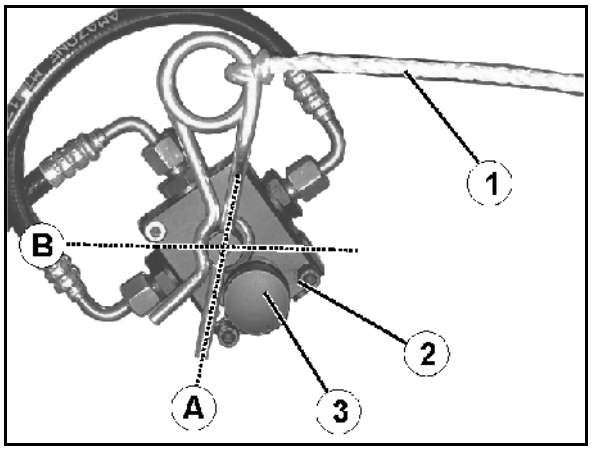


### 5.4.2 Uncoupling the hydraulic service brake system

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.

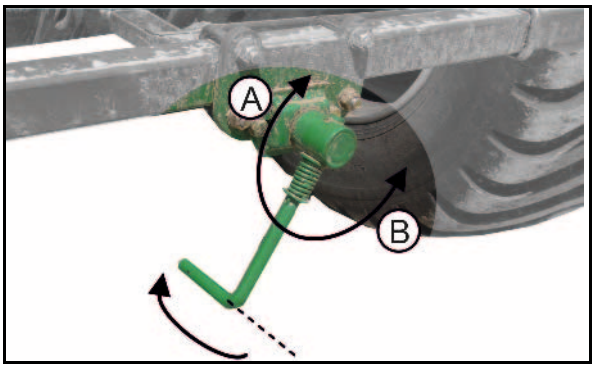
In these cases, relieve pressure using the hand pump on the brake valve.

## 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.

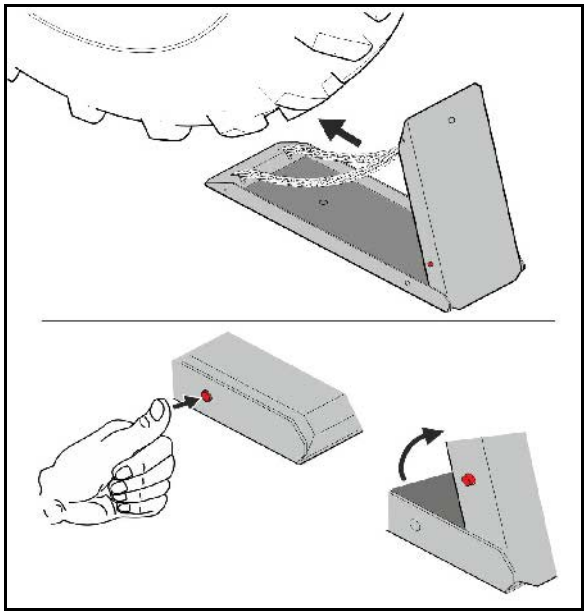



- Correct the setting of the parking brake if the spindle's tension is no longer sufficient.
- Ensure that the bowden cable is not lying or rubbing against other vehicle parts.
- When the parking brake is off, the bowden cable must be slightly slack.

## 5.6 Foldable wheel chocks

Each of the wheel chocks is attached with a thumb bolt on the right side of the implement.

Put the foldable wheel chocks into operating position by pressing the button and apply directly on the wheels before uncoupling.



## 5.7 Two-row disc cultivator

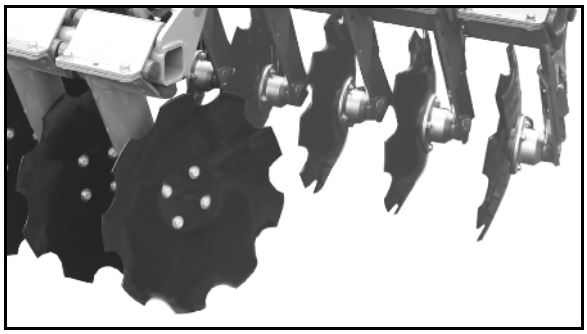
Disc cultivator with serrated or smooth discs and 510 mm diameter.

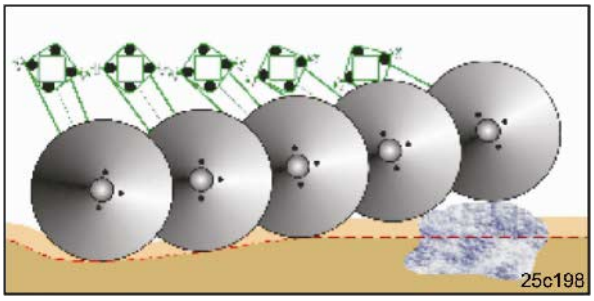
The concave discs are arranged offset to the direction of travel by an angle of 17° at the front and 14° at the rear.

The mounting of the concave discs 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.





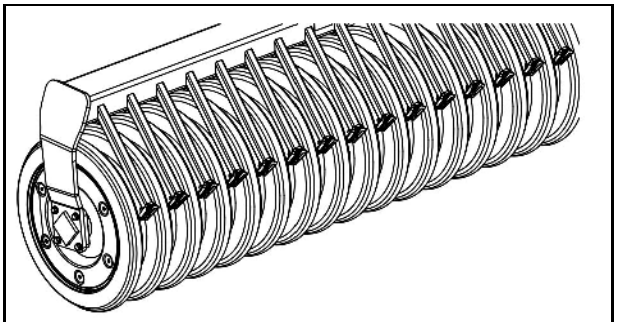
## 5.8 Roller

The roller assumes the depth control of the tools.

- **Wedge ring roller KW580**

with adjustable scraper.

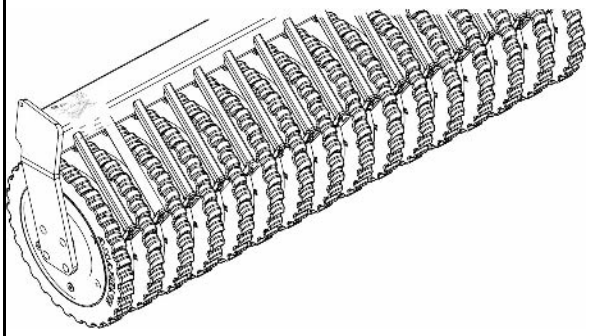
→ Very well suited for medium soils.



- **Wedge ring roller KWM600**

with Matrix profile and adjustable scraper.

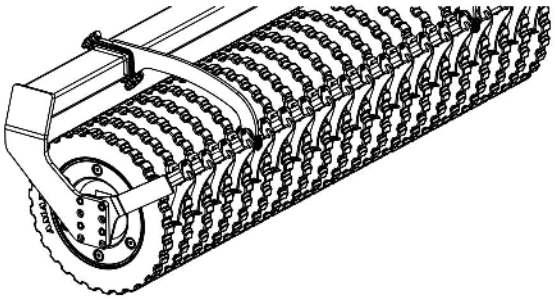
→ **Very well suited for light, medium and heavy soils.**



- **Wedge ring roller KWM 650**

with Matrix profile and adjustable scraper.

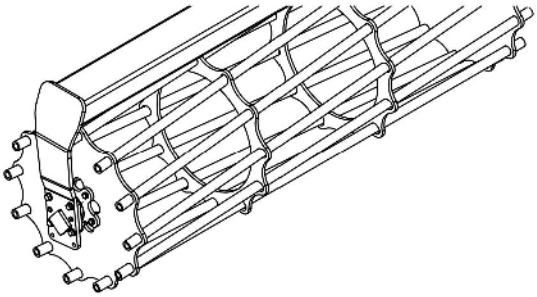
→ Very well suited for light, medium and heavy soils.



- **Cage roller SW600**

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

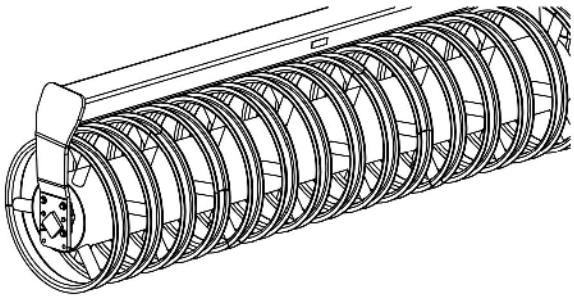
→ Disposes of a very good self-propulsion.



- **U-profile roller UW580**

→ Very well suited for light soils.

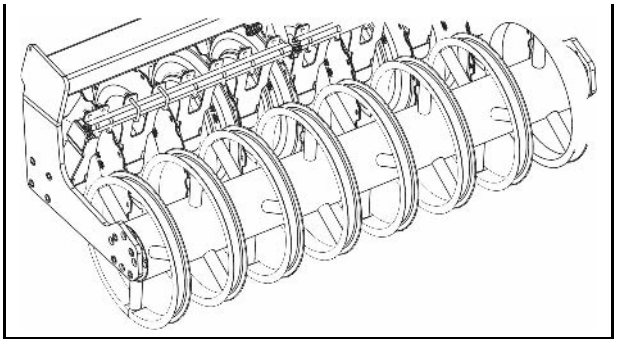
→ Resistant to clogging and good load-bearing capacity.



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

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

→ Insensitive to stones and good load-bearing capacity.



## 5.9 Running gear

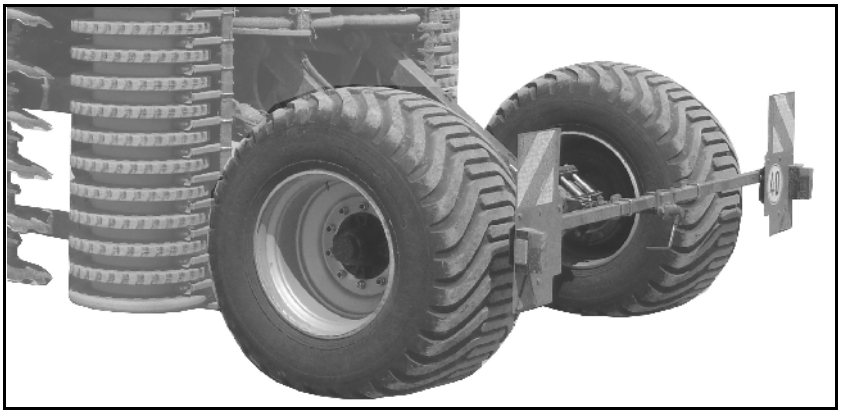
The running gear is hydraulically swivelled into transport and working position using a shuttle switch.

The position of the implement is important for proper swivelling:

- The implement must be standing sloped towards the rear for the folding procedure to be completed to the end position.
- The implement must be aligned horizontally for the folding procedure to be completed to the end position.

**The running gear is swivelled up when the implement is in operation:**

**Running gear during transport:**

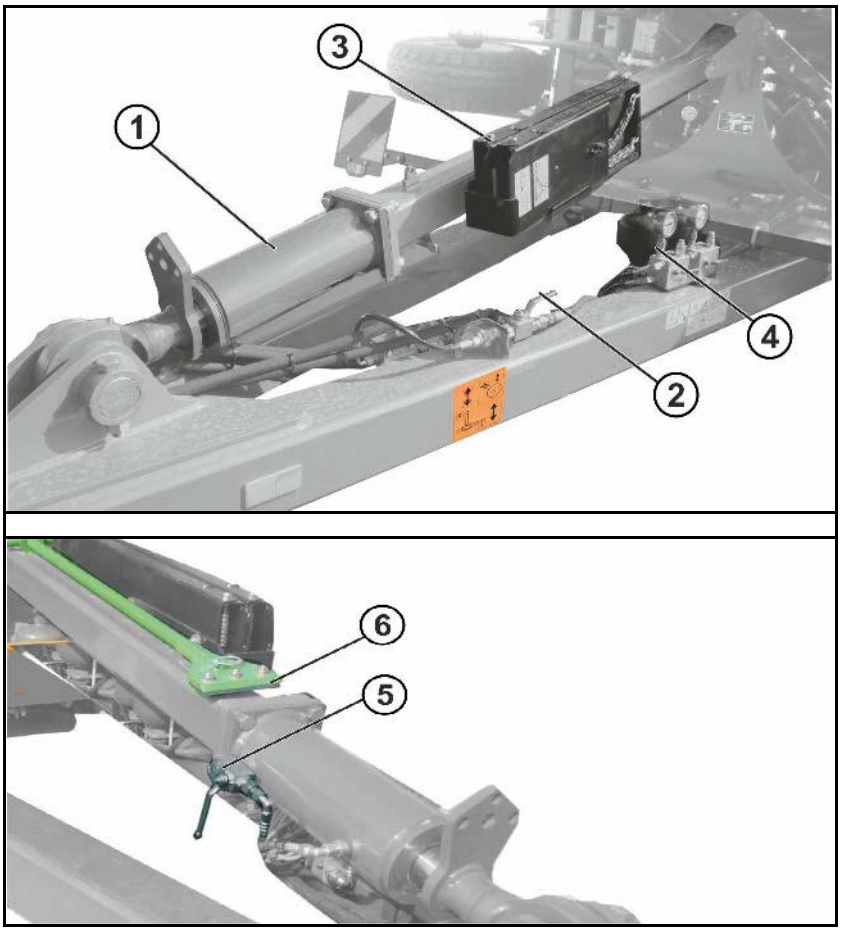


## 5.10 Drawbar

The drawbar must be lifted and lowered hydraulically using the *green* tractor control unit.

