

Operating Manual

AMAZONE

ZG-TS 7501 Profis
ZG-TS 10001 Profis
ZG-TS 7501 Profis Pro
ZG-TS 10001 Profis Pro

Trailed spreader



MG6018
BAG0147.6 10.20
Printed in Germany

**Please read this operating
manual before first commis-
sioning.
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. Stark.

Identification data

Manufacturer: AMAZONEN-WERKE
H. DREYER GmbH & Co. KG

Machine Ident. No.:

Type:

Year of manufacture:

Factory:

Basic weight (kg):

Approved total weight (kg):

Maximum load (kg):

Manufacturer's address

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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

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This operating manual is valid for all versions of the implement.

All of the equipment is described without indicating it as special optional equipment.

A description may be provided for equipment that is not fitted on the implement or is only available in certain markets. The sales documents provide information on the equipment of your implement or consult your dealer for more detailed information.

All information in this operating manual corresponds to the state of knowledge at the time of publication. Due to ongoing development of the implement, deviations are possible between the implement and the information in this operating manual.

No claims can be made based on differences in the specifications, figures or descriptions.

Figures serve as a reference and are to be understood as representations of the principle.

If you want to sell the implement, ensure that the operating manual is supplied with the implement.

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER GmbH & 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. Damage can only be rectified if problems are signalled immediately!

Before first commissioning, read and understand this operating manual, and particularly the safety information. 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 commissioning the machine.

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

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

User evaluation

Dear Reader,

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

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1 User Information

The User Information section provides information on use of 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 seen from the direction of travel.

1.3 Diagrams used

Operator control action and responses

Actions to be carried out by the operator are given as a numbered list. It is important that the sequence of steps is observed. The responses for each operator control action are given by an arrow. Example:

1. Operator control action step 1
→ Machine response to operator control action 1
2. Operator control action step 2

Lists

Lists without an essential order are shown as a list with bullets. Example:

- Point 1
- Point 2

Number items in diagrams

Numbers in round bracket refer to items in diagrams. The first number refers to the diagram and the second number to the item in the figure.

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 symbols on the machine in a legible state.
- To replace damaged warning symbols.

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 follow the "General safety information" section 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.
- If you still have queries, please contact the manufacturer.

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 operator 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 immediately which could impair safety.

Guarantee and liability

Our "General conditions of sales and delivery" 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 design changes to the machine.
- Insufficient monitoring of machine parts which are subject to wear.
- Improperly executed repairs.
- Disasters through the impact of foreign bodies and acts of God.

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 severity of the risk, and carries the following meaning:



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 cause 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 as per the information provided by the manufacturer of the crop protection agent to be used, such as:

- Chemical-resistant gloves,
- Chemical-resistant overalls,
- Water-resistant footwear,
- A face mask,
- Breathing protection,
- Safety glasses,
- Skin protection agents, etc.



The operating manual

- Must always be kept at the place at which the machine is operated.
- Must always be easily accessible for the operator 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 Operator 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 and maintenance 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 operator 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 additionally marked "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 Danger from residual energy

Note that there may be residual mechanical, hydraulic, pneumatic and electrical/electronic energy on 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 good time.

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 tightened if necessary.

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

2.10 Design changes

You may make no changes, expansions or modifications to the machine without the approval 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 type approval remains valid according to the 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 contusions, cuts, dragging, catching or knocks from support parts.

It is forbidden to:

- Drill holes in the frame or on the running gear.
- Increase the size of existing holes on the frame or the running gear.
- Weld support parts.



2.10.1 Spare and wear parts and auxiliary materials

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

Only use AMAZONE spare and wear parts released by AMAZONEN-WERKE, so that the type approval remains valid according to the national and international regulations. The use of wear and spare parts from third parties does not guarantee that they have been constructed in a way as to meet the requirements placed on them.

AMAZONEN-WERKE shall accept no liability for damage caused by the use of unreleased spare and 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 Operator workstation

The machine may only be operated by one person sitting in the driver's seat of the tractor.

2.13 Warning symbols and other labels on the machine



Always keep all the warning symbols on the machine clean and in a legible state. Replace illegible warning symbols. You can obtain the warning symbols from your dealer using the order number (e.g. MD 075).

Warning symbols - structure

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

A warning symbol consists of two fields:



Field 1

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

Field 2

is a symbol showing how to avoid the danger.