The following functions are implemented by this measure:

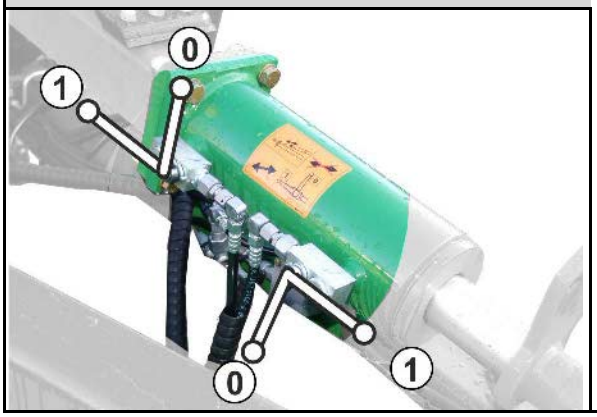
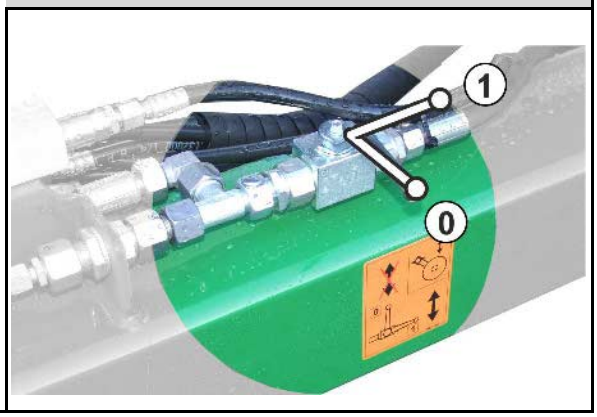
- Lower the implement at the front into working position/lift implement into headlands position
- ⚠ Hydraulic float position as working position during operation
- Relieve the hydraulic lines for decoupling
- Lower and lift the drawbar separately for coupling and folding




Components on the drawbar:

(1) Hydraulic cylinder, drawbar adjustment
(2) Stop tap on the drawbar cylinder
(3) Foldable wheel chocks
(4) Vibration compensation
(5) Stop tap on the drawbar cylinder
(6) Dirt scraper
(7) Stop tap against unintentional unfolding

### 5.10.1 Stop taps on the drawbar

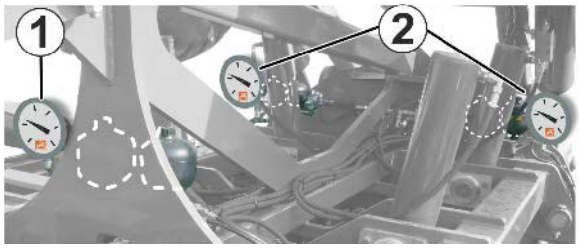
| 2 stop taps for drawbar cylinder | Stop tap for disc array |
|---|---|
|  |  |

| Position **0** | Position **0** |
|---|---|
| → Road transport<br>→ Fixing the drawbar after uncoupling | |

| Position **1** | Position **1** |
|---|---|
| →Working position (  in float position)<br>→ Headland position | |

| Position **1** | Position **0** |
|---|---|
| → Lift / lower the drawbar to couple the implement<br>→ For unfolding, folding | |

## 5.11 Folding boom with compressive loading




The folding booms are hydraulically loaded during operation via the hydropneumatic pressure reservoir.

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

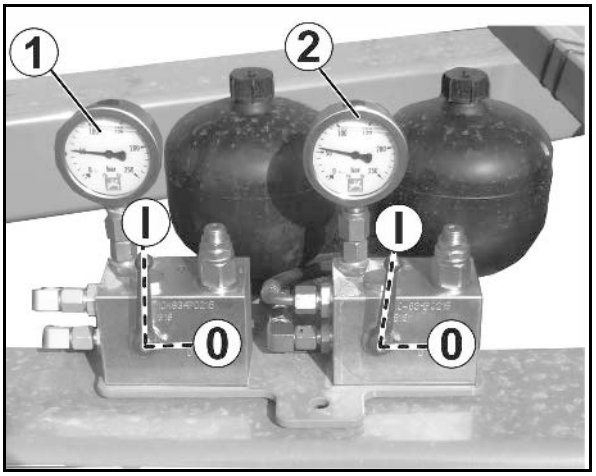
After unfolding, actuate the tractor control unit until the pressure gauge displays a compressive loading of 100 bar.

**During operation:**

- *Blue* tractor control unit in float position, the hydraulic pre-tensioning is active.
- Display on the front pressure gauge (1): 60 +/- 10 bar.
- Display on the rear pressure gauge (2): 80 +/- 10 bar.

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

## 5.12 Vibration compensation




The vibration compensation reduces the pitching motion and jumping of the implement when in operation.

Only use the vibration compensation in these special cases, because the vibration compensation has a negative effect on the driving comfort.

(I) Switch on the vibration compensation when the implement is in working position.

(0) Switch off the vibration compensation before the implement is put into transport position.

Vibration compensation, switch on hydraulic blocks if required (position I).

**During operation:**

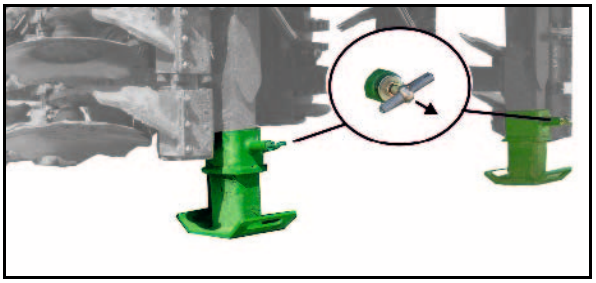
- Display on the left pressure gauge (1): 60 +/- 10 bar.
- Display on the right pressure gauge (2): 50 +/- 10 bar.

Always switch the vibration compensation to the same position on both units.

## 5.13 Stands

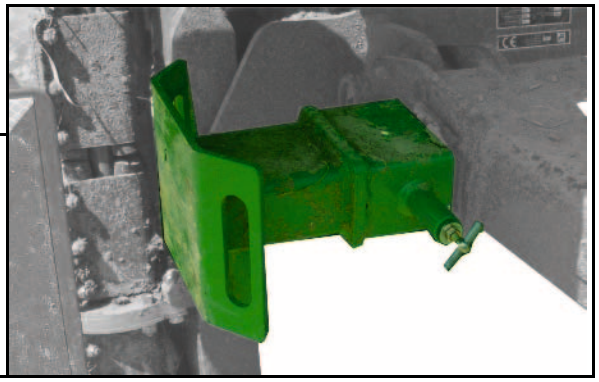
- With machine uncoupled:

  Both stands are mounted on the boom of the folded implement.



- During operation or transport:

  Both stands are mounted in parking position left and right on the frame.



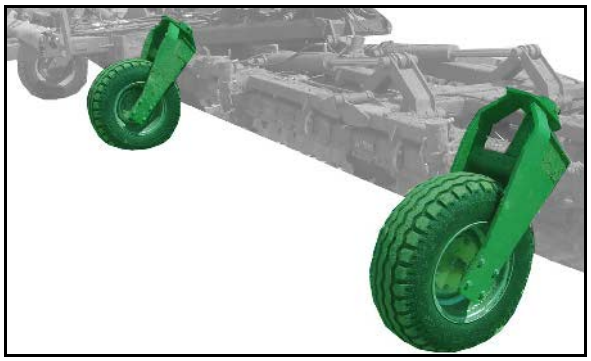
When removing the stands, pull out the locking pin from each mount.

When installing the stands on the mount, check that they are secured with the locking pin.

## 5.14 Support wheels

The swivelling support wheels (in the narrow or wide version)

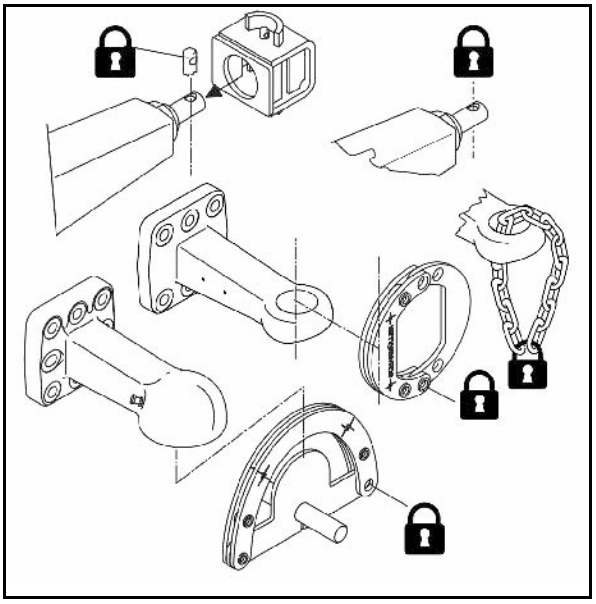
- stabilise the implement under uneven ground conditions.
- prevents oscillations and the development of waves.
- serves for depth control of the discs.



The use of wide support wheels increases the drawbar load. For this reason, only the lower link hitch is allowed in this case.

## 5.15 Safety device against unauthorised use

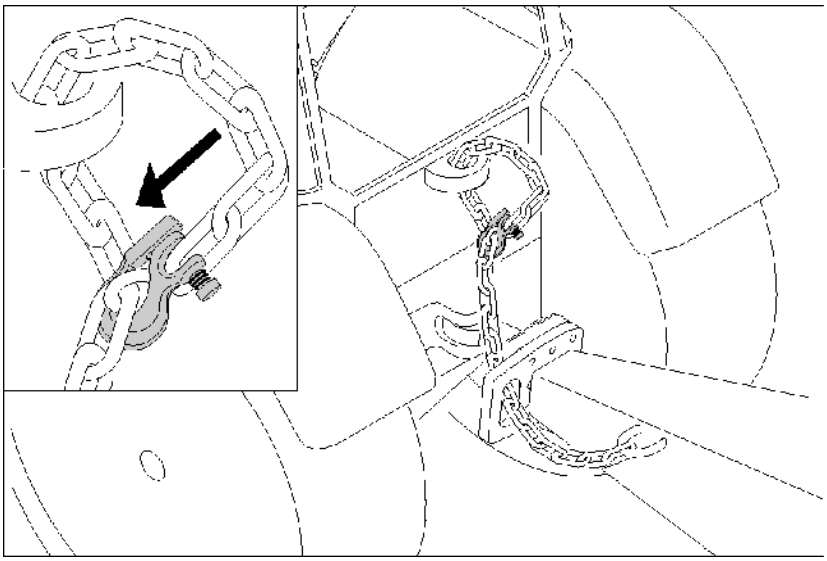
Lockable device for the drawbar eye, ball bracket, or lower link crosspiece, prevents unauthorised use of the machine.



## 5.16 Safety chain for machines without brake systems

Machines without brake systems are equipped with a safety chain according to the regulations in each country.

The safety chain must be mounted on an appropriate location of the tractor as prescribed before setting the vehicle in motion.



## 5.17 Central lubrication (optional)

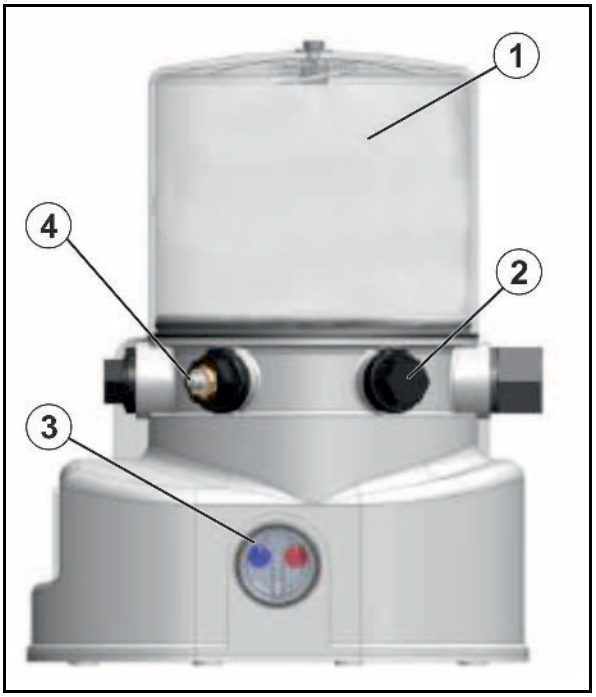
The implement is lubricated electrically with a central pump.

(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

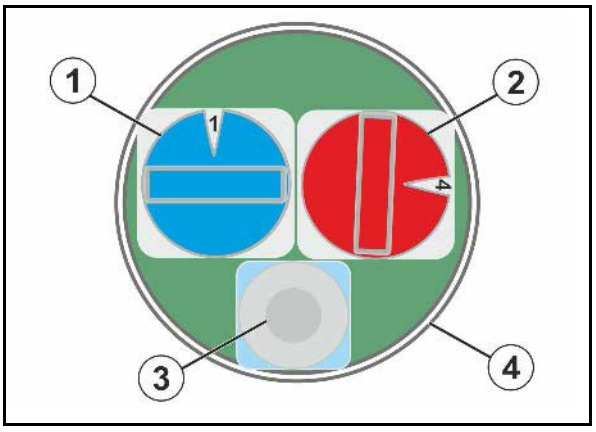



(1) Rotary knob, blue
(pause time: standard 1 hours)

(2) Rotary knob, red
(lubrication time: standard 8 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:

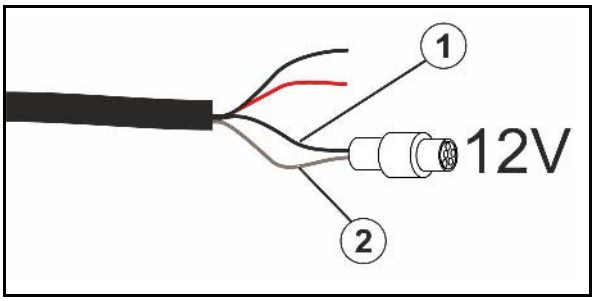
  Initial use: Pause time 2 hours
  Later: Pause time 2-4 hours

- No slurry: Lubricate once a day

## Connection

(1) black (+)

(2) brown (-)




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

# 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 23 onwards when
  - Connecting and disconnecting the machine
  - Machine transportation
  - Use of 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 a float 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 permissible 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

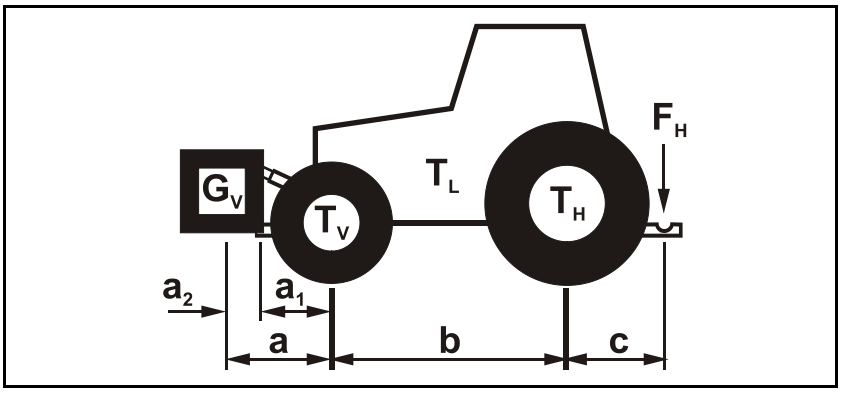
The permissible total tractor weight specified in the vehicle documentation must be greater than the sum of the

- empty tractor weight
- ballast weight and
- machine's total weight when attached or drawbar load 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 permissible 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




| | | | |
|---|---|---|---|
| $T_L$ | [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] | Maximum drawbar load | See technical data of machine |
| 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 operating 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 ($G_{V\,min}$).