Warning symbols - explanation

The column **Order number and explanation** provides an explanation of the neighbouring warning symbol. The description of the warning symbols 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 non-compliance with risk avoidance 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 symbols

MD 075

Risk of fingers and hands being cut or cut off by accessible, moving parts involved in the work process.

This danger can cause extremely serious injuries and the loss of body parts.

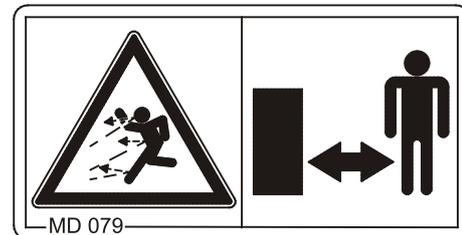
- Never reach into the danger area when the tractor engine is running with PTO shaft / hydraulic / electronics system connected.
- Wait for all moving machine parts to come to a complete standstill before reaching into the danger area.

**MD 079**

Danger from materials or foreign objects that are thrown from or ejected by the machine at high speeds.

These dangers can cause extremely serious and potentially fatal injuries.

- Stay at a safe distance from the machine when the tractor engine is running.
- Ensure that bystanders maintain a sufficient safety distance from the danger area of the machine as long as the tractor engine is running.

**MD 082**

Risk of falling for personnel riding on treads or platforms.

This danger can cause extremely serious and potentially fatal injuries.

It is forbidden to ride on the machine or climb the machine when it is running. This also applies to machines with treads or platforms.

Make sure that nobody is riding on the machine.



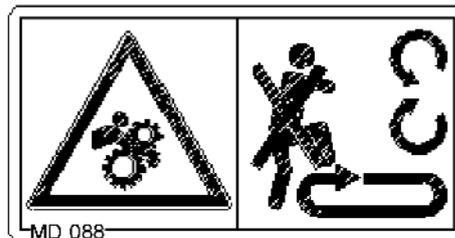
General safety instructions

MD 088

Risk of being drawn in or caught by moving parts involved in the work process, caused by climbing on the loading platform when the machine is running.

This danger can cause extremely serious and potentially fatal injuries.

Never climb onto the loading platform when the tractor engine is running with PTO shaft / hydraulic / electronics system connected.



MD 093

Danger due to catching or entrapment due to accessible powered elements of the machine.

These dangers can cause extremely serious and potentially fatal injuries.

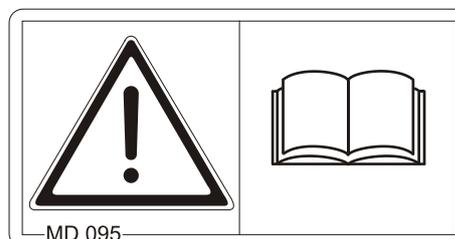
Never open or remove protective devices from driven machinery

- as long as the tractor engine is running with the PTO shaft connected / hydraulic drive engaged or
- as long as the tractor engine can be unintentionally started with the PTO shaft connected / hydraulic drive engaged.



MD 095

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

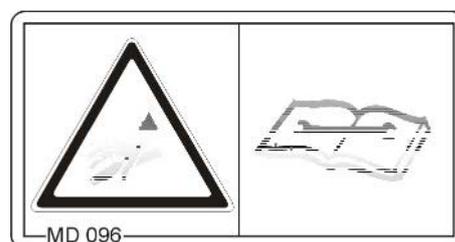


MD 096

Danger from escaping high-pressure hydraulic fluid due to leaking hydraulic hose lines.

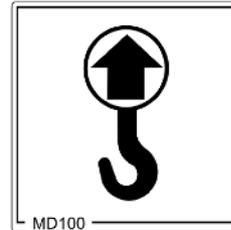
This danger may cause serious injuries, perhaps even resulting in death, if escaping high-pressure hydraulic fluid passes through the skin and into the body.

- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.
- Read and observe the information in the operating manual before carrying out maintenance and repair work on the hydraulic hose lines.
- If you are injured by hydraulic fluid, contact a doctor immediately.

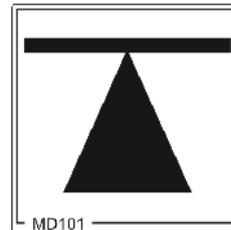


MD 100

This symbol indicates anchorage points for fastening slinging gear when loading the machine.