You must use a front weight, which is equal to at least the required minimum front ballast ($G_{V\,min}$).

### 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 drawbar load 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 load does not exceed the permissible rear axle load.
  - 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<br>A not automatically<br>B automatic smooth pin<br>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<br>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<br>Eyelet Ø 30 - 41 mm | (ISO 20019) |
| Drawbar - Category 2 | (ISO 6489-3) | Drawbar eye | Centre bore Ø 50 mm<br>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<br>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!**

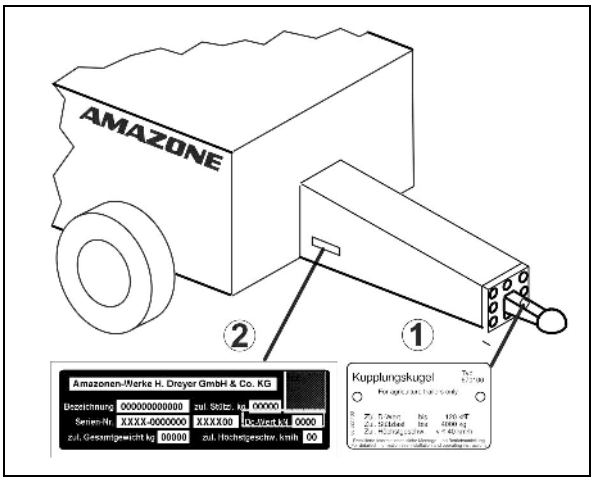
1. Calculate the actual $D_C$ value of your combination, comprising tractor and implement.
2. Compare the actual $D_C$ value with the following permissible $D_C$ values:

- 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.

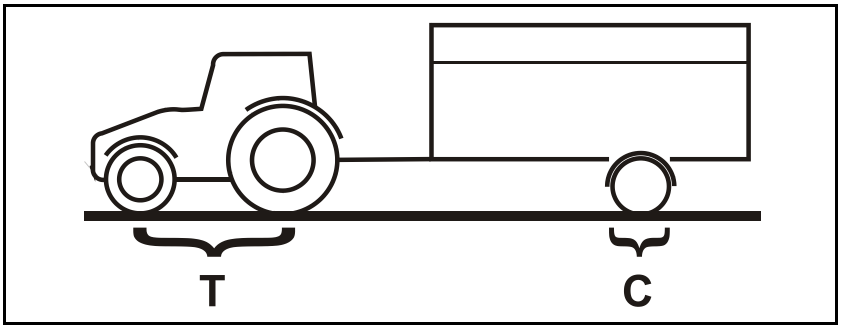



| **actually calculated $D_C$ value for the combination** | | **specified $D_C$ value** |
|---|---|---|
| kN | ≤ | Coupling device on the tractor kN |
| kN | ≤ | Coupling device of the implement kN |
| kN | ≤ | Drawbar of the implement kN |

## 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:

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




**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
  - when the machine is being operated.
  - as long as the tractor engine is running with the PTO shaft / hydraulic system connected.
  - if the ignition key is in the tractor and the tractor engine can be started unintentionally with the PTO shaft / hydraulic system connected.
  - 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
  - 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 raised, unsecured machine / raised, unsecured parts of the machine.
   - This is how to prevent unintentional falling:
2. Shut down the tractor engine.
3. Remove the ignition key.
4. Apply the tractor's parking brake.
5. Die Maschine gegen unbeabsichtigtes Verrollen (nur angehängte Maschine) sichern
   - auf ebenem Gelände durch Unterlegkeile und falls vorhanden durch Feststell-Bremse.
   - auf stark unebenem Gelände oder im Gefälle durch Unterlegkeile und Feststell-Bremse.

# 7 Coupling and uncoupling the machine

When coupling and uncoupling machines, follow the instructions given in the section "Safety instructions for the operator" page 23.

**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 71.

**WARNING**

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

- It is forbidden to actuate the three-point hydraulic system of the tractor as long as persons are standing between the rear of the tractor and the implement.
- Only actuate the operator controls for the tractor's three-point hydraulic system:
  - From the intended workstation.
  - If you are outside of the danger area between the tractor and the machine.

**WARNING**

**of crushing, cutting, being caught or drawn in, or impact through inadequate stability and tipping over of the uncoupled machine.**

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

**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 contusions, cutting, catching, drawing in and knocks when the machine unexpectedly releases 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.
- Only use the upper and lower link pins provided for coupling the machine.
- Visually check the upper and lower link pins for obvious defects whenever the machine is coupled. Replace upper and lower link pins if there are clear signs of wear.
- Use a lynch pin on each of the upper and lower link pins to secure them against unintentional release.

**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 **63**.

**WARNING**

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

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

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

**DANGER**
**Risk of injury and death for persons when driving by.**

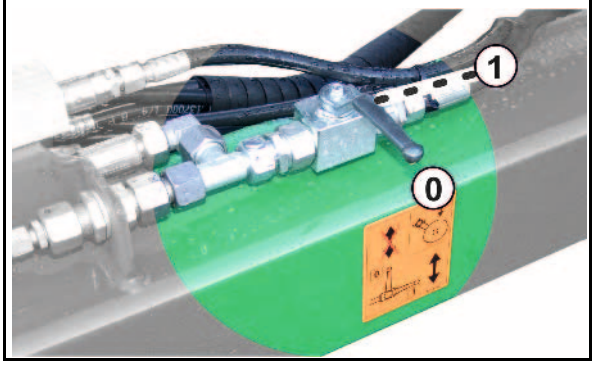
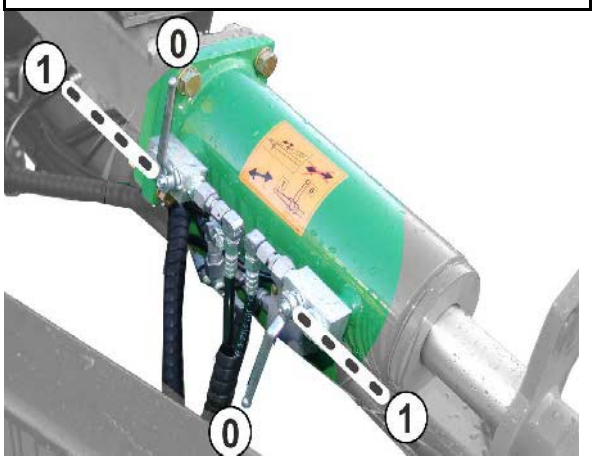
When transporting the implement, the struts on the tractor lower link must be locked to prevent swinging transverse to the direction of travel.

**WARNING**

**Risk of accidents if the connection between machine and tractor separates!**

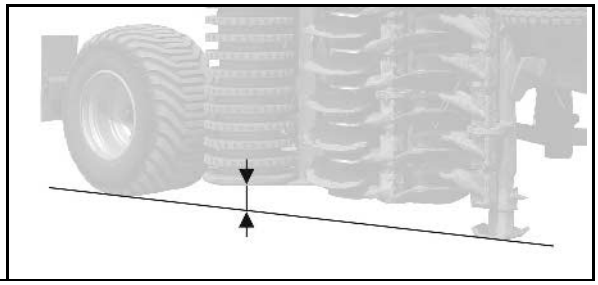
Always use ball sleeves with sockets and integral linch pins.

Stop taps on the drawbar: Position 1 – open, Position 0 – closed

| Stop tap for disc array | Stop tap on the drawbar cylinder |
|---|---|
| Always keep closed when coupling. | |
|  |  |

Only park the implement on the running gear wheels and the jacks.

Parking on the roller or on the frame can damage the implement.



## 7.1 Coupling the lower link hitch

### Coupling on the lower link hitch

1. Attach 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. Drive the tractor in reverse towards the implement so that the lower link hooks of the tractor pick up the lower ball sleeves of the lower pivot point of the implement.

→ The lower link hooks lock automatically.

4. Secure the tractor against unintentional start-up and unintentional rolling.
5. Perform a visual check to ensure proper locking of the lower link hooks.
6. Couple the supply lines with the tractor.
7. Check that the stop tap for the disc array is closed.
8. Remove both jacks and mount them on the side of the drawbar.
9. Disengage parking brake.
10. Remove wheel chocks.
11. Check that the drawbar hydraulic cylinder is completely retracted.
12. Activate tractor control unit *blue*.

→ Fold in – brace the sections against each other.

13. Perform a visual inspection of the section locking mechanism.
14. Adjust the implement using the tractor lower links so that the implement height is less than 4 m and there is sufficient ground clearance.

### Uncoupling the lower link hitch

1. Secure the tractor against unintentional rolling. For this purpose, see page 71.
2. Remove both jacks and mount them on the parking position.
3. Park the implement on the jacks using the tractor lower link.
4. Apply the parking brake.
5. Position the wheel chocks.
6. Disconnect the supply lines.
7. Release the lower links.
8. Unlock and uncouple the lower link hooks from the tractor cab.

## 7.2 Coupling the towing eye/ball bracket

### Coupling the towing eye/ball bracket

1. Direct people out of the danger area between the tractor and implement before you approach the implement with the tractor.
2. Drive the tractor in reverse towards the implement so that the coupling device can be coupled.
3. Secure the tractor against unintentional start-up and unintentional rolling.
4. Couple the supply lines with the tractor.
5. Check that the stop tap for the disc array is closed.
6. Open both stop taps on the drawbar hydraulic cylinder.
7. Activate tractor control unit *green*.
   - 7.1 Lower the drawbar and attach the coupling device with the tractor.
   - 7.2 Lift the drawbar.
8. Remove both jacks and mount them on the side of the drawbar.
9. Disengage parking brake.
10. Remove wheel chocks.
11. Activate tractor control unit *green*.

→ Lower the implement using the drawbar until the implement height is lower than 4 m.

12. Activate tractor control unit *blue*.

→ Fold in – brace the sections against each other.

13. Perform a visual inspection of the section locking mechanism.
14. Close both stop taps on the drawbar hydraulic cylinder.

## Uncoupling the towing eye/ball bracket

1. Check that the disc array stop tap is closed.
2. Open both stop taps on the drawbar hydraulic cylinder.
3. Activate tractor control unit *green*.

→ Lift drawbar.

4. Secure the tractor against unintentional rolling. For this purpose, see page 71.
5. Remove both jacks and mount them on the parking position.
6. Activate tractor control unit *green*.

→ Park the implement on the jacks.

→ Release the coupling device.

7. Apply the parking brake.
8. Position the wheel chocks.
9. Disconnect the supply lines.
10. Disconnect the coupling device.
11. Close both stop taps on the drawbar hydraulic cylinder.

→ Prevents the lowering of the uncoupled drawbar.

# 8 Adjustments

**WARNING**

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

- unintentional falling of raised, unsecured machine parts.
- unintentional start-up and rolling of the tractor-machine combination.

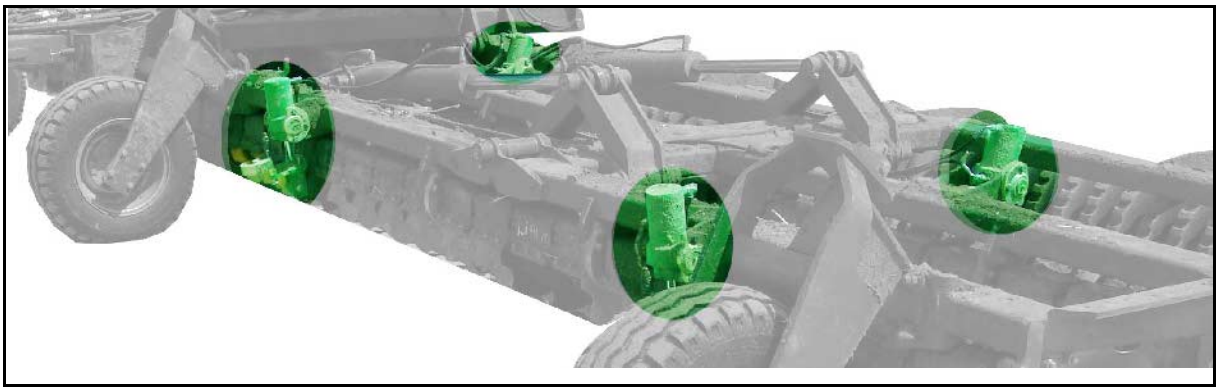
**Secure the tractor and the machine against unintentional start-up and rolling before making adjustments to the machine. See page 71.**

## 8.1 Working depth

The disc gangs are driven hydraulically from the headlands position into working position to the set working depth.

The working depth is adjusted in headlands position!

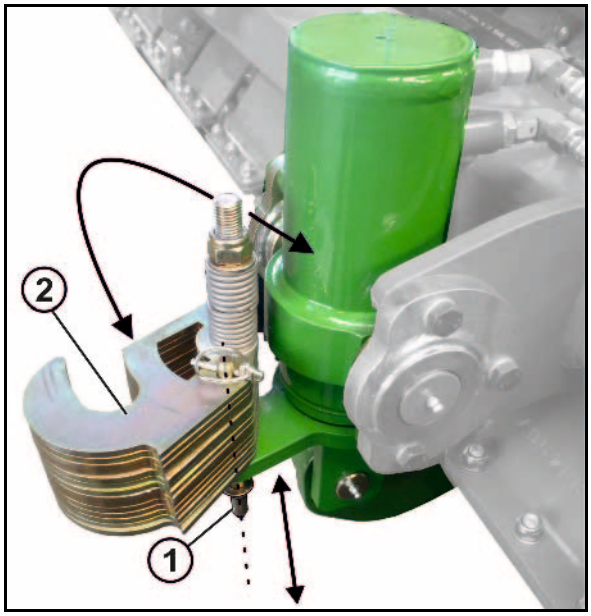
Each disc segment has a hydraulic cylinder for adjusting the working depth.



### 8.1.1 Mechanical working depth adjustment

The working depth is adjusted in headlands position!

1. Move the implement into headlands position.
2. Secure the implement against unintentionally rolling away.
3. Set the same working depth for all of the disc segments
   - 3.1 Remove the locking pin (1) with the linch pin.
   - 3.2 Beginning from the bottom, swivel the spacer elements (2) around the piston rod of the hydraulic cylinder.
   - 3.3 Secure all of the spacer elements (those required for adjustment and those that are free) with the locking pin from the bottom (1) and lock with a linch pin.




- Increasing the working depth: decrease the number of spacer elements on the piston rod.
- Reducing the working depth: increase the number of spacer elements on the piston rod.

### 8.1.2 Hydraulic working depth adjustment

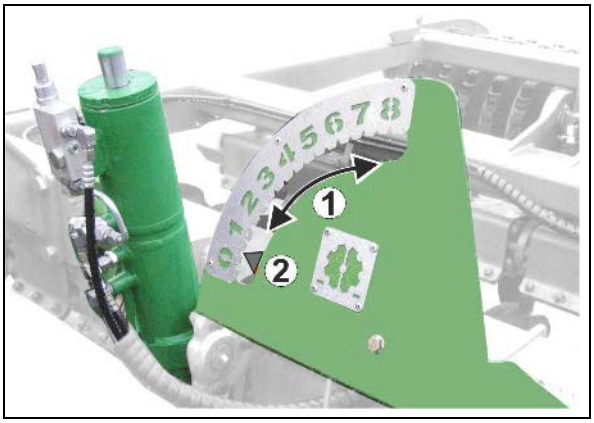
The working depth is adjusted hydraulically in working position using the *green* 3 /4 tractor control unit.

The scale provides orientation for the set working depth.

(1) Working depth setting range

(2) Headlands position

If a uniform working depth cannot be adjusted, see page 87.



# 9 Transportation

**WARNING**

Observe the maximum permissible speed. The permissible speed depends on the actual axle load of the machine - see Technical Data, **Seite 38**.

- On transportation journeys, follow the instructions given in the section "Safety instructions for the operator", page 25.
- Before moving off, check:
  - that the supply lines are connected correctly.
  - the lighting system for damage, proper operation and cleanness,
  - the braking and hydraulic systems visually for obvious defects.
  - the function of the brake system.

**WARNING**

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

Carry out a visual check that the lower link pins are firmly fixed with the 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.

Observe the permissible axle and drawbar loads of the tractor.

**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.

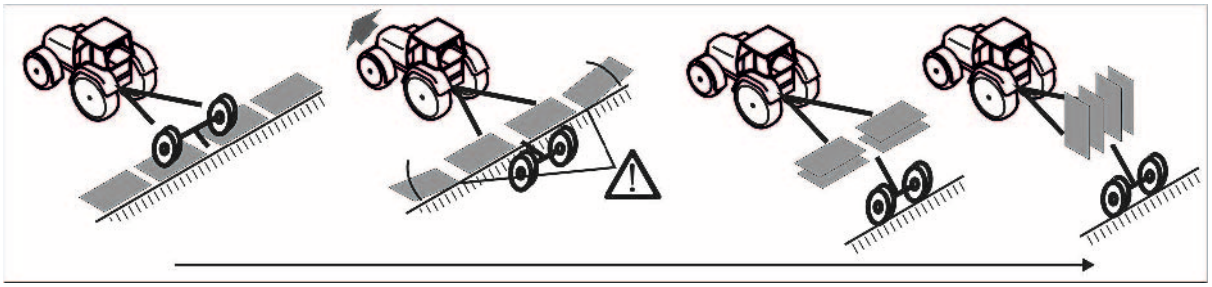
## 9.1 Conversion from operational to transport position

**WARNING**

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

- Switch off the vibration compensation before converting to transport position.

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.



1. Switch off the vibration compensation if necessary.
2. Actuate *green* tractor control unit.

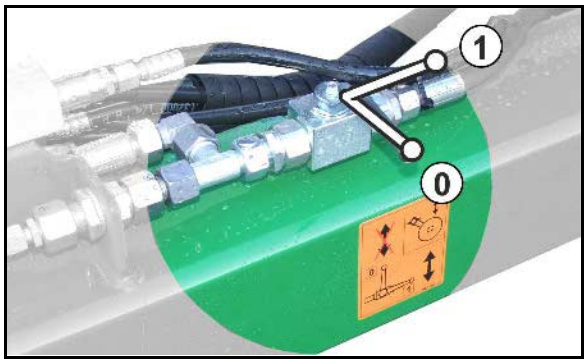
→ Move the implement into headland setting.

3. Close stop tap for disc array.

The discs must be fully raised to prevent damage when folding.

The implement must be standing sloped towards the rear for the folding procedure to be completed to the end position.

Roughly clean the implement. Extreme soil deposits can interfere with the folding procedure.




4. Actuate *yellow* tractor control unit.

→ Move the running gear completely into transport position.

5. Actuate blue tractor control unit.

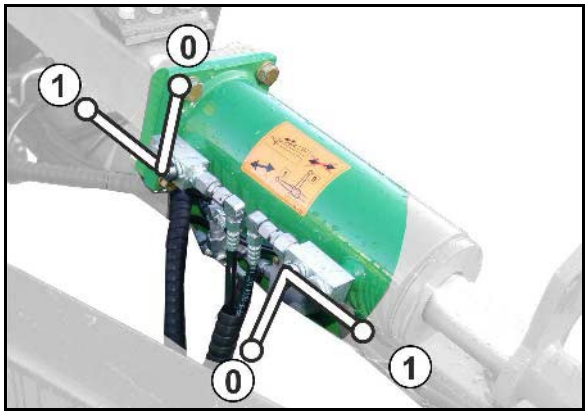
→ Fold in the implement.

6. Actuate tractor control unit *yellow* and *green*.

→ Lower the implement until

- the implement is aligned horizontally.
- the implement height is less than 4 m.
- there is sufficient ground clearance

7. Close stop taps for drawbar cylinder.



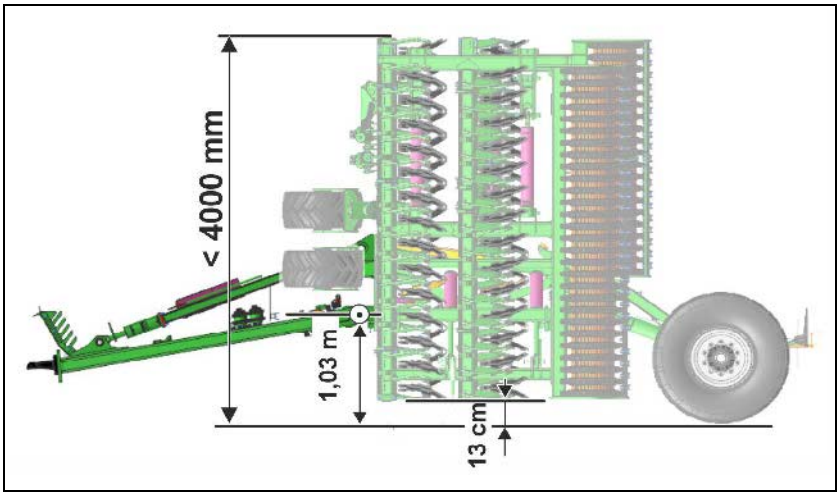

A transport height less than 4 m is achieved when

- there is 18 cm ground clearance measured on the retaining plate of the roller.
- the lighting is positioned vertically.

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⁺ 12003-2TS**



# 10 Use of the machine

When using the machine, observe the information in the sections

- "Warning pictograms and other labels on the machine", from page 17 and
- "Safety instructions for operators", from page 23

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 drawbar 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 that the lower link pins are secured with a lynch pin against unintentional release.

**WARNING**

**Risk of contusions, drawing in and catching during machine operation without the intended protective equipment!**

Only ever start up the machine when the protective equipment is fully installed.

**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.

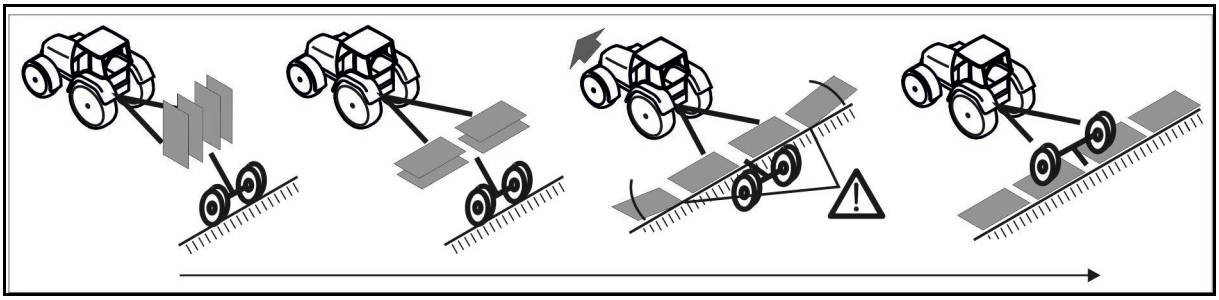
  In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.
- Before transportation, fasten the side locking of the tractor lower link, so that the connected or coupled machine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

## 10.1 Conversion from transport to operational position

**WARNING**

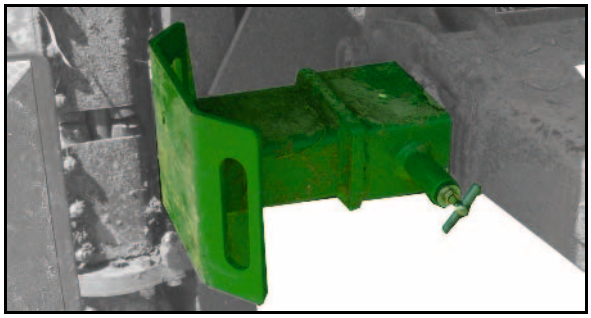
**Instruct people to leave the swivel area of the machine wing before you fold the machine wing out or in.**

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.



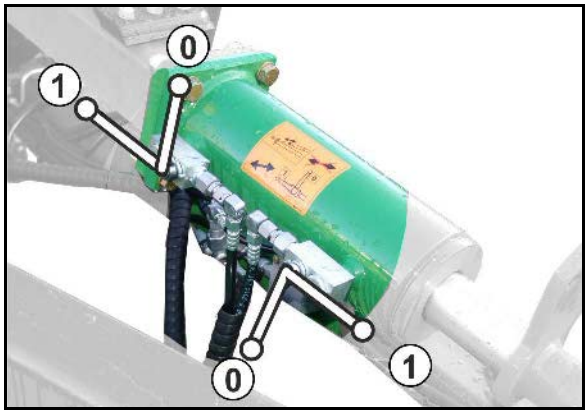
**Damage to the implement when unfolding with the stands in parking position.**

Before unfolding, mount the stands on the drawbar.



1. Check that the stop tap for the disc array is closed.
2. Open both stop taps on the drawbar hydraulic cylinder.
3. Actuate tractor control unit *green* and *yellow*.

→ Raise the implement as far as it goes.



4. Actuate tractor control unit *red*.

→ Release the locking of the sections.

and simultaneously

Actuate *blue* tractor control unit.

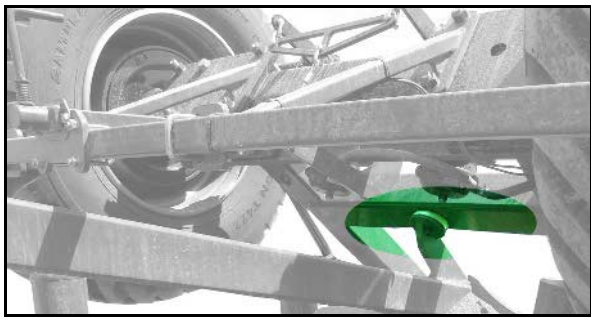
→ Unfold the implement.

The implement must be aligned horizontally for the folding procedure to be completed to the end position.

After unfolding, actuate the tractor control unit until the pressure gauge displays a compressive loading of 100 bar.

5. Move the *blue* tractor control unit to the float position.

→ The set pressure on the pressure relief valve for loading the section is adjusted automatically.



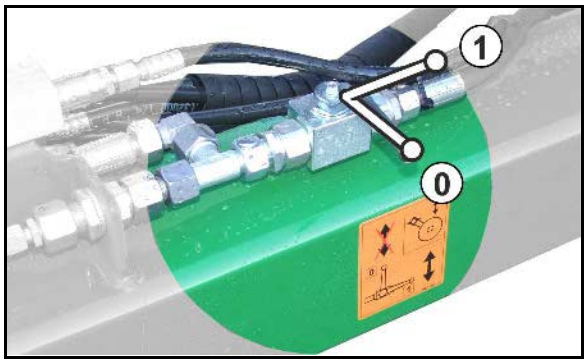
6. Actuate *yellow* tractor control unit.

→ Lift the running gear and position on buffers.

7. Open stop tap for disc array.

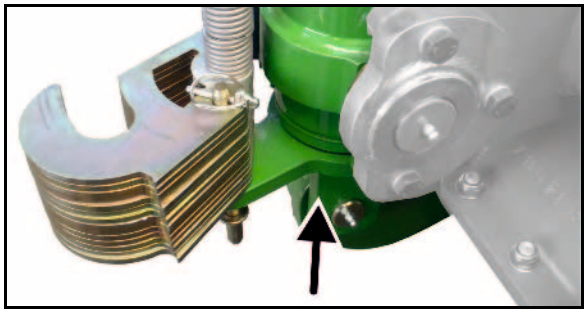
8. Actuate green tractor control unit.