**MD 101**

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

**MD 102**

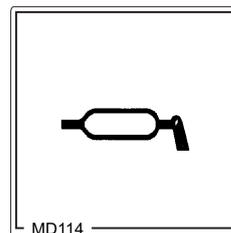
Danger from intervention in the machine, e.g. installation, adjusting, troubleshooting, cleaning, maintaining and repairing, due to the tractor and the machine being started unintentionally and rolling.

These dangers can cause extremely serious and potentially fatal injuries.

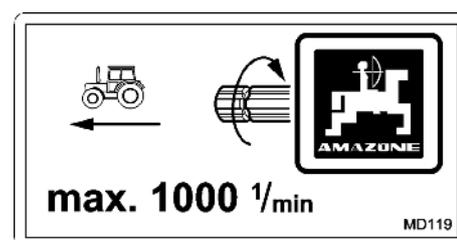
- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- Depending on the type of intervention, read and understand the information in the relevant sections of the operating manual.

**MD 114**

This symbol indicates a lubrication point.

**MD 119**

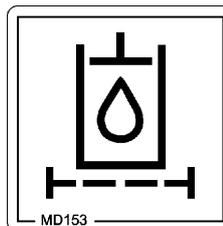
Nominal speed (1000 rpm) and direction of rotation of the machine-side drive shaft.



General safety instructions

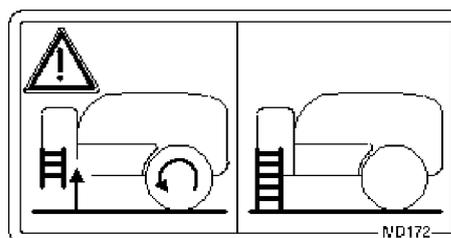
MD 153

This pictogram indicates a hydraulic oil filter..



MD 172

Swing the ladder to the operation platform upwards into transport position when driving!

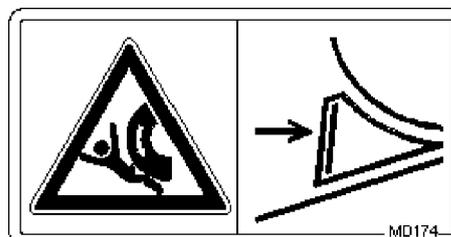


MD 174

Danger from unintended continued movement of the machine.

Causes serious, potentially fatal injuries anywhere on the body.

Secure the machine against unintended continued movement before uncoupling the machine from the tractor. To do this, use the parking brake and/or the wheel chock(s).



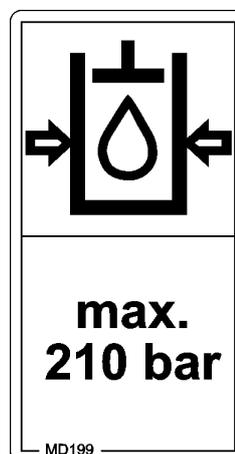
MD 175

The torque of the screw connection is 510 Nm.



MD 199

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



2.14 Dangers if the safety information is not observed

Non-compliance with 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 symbols.

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

2.16 Safety information for the operator



WARNING

Risk of contusions, cuts, dragging, catching or knocks from 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 symbols 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.
- Do not stand between the machine and tractor to be coupled while the tractor is approaching 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 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 linkage.
- Coupled supply lines:
 - must easily give way to all movements in bends without tensioning, kinking or rubbing.
 - must not rub against 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 drawbar 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!
- Before leaving the tractor, secure it from unintentionally starting up or rolling away.
For this:
 - Lower the machine onto the ground
 - Apply the parking brake
 - Switch off the tractor engine
 - Remove the ignition key

Machine transportation

- Comply with the national road traffic regulations when using public highways.
- 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 completely disengaged
 - The function of the brake 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 tractor empty 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 drawbar 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 linkage 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 linkage 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 bolts are firmly fixed with the linchpin 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
 - are automatically controlled
 - require a floating position or pressed position to function
- Before working on the hydraulic system
 - Lower the machine
 - Depressurise the hydraulic system
 - Shut off the tractor engine
 - Apply the parking brake
 - Remove 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 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 connections made from thermoplastics, other guide values may be decisive.
- 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.
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 that are too highly rated, the electrical system will be destroyed – risk 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. If there is accidental earth contact, there is a risk of explosion.
- Risk of explosion. Avoid sparking and naked flames in the area 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.
 - If retrofitting electrical units and/or components on the machine with a connection to the on-board power supply, the user is responsible for checking 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 2014/30/EEC in the appropriate version and carry the CE mark.