→ Lower drawbar and coulters.



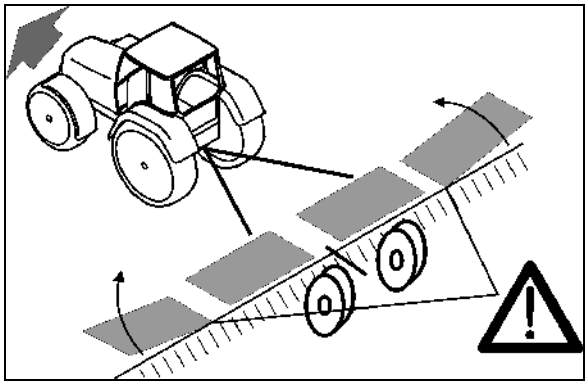

During operation, the drawbar cylinder may not be completely retracted, so that the cylinder can work in the hydraulic float position.

For proper depth adjustment, the spacer elements must rest on the hydraulic cylinder.



9. Move the green tractor control unit to the float position.

Driving slowly forward facilitates the folding of the outer sections, as long as/as soon as the outer sections have ground contact.



## 10.2 On the field

Implement with tensioned crosspiece:

Work with the tractor lower links locked to the sides.

**WARNING**

**Frame damage due to faulty switching of the tractor control units.**

During work, the following tractor control units must operated in float position:

- *Green 1 / 2* tractor control unit.
- Blue tractor control unit

**Hydraulic working depth adjustment:**

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

Before operation, synchronise the hydraulic cylinder for depth adjustment.

1. Actuate the *green 3* tractor control unit so that 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.

### Driving on the headlands

When turning on the headlands, the disc gangs must be raised to prevent transverse loads.

1. Actuate *green 2* tractor control unit.

→ Lift the tools and the drawbar.

After the headlands:

2. Actuate *green 1* tractor control unit.

→ Lower the tools and the drawbar.

3. Move the green tractor control unit to the float position.

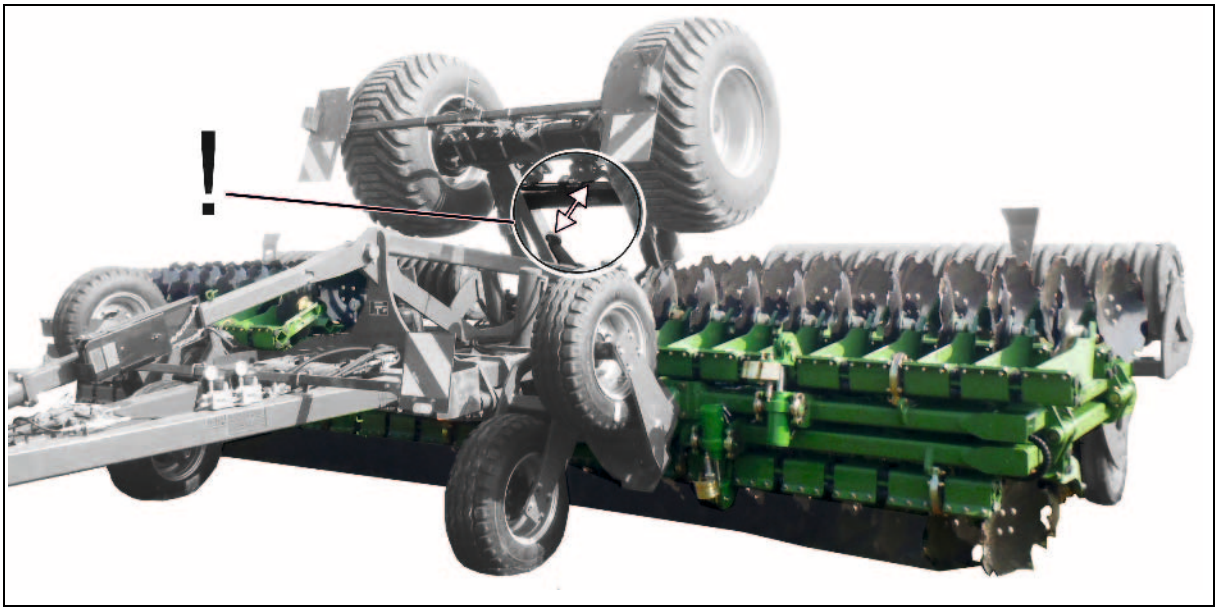
**CAUTION**

**Start working at headland not until the direction of the implement is identical with working direction.**

It is forbidden to drive in reverse when the implement is in working position!

When turning at headland, the previously set working depth is approached automatically.

## 10.3 Working with reduced working width (7 m)



When working with reduce working width, the outer booms remain folded.

Only the discs of the inner boom are working.

When converting from transport to working position, it must be noted that:

- The unfolding of the boom must be interrupted as soon as the inner booms are unfolded and aligned.
- Do not completely swivel in the running gear, because it otherwise causes a collision with the booms that are not unfolded.

# 11 Faults

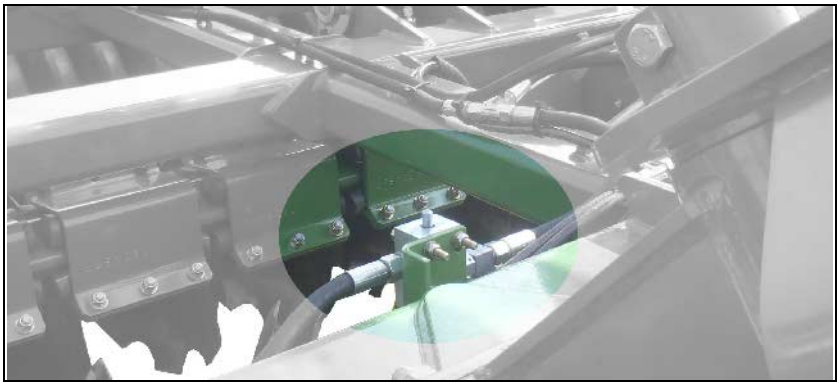
## No proper folding of the implement

Automatically switching valves ensure the proper sequence when folding and unfolding.

Extreme soil deposits on the implement can interfere with the switching of the valves and can cause damage.

Before folding the implement, remove any soil deposits.

- Use the dirt scraper.
- Clean the valves separately.



## Diagonal pull of the implement during operation

If the implement is pulled diagonally to the direction of travel during operation, this can be prevented with small changes to the working depth.

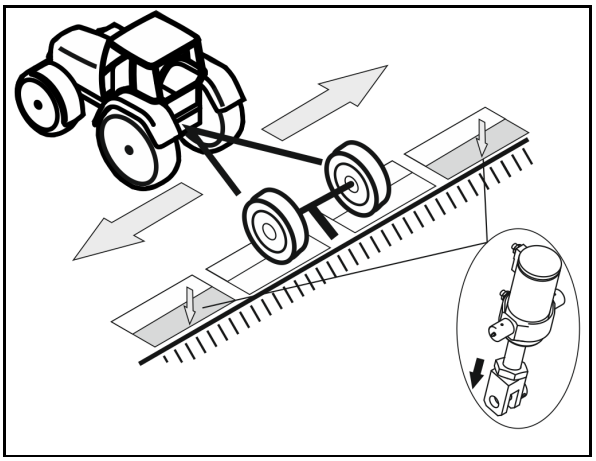
Adjust the rear depth adjustment cylinder of the outer section.

**If the implement pulls to the left**:

Modify the left depth adjustment cylinder.

**If the implement pulls to the right:**

Modify the right depth adjustment cylinder.



**For this purpose:**

1. Park the unfolded implement such that the depth adjustment cylinders are free of force.
2. Unscrew the fork on the depth adjustment cylinder 2 turns and secure with a lock nut.

Implement with manual depth adjustment:

Alternatively, use 1 to 2 fewer spacer elements on the depth adjustment of the appropriate section.

# 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 71.

**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 any repair work when the machine is folded in or partially folded in if the machine has been parked on a slant.

## 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.

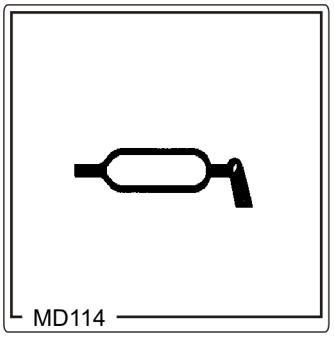
### Cleaning with a high pressure cleaner / steam jet

- 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 of the cleaning nozzle of the high pressure cleaner/steam jet directly at lubrication points, bearings, rating plates, warning signs, and stickers.
  - Always maintain a minimum jet distance of 300 mm between the high pressure cleaning or steam jet cleaning nozzle and the machine.
  - The set pressure of the high-pressure cleaner / steam jet must not exceed 120 bar.
  - Comply with safety regulations when working with high pressure cleaners.

## 12.2 Lubrication specifications

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.



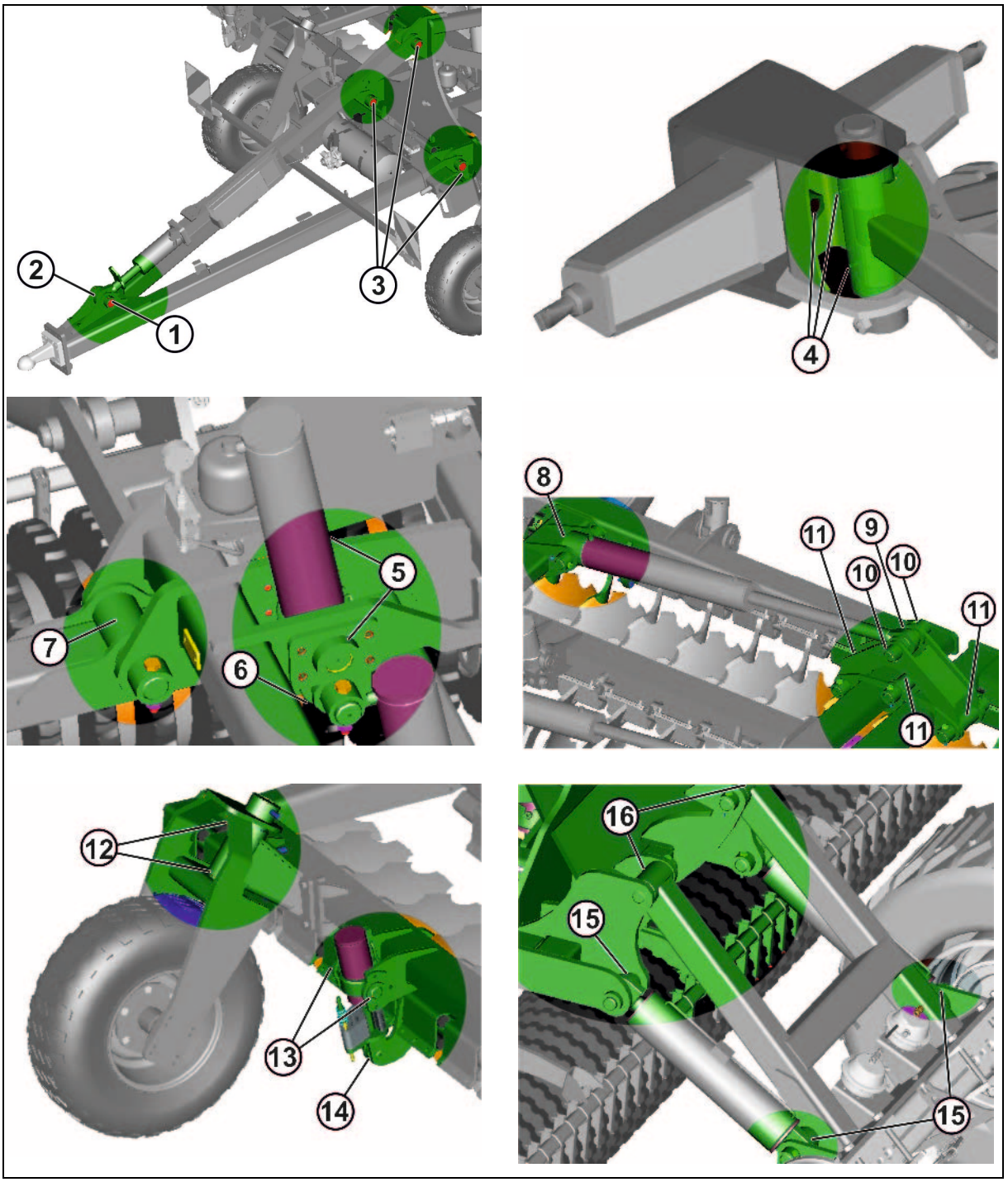

### Lubricants

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 points – overview

| | Lubrication point | Interval [h] | Quantity |
|---|---|---|---|
| **1** | Drawbar hydraulic cylinder | 50 | 1 |
| **2** | Drawbar, front | 50 | 1 |
| **3** | Drawbar, rear | 50 | 3 |
| **4** | Lower link traverse | 50 | 1 |
| | Main pin of the lower link traverse | 10 | 2 |
| **5** | Boom hydraulic cylinder, inner | 50 | 4 x 2 |
| **6** | Boom hydraulic cylinder, inner | 50 | 4 |
| **7** | Boom, inner | 50 | 4 |
| **8** | Boom hydraulic cylinder, outer | 50 | 4 |
| **9** | Boom hydraulic cylinder, outer | 50 | 4 |
| **10** | Boom, outer | 50 | 4 x 2 |
| **11** | Boom, outer | 50 | 4 x 3 |
| **12** | Support wheel | 50 | 4 x 2 |
| **13** | Depth adjustment | 50 | 8 x 2 |
| **14** | Depth adjustment | 50 | 8 |
| **15** | Chassis hydraulic cylinder | 50 | 2 x 2 |
| **16** | Running gear | 50 | 2 |
| **17** | Axle | 200 | 6 |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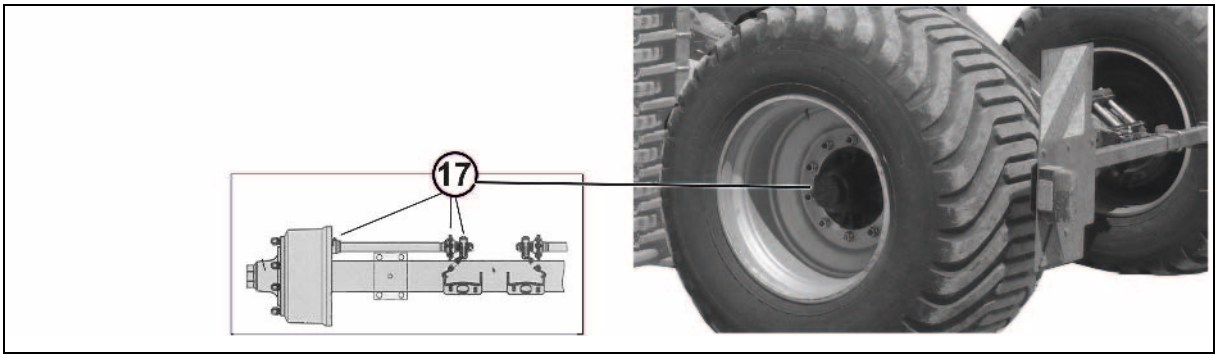

17

## 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 | **105** | |
| **Hydraulic system** | • Inspection for defects<br>• Check leak tightness | 95 | **X** |
| **Axle** | • Check the axle bolts | 103 | |

### Daily

| Component | Servicing work | see page | Workshop work |
|---|---|---|---|
| **Whole implement** | • Check for visible defects | | |
| **Air reservoir** | • Drain | 100 | |

### Weekly / every 50 operating hours

| Component | Servicing work | see page | Workshop work |
|---|---|---|---|
| **Hydraulic system** | • Inspection for defects | 95 | **X** |
| **Wheels** | • Check air pressure<br>• Firm seat of tyres<br>• Check for damage | 105 | |
| **Brake system** | • Perform visual inspection | 97 | |
| **Coupling device** | • Check for damage, deformation and cracks | 104 | |

### Every 2 months

| Component | Servicing work | See page | Workshop work |
|---|---|---|---|
| **Central lubrication** | • Check the central lubrication | **107** | **X** |

### Every three months / 200 operating hours

| Component | Servicing work | see page | Workshop work |
|---|---|---|---|
| **Dual-circuit service brake system** | • Inspection according to check instructions | 102 | **X** |
| | • Clean line filter | 102 | |
| **Brake system** | • Brake pad check | **99** | |
| | • Adjustment of the slack adjuster | 99 | |
| **Coupling device** | • Check the fastening bolts for wear and tight fit | 104 | |
| **Axle** | • Check the axle bolts | 103 | |

### 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 | **98** | **X** |

### Every year / 1000 operating hours

| Component | Servicing work | See page | Workshop work |
|---|---|---|---|
| **Brake system** | • Check the brake drum for dirt | 98 | **X** |
| | Automatic slack adjuster<br>• Functional check<br>• Settings | 99 | **X** |
| **Roller** | • Check the roller bearing | -- | **X** |
| **Wheel hub bearing** | • Change the grease<br>• Check the taper roller bearing for wear | | **X** |

### Every 2 years

| Component | Servicing work | see page | Workshop work |
|---|---|---|---|
| **Axle (running gear / support wheel)** | • Lubricate the hub bearing | | **X** |

### As required

| Component | Servicing work | see page | Workshop work |
|---|---|---|---|
| **Scraper** | • Adjust | 106 | |
| **Disc** | • Wear check | 106 | **X** |
| **Roller** | • Replacing the rollers | 106 | **X** |

## 12.4 Axle (running gear / support wheel) and brake system

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 check of the brake system. Observe and check the following criteria:**

- **Pipe lines, hose lines and coupler heads must not be externally damaged or rusted.**
- **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.

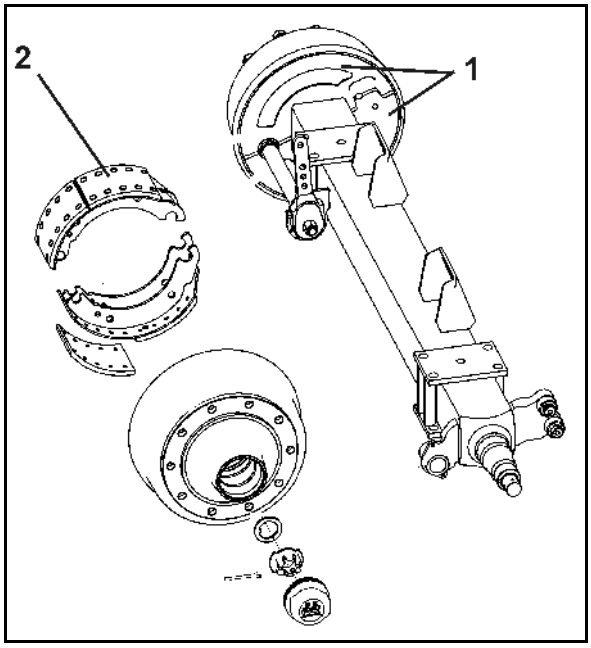
**CAUTION**

**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.



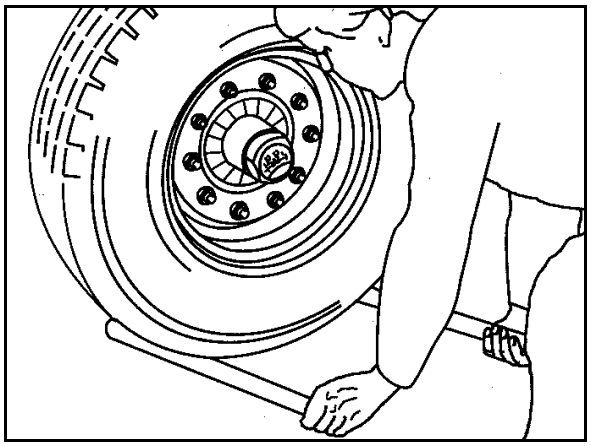

## Checking the play on wheel hub bearings

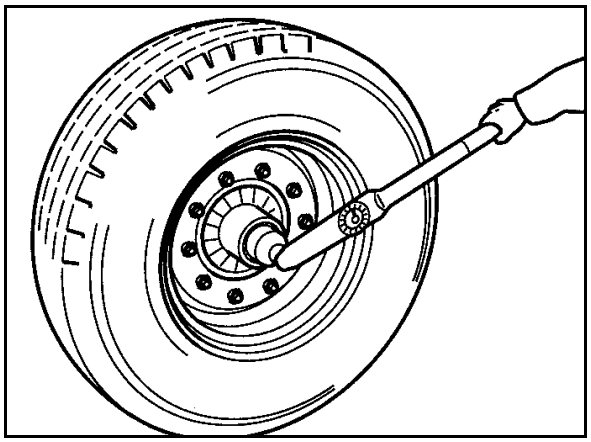
1. To check the play on wheel hub bearings, raise the axle until the wheels turn freely.
2. Release the brake
3. . Place a lever between the tyre and the ground and check the play.

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.





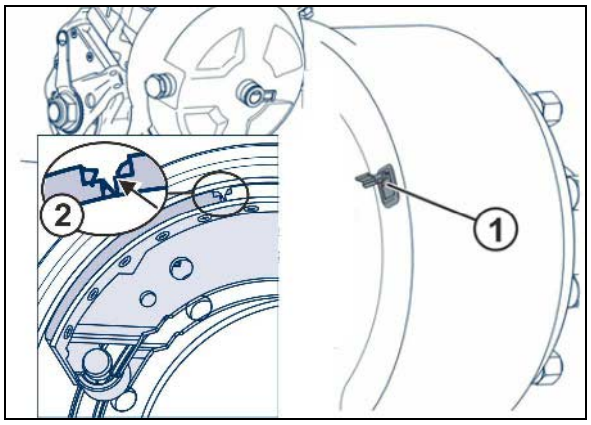
## Brake pad check

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:

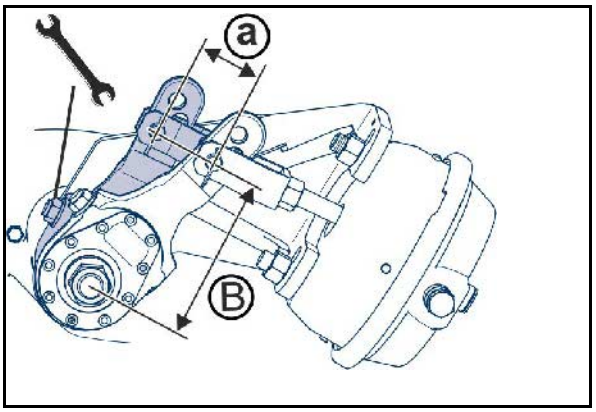
- Minimum pad thickness of 5 mm was reached.
- Wear edge (2) was reached.




## Adjusting the linkage adjuster

Move the linkage adjuster by hand in the pressure direction. If the free travel of the long-stroke diaphragm cylinder pressure rod is max. 35 mm, the wheel brake must be readjusted.

Adjustments are made using the readjustment hexagon bolt on the linkage 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.

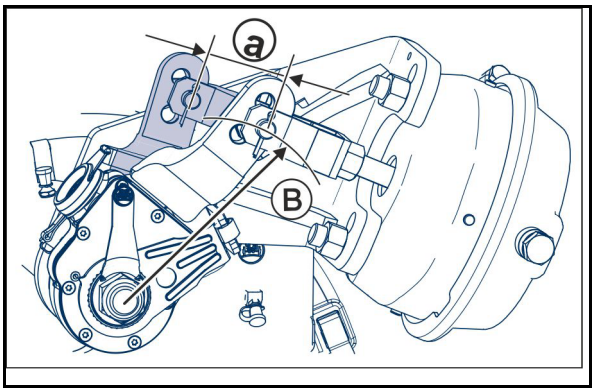



## Checking the function of the automatic slack adjuster

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

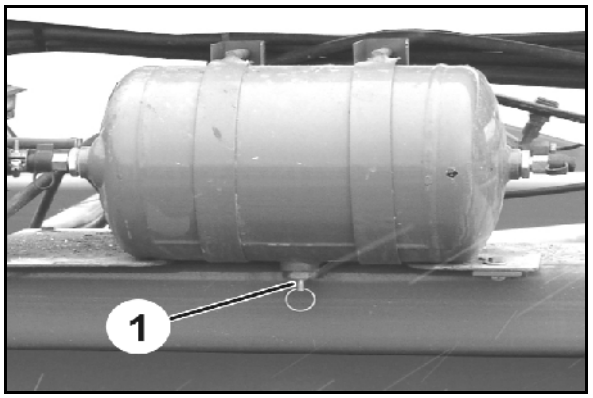
The free travel (a) may be a maximum of 10-15% of the connected brake lever length (B) (e.g. brake lever length 150 mm = free travel 15 – 22 mm).

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 (1) must not

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

The rating plate must not

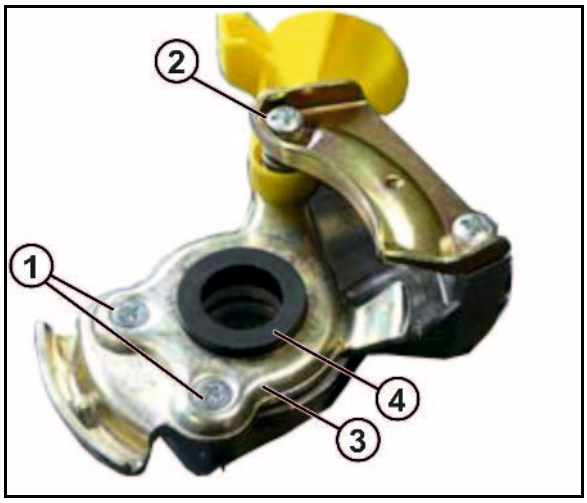
- show signs of corrosion
- be loose
- be missing

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.

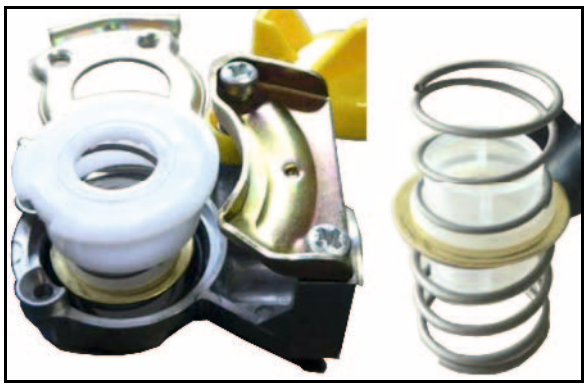



The unit is under spring tension.

4. Remove the rubber seal.

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

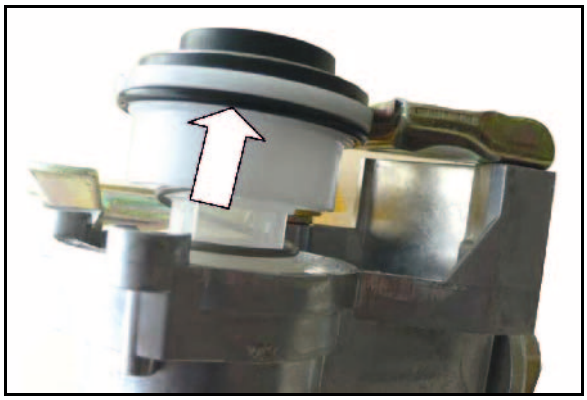
→ Replace the rubber seal if necessary.



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.

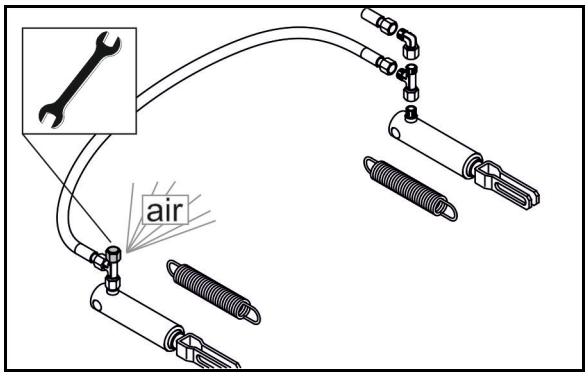
### Venting the brake system (workshop work)

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.