2.16.4 Coupled machines

- Observe the permitted combination options of the attachment equipment on the tractor and the machine drawbar.
Only couple permitted combinations of vehicles (tractor and attached machine).
- On 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 attached or coupled to a tractor influence the driving behaviour and steering and braking power of the tractor, in particular single axle machines with a 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 brake system, park the machine safely and secure the machine against unintentional lowering or rolling (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 brake system.

Pneumatic braking system

- Before coupling the machine, clean any dirt from 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.
- Implements without brake system:
Observe the national regulations for implements without brake system.

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 explosion.
- 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 Fertiliser spreader operation

- Stay clear of the working area! Danger from flying fertiliser particles. Direct persons away from the throwing range of the fertiliser spreader. Do not walk or stand close to rotating spreading discs.
- Fill the fertiliser spreader only when the tractor engine is shut off, the ignition key is pulled and the sliders are closed.
- Do not place any foreign objects in the hopper.
- While carrying out the spread rate check, beware of danger points from rotating machine parts.
- For side spreading at field edges, bodies of water or roads, use side spreading devices.
- Before each use, ensure that the attachment parts are properly fitted, particularly those for attaching the spreading discs and spreading vanes.

2.16.8 Universal joint shaft operation

- Use only the PTO shafts prescribed by the AMAZONEN-WERKE factories, equipped with the proper safety devices.
- Also read and follow the operating manual from the PTO shaft manufacturer.
- The protective tube and PTO shaft guard must be undamaged, and the shield of the tractor and machine universal joint shaft must be attached and be in proper working condition.
- Work is prohibited while the safety devices are damaged.
- You may install or remove the PTO shaft only after you have done all of the following:
 - Switched off the universal joint shaft
 - Switched off the tractor engine
 - Applied the parking brake
 - The ignition key has been removed
- Always ensure that the universal joint shaft is installed and secured correctly.
- When using wide-angle PTO shafts, always install the wide angle joint at the pivot point between the tractor and machine.
- Secure the PTO shaft guard by attaching the chain(s) to prevent movement.
- Observe the prescribed pipe overlaps in transport and operational positions. (Read and follow the operating manual from the PTO shaft manufacturer.)
- When turning corners, observe the permitted bending and displacement of the PTO shaft.
- Before switching on the universal joint shaft, check that the selected universal joint shaft speed of the tractor matches the permitted drive rev. speed of the machine.
- Instruct people to leave the danger area of the machine before you switch on the universal joint shaft.
- While work is being carried out with the universal joint shaft, there must be no one in the area of the universal drive or PTO shaft while it is turning.
- Never switch on the universal joint shaft while the tractor engine is shut off.
- Always switch off the universal joint shaft whenever excessive bending occurs or it is not needed.
- **WARNING!** After the universal joint shaft is switched off, there is a danger of injury from the continued rotation of freewheeling machine parts.
Do not approach the machine too closely during this time. You may work on the machine only after all machine parts have come to a complete stop.
- Secure the tractor and machine against unintentional starting and unintentional rolling away before you perform any cleaning, servicing or maintenance work on universal joint shaft-driven machines or PTO shafts.
- After decoupling the PTO shaft, place it on the holder provided.

- After removing the PTO shaft, attach the protective sleeve to the universal joint shaft stub.
- When using the travel-dependent universal joint shaft, note that the universal joint shaft speed depends on the drive speed, and that the direction of rotation reverses when you drive in reverse.

2.16.9 Cleaning, maintenance and repairs

- Only carry out maintenance, repair and cleaning work on the machine when
 - The drive is switched off
 - The tractor engine has come to a complete stop
 - The ignition key has been removed
 - The machine connector has been removed from the on-board computer
- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- Secure the raised machine and/or raised machine parts against unintentional falling before maintaining, repairing or cleaning 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 from the tractor generator and battery before carrying out electrical welding work on the tractor and on attached machines.
- Spare parts must at least meet the specified technical requirements of AMAZONEN-WERKE. This is ensured through the use of original AMAZONE spare parts.

3 Loading

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.

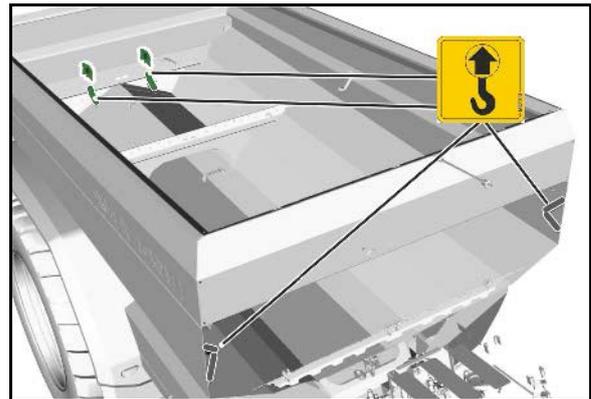
Loading using a lifting crane

There are 2 attachment points at the front and rear of the hopper.



DANGER

If loading the machine with a lifting crane, use the marked attachment points for lifting belts.



DANGER

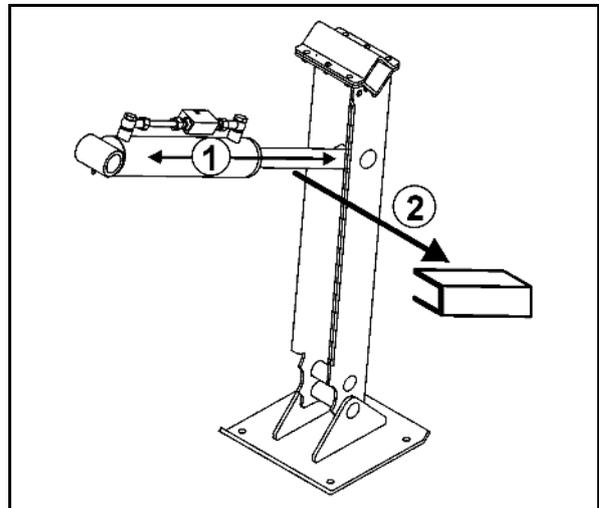
The minimum tensile strength of each lifting belt must be 1500 kg!

Transport locks for hydraulic stand



Remove the transport locks for the stand after unloading the machine.

1. Hydraulically raise the machine over the stand.
2. Remove the transport locks



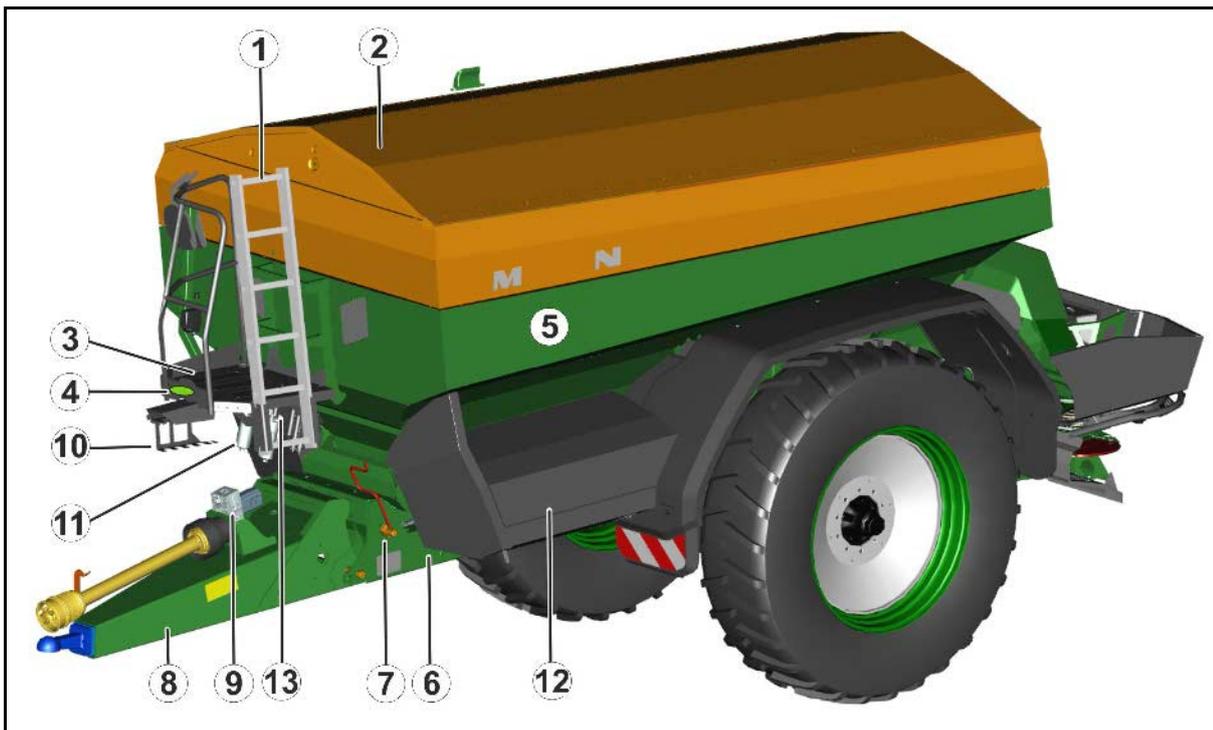
4 Product description

This section:

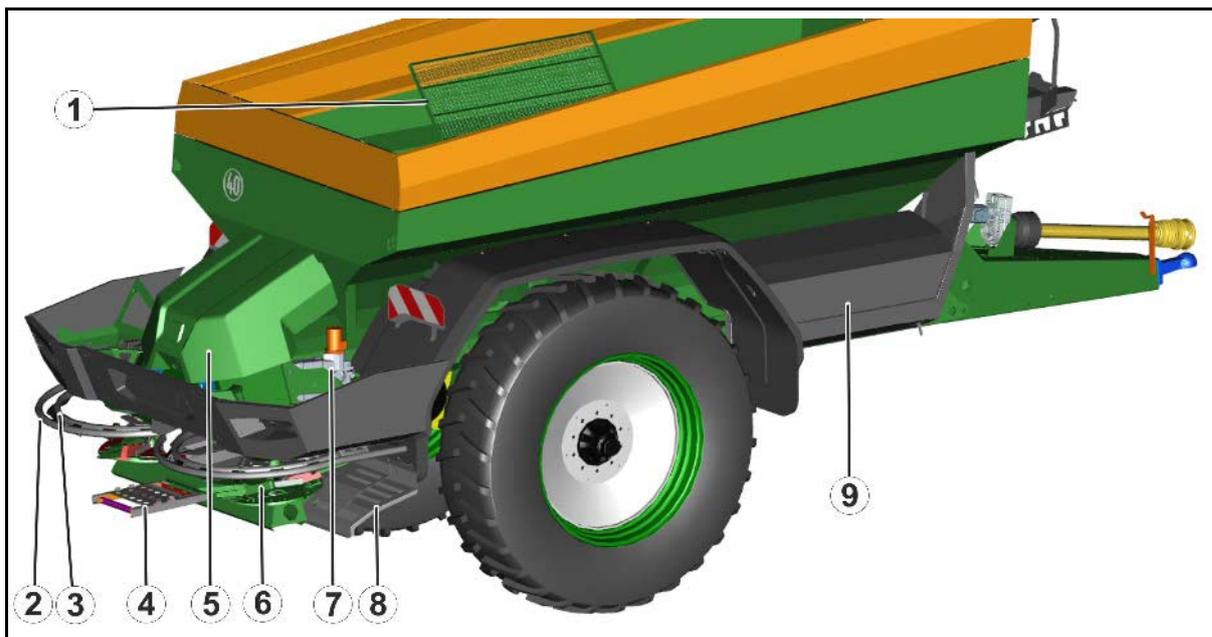
- Provides a comprehensive overview of the machine structure.
- Provides the names of the individual modules and controls.

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

4.1 Overview of subassemblies



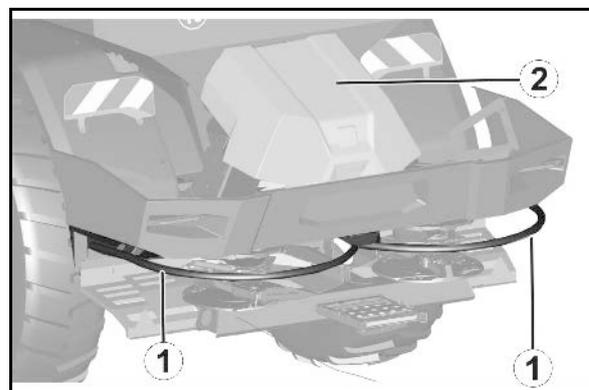
- | | |
|--|---|
| (1) Folding ladder for climbing up to the hopper | (7) Parking brake |
| (2) Rollup cover tarpaulin | (8) Drawbar |
| (3) Maintenance platform | (9) Hydraulic oil pump with universal joint shaft |
| (4) Fault light for the electronic brake system | (10) Hose cabinet |
| (5) Hopper with circulating floor belt | (11) Oil filter |
| (6) Frame | (12) Transport box |
| | (13) Brake force regulator |