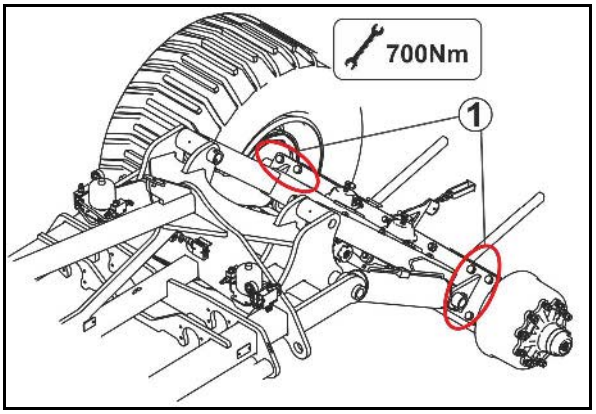



## 12.4.3 Axle bolts

(1) Axle bolts with clamping plates

Check the bolts for tightness.

Required tightening torque: 700 Nm



## 12.5 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<br>Cat. 4: 48.0 mm<br>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 (LI012) | 51.5 mm | M20 10.9 | 4 | 540 Nm |
| D50 (LI011) | 51.5 mm | M20 8.8 | 8 | 410 Nm |
| D50 (LI030) | 52.5 mm | M20 8.8 | 8 | 395 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 |

## 12.6 Tyres / wheels

| | Running gear / Roller feelers: | 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)** |

- Only use the tyres and wheels which we have specified.
- Repair work on tyres must only be carried out by specialists using suitable fitting tools.
- Tyre fitting requires sufficient skills and proper fitting tools.
- Use the jack only at the jacking points indicated.

### 12.6.1 Tyre air pressure

Inflate the tyres with the indicated tyre inflation pressure.

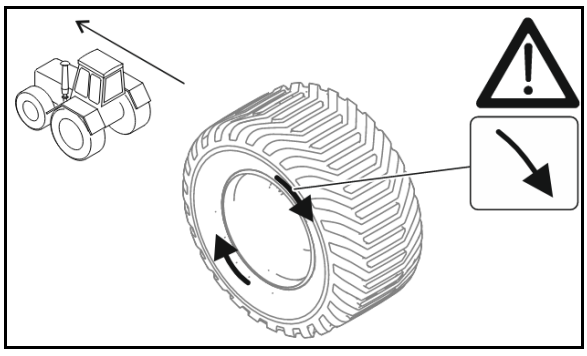
The tyre inflation pressure is specified on a sticker on the rim.

### 12.6.2 Fitting 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.

### 12.6.3 Installing the tyres (workshop work)

Install the tyres in the direction of rotation opposite to that specified on the tyre.



## 12.7 Scraper

Adjust scraper:

1. Release the screw below the scraper.
2. Adjust the scraper.
3. Retighten the screw.

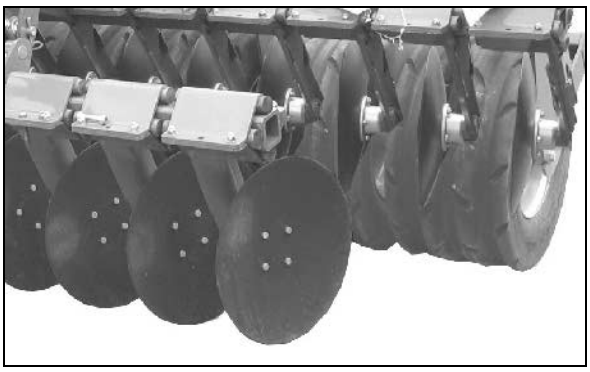
## 12.8 Replacing discs (workshop work)

Minimum disc diameter: 360 mm.

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.



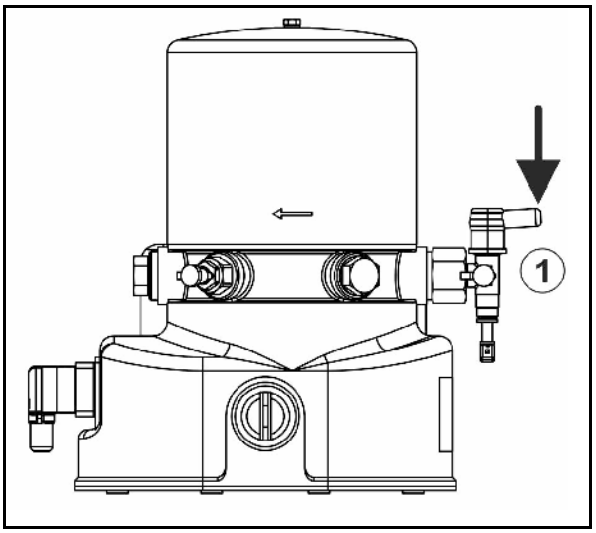
## 12.9 Replacing the rollers

When replacing the rollers, observe the assembly instructions MM632!

## 12.10 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<br>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:

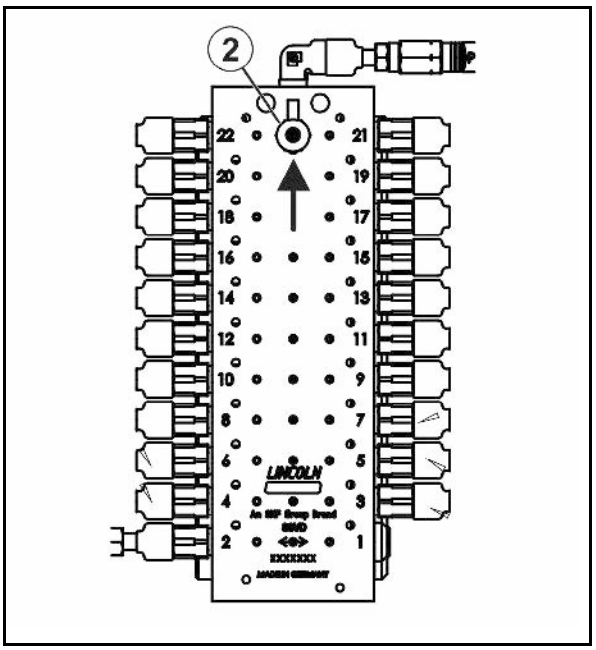
Dismount the screw-in element of a lubrication point and replace it with an M8x1 grease nipple.

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.

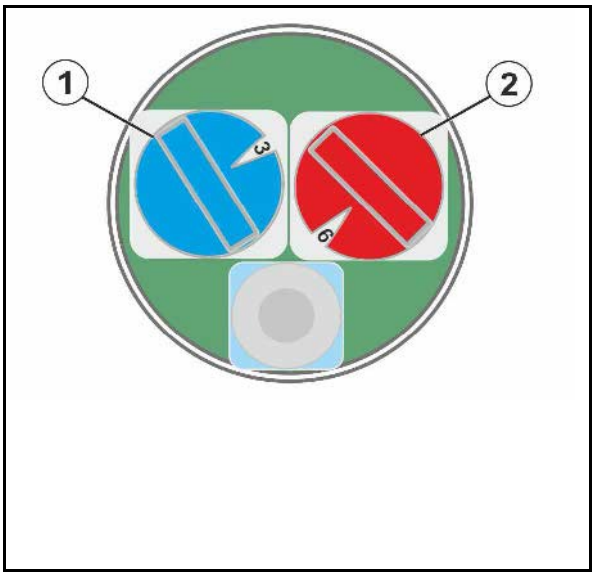
Then check the central lubrication.



**Checking the central lubrication overnight:**

1. Adjust the rotary knobs for time intervals as follows:
   - o Rotary knob blue (1):
     **3** = 3 hour pause
   - o 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.



## 12.11 Hydraulic system (workshop work)

**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 hose 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 lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if it is damaged or worn. Only use original AMAZONE 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 lines 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.

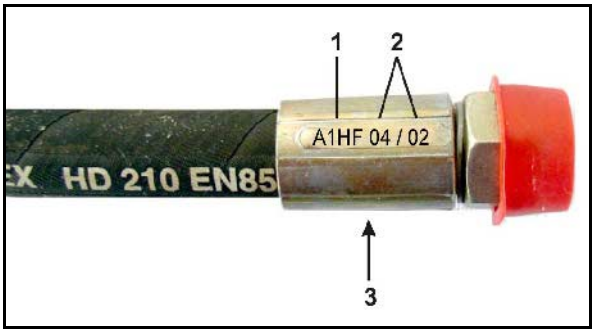
### 12.11.1 Labelling hydraulic hose lines

**The valve chest identification 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).




### 12.11.2 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.

### 12.11.3 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".

### 12.11.4 Installation and removal of hydraulic hose lines

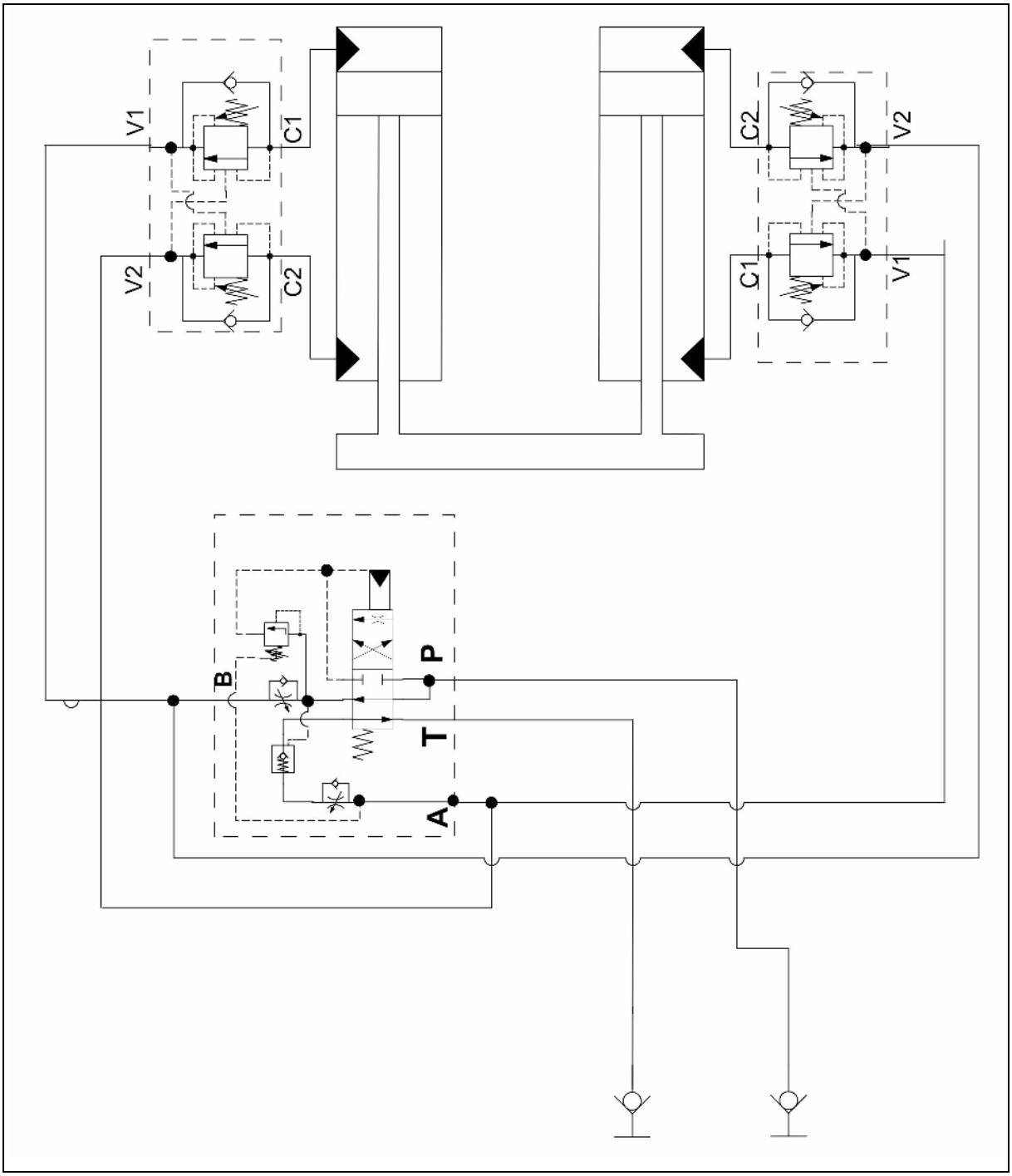
When installing and removing hydraulic hose lines, always observe the following information:

- Only use original AMAZONE hydraulic hose lines.
- Ensure cleanliness.
- You must always install the hydraulic hose 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.

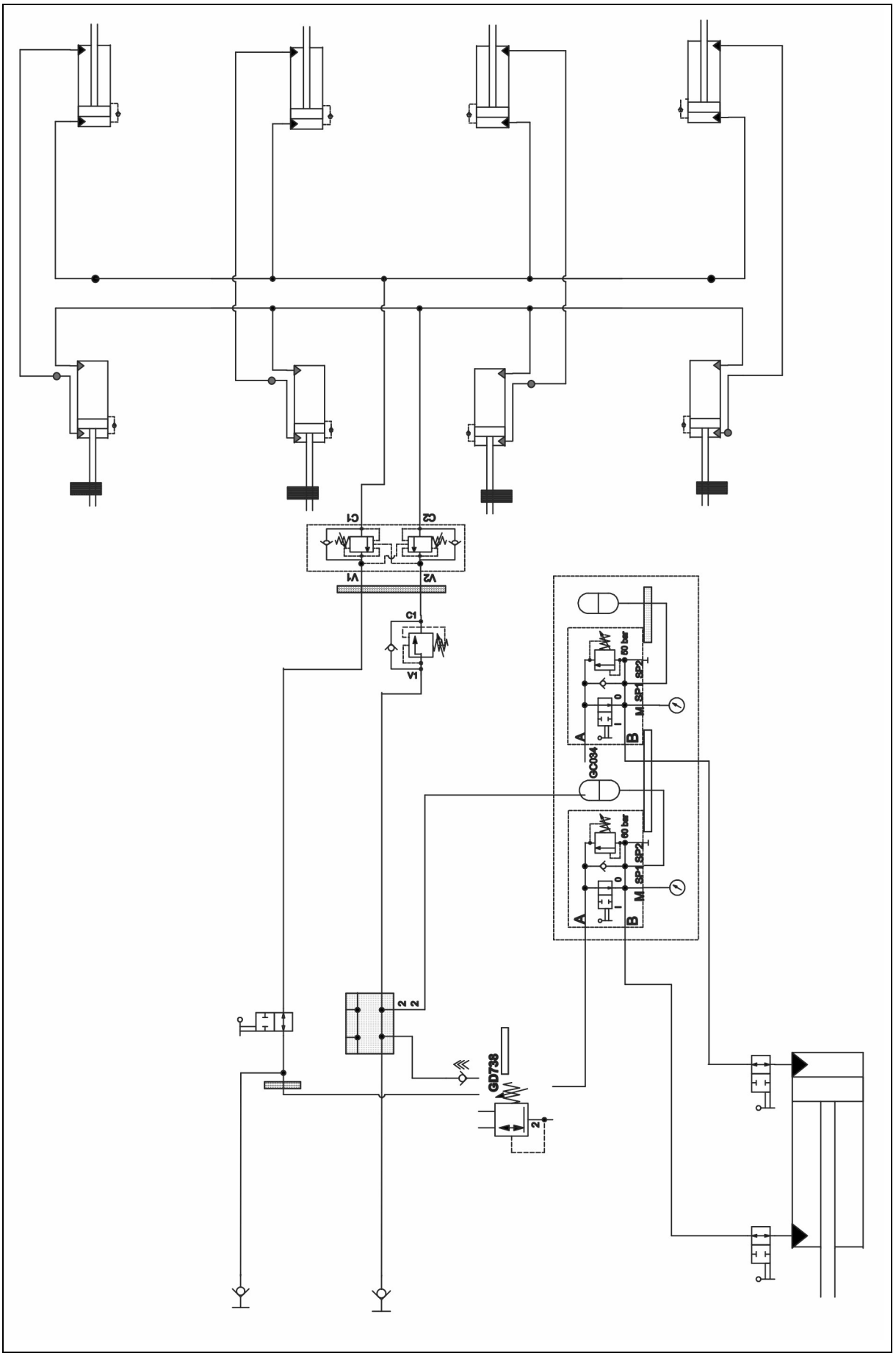
    Use appropriate arrangements and fixing to prevent any scouring of the hoses on components or on each other. If necessary, secure hydraulic hose lines using protective covers. Cover sharp-edged components.
  - The approved bending radii may not be exceeded.
- When connecting a hydraulic hose line to 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!

## 12.12 Hydraulics diagram

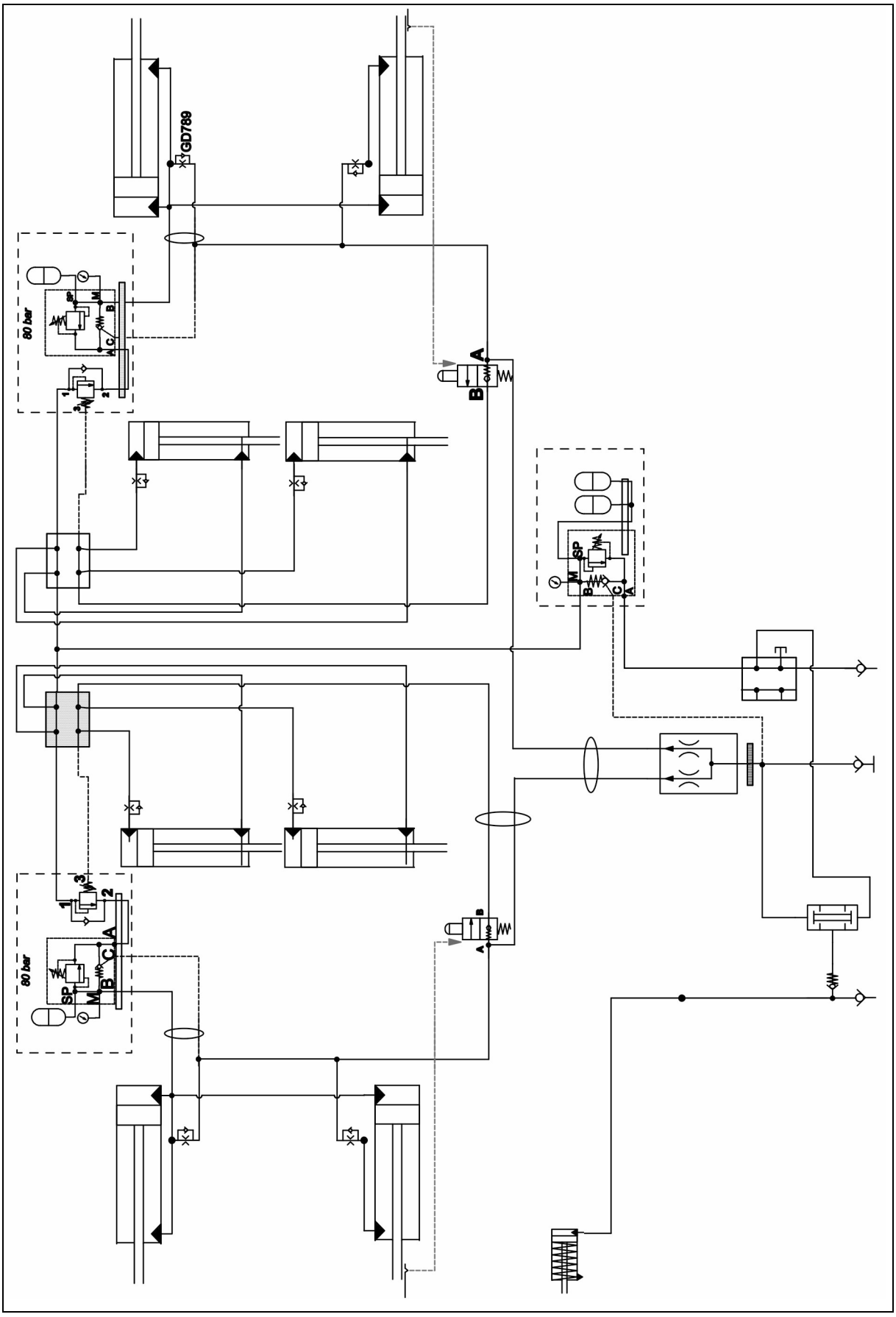
### Running gear



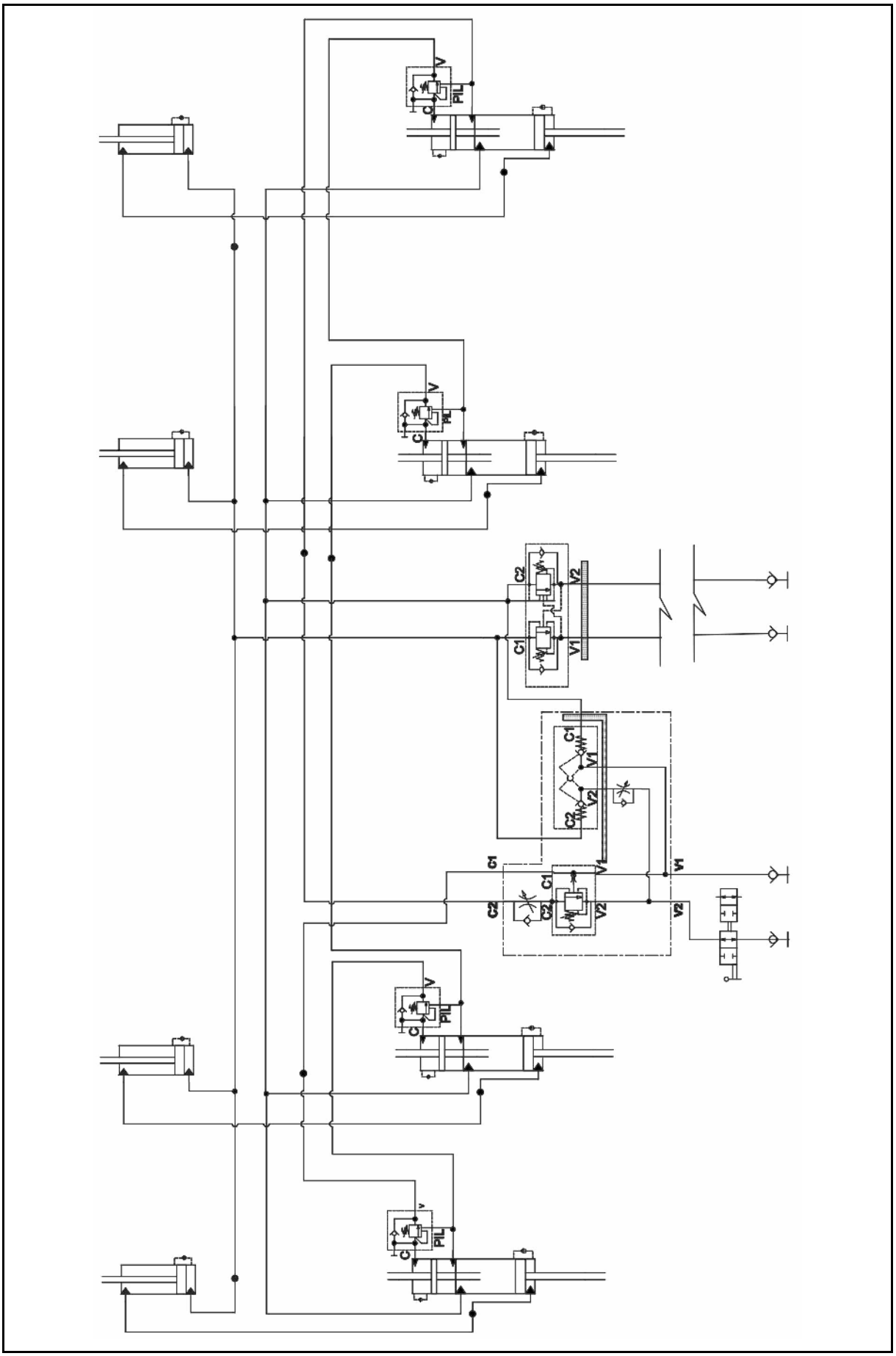
## Headlands (disc depth, drawbar):



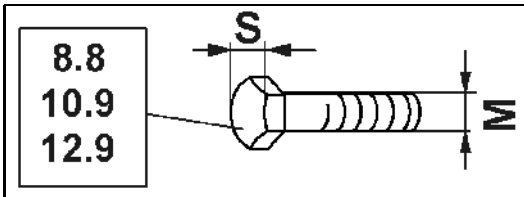
## Fold boom



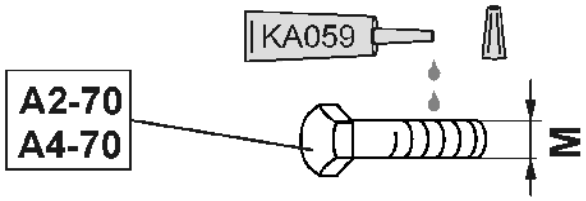
## Hydraulic working depth adjustment



## 12.13 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 bolts have different tightening torques.

Observe the specific data for tightening torques in the maintenance section.

# 13 Brief instructions

## Coupling

1. Couple the supply lines with the tractor.
2. Check that the stop tap for the disc array is closed.
3. Open both stop taps on the drawbar hydraulic cylinder.
4. Activate tractor control unit *green*.
   - 4.1 Lower the drawbar and attach the coupling device with the tractor.
   - 4.2 Lift the drawbar.
5. Remove both jacks and mount them on the side of the drawbar.
6. Disengage parking brake.
7. Remove wheel chocks.
8. Activate tractor control unit *green*.

→ Lower the implement using the drawbar until the implement height is lower than 4 m.

9. Activate tractor control unit *blue*.

→ Fold in – brace the sections against each other.

10. Perform a visual inspection of the section locking mechanism.
11. Close both stop taps on the drawbar hydraulic cylinder.

## Uncoupling

1. Check that the stop tap for the disc array is closed.
2. Open both stop taps on the drawbar hydraulic cylinder.
3. Activate tractor control unit *green*.

→ Lift drawbar.

4. Remove both jacks and mount them on the parking position.
5. Activate tractor control unit *green*.

→ Park the implement on the jacks.

6. Apply the parking brake.
7. Position the wheel chocks.
8. Disconnect the supply lines.
9. Disconnect the coupling device.
10. Close both stop taps on the drawbar hydraulic cylinder.

## Changing from working to transport position

1. Switch off the vibration compensation if necessary.
2. Actuate *green* tractor control unit.

→ Move the implement into headland setting.

3. Close stop tap for disc array.
4. Actuate *yellow* tractor control unit.

→ Move the running gear completely into transport position.

5. Actuate blue tractor control unit.

→ Fold in the implement.

6. Actuate tractor control unit *yellow* and *green*.

→ Slightly lower the implement.

7. Close stop taps for drawbar cylinder.

## Changing from transport to working position

1. Check that the stop tap for the disc array is closed.
2. Open both stop taps on the drawbar hydraulic cylinder.
3. Actuate tractor control unit *green* and *yellow*.

→ Raise the implement as far as it goes.

4. Actuate tractor control unit *red*.

and simultaneously

Actuate *blue* tractor control unit.

→ Unfold the implement.

After unfolding, actuate the tractor control unit until the pressure gauge displays a compressive loading of 100 bar.

5. Move the *blue* tractor control unit to the float position.
6. Actuate *yellow* tractor control unit.

→ Lift the running gear and position on buffers.

7. Open stop tap for coulter depth.
8. Actuate green tractor control unit.

→ Lower drawbar and coulters.

During operation, the drawbar cylinder may not be completely retracted, so that the cylinder can work in the hydraulic float position.

For proper depth adjustment, the spacer elements must rest on the hydraulic cylinder.

9. Move the green tractor control unit to the float position.

## Driving on the headlands

1. Actuate green tractor control unit.

→ Lift the tools and the drawbar.

After the headlands:

2. Actuate green tractor control unit.

→ Lower the tools and the drawbar.

3. Move the green tractor control unit to the float position.

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