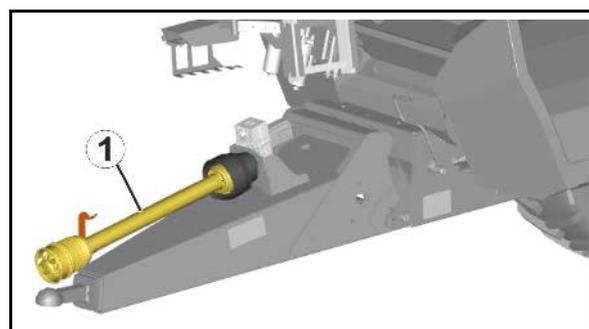
- | | |
|--|----------------------|
| (1) Charging sieve | (6) Spreader unit |
| (2) Guard tube | (7) Floor belt drive |
| (3) ArgusTwin | (8) Deflector plate |
| (4) Folding ladder for maintenance in the fertilizer pre-chamber | (9) Transport box |
| (5) Fertiliser pre-chamber | |

4.2 Safety and protection equipment

- (1) Guard tube
- (2) Hood with agitator shaft/spreading-disc drive cut-off when the rear flap is opened



- (1) Universal joint shaft guard



- **Without illustration:** Warning symbol

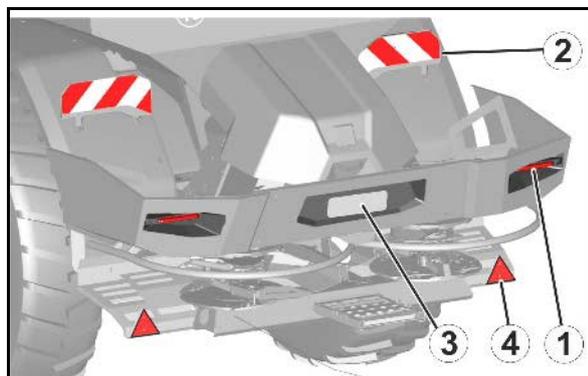
4.3 Supply lines between the tractor and the machine

Supply lines in parking position:

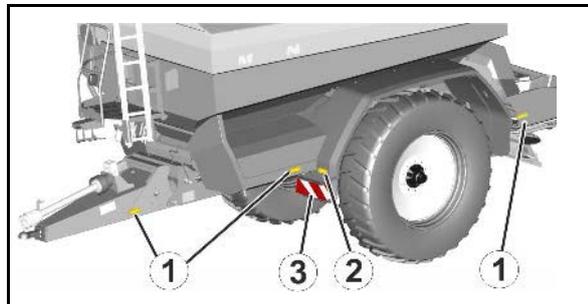
- (1) Hydraulic hose lines (depending on equipment)
- (2) Electric cable for lighting
- (3) ISOBUS connection cable
- (4) Brake connection

4.4 Transportation equipment

- (1) rear lights, brake lights and turn indicators
- (2) Warning signs (square)
- (3) 1 registration plate holder with lighting
- (4) 2 red reflectors (triangular)



- (1) 2 x 3 reflectors, yellow (lateral view: distance of max. 3m)
- (2) Limiting lights
- (3) Warning signs



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

4.5 Intended use

The machine

- Is designed exclusively for conventional agricultural applications and is suitable for spreading dry, granuled, prilled and crystalline fertiliser.

Sloping terrain can be navigated as follows:

- Along the contours
 - Direction of travel to the left 15 %
 - Direction of travel to the right 15 %
- Along the gradient
 - Up the slope 15 %
 - Down the slope 15 %

The intended use also includes:

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

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 bodies thrown out of 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 symbols 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 cardan 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 working position or vice-versa when there is no-one in the machine danger area.

Danger points exist:

- Between the tractor and the machine, in particular during coupling and uncoupling and when loading the seed hopper
- In the area of moving parts
 - Rotating spreading discs with spreading vanes
 - Rotating agitator shaft and agitator shaft drive
 - Hydraulic actuation of the sliders
 - Electric actuation of the dosing sliders
- When climbing onto the machine
- Under raised, unsecured machines and machine parts
- While spreading, from fertiliser pellets in the area of the spread fan

4.7 Rating plate and CE mark

Machine rating plate

The following information is specified on the rating plate and the CE mark:

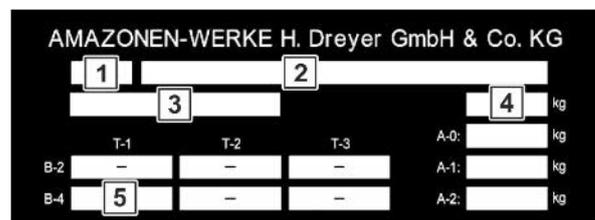
- (1) Implement number
- (2) Vehicle identification number
- (3) Product
- (4) Permissible technical implement weight
- (5) Model year
- (6) Year of manufacture



Additional rating plate

The following information is specified on the 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

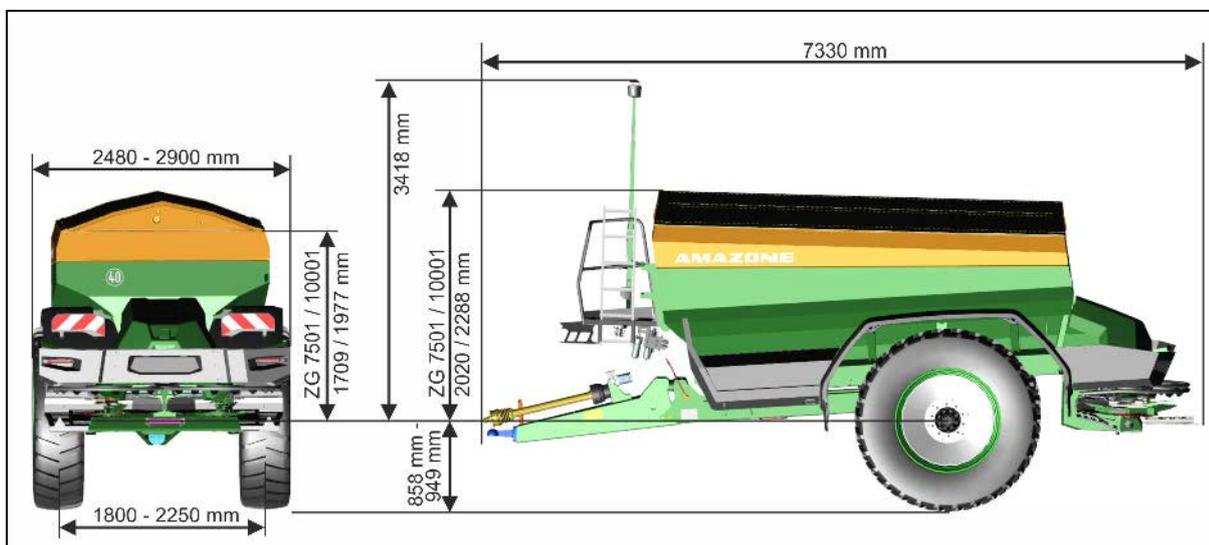
The implement complies with the

- | Directives/Standards designation | |
|----------------------------------|------------|
| • Implement directive | 2006/42/EC |
| • EMC directive | 2014/30/EU |

4.9 Technical data

4.9.1 Total dimensions

The dimensions depend on the implement type, axle, and tyres.



	ZG-TS 7501 ProfisPro	ZG-TS 10001 ProfisPro
Tank size	7500 l	10000 l
Filling width	4085 mm	
Working width	15 - 54 m	
Spreading disc speed	Maximum permissible 1000 rpm	
Hydraulic oil supply	Universal joint shaft drive for the oil pump: 45 l/min at 1000 rpm, Tractor: 85 l/min	
	Tractor 130 l/min	
Hydraulic oil requirement	130 l/min	
PTO shaft speed	Maximum permissible 1000 rpm	
Hydraulic pump (optional)	Gear oil OD001, SAE 90 / oil quantity 0.6 l	

4.9.2 Payload

Maximum payload	=	Permissible technical implement weight	-	Tare weight
------------------------	----------	---	----------	--------------------



DANGER

Exceeding the maximum permissible payload is prohibited.

Risk of accident due to unstable driving conditions!

Carefully determine the payload, and therefore the permitted filling amount for your machine. Not all filling media can be used to fill the tank completely.



- 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

To use the machine, the tractor must fulfil the power requirements and must be equipped with the necessary electric, hydraulic and brake connections.

Tractor engine power

from 90 kW

Electrical system

- | | |
|------------------|--|
| Battery voltage: | <ul style="list-style-type: none">• 12V (Volt) |
| Lighting socket: | <ul style="list-style-type: none">• 7-pin |

Hydraulic system

- | | |
|-----------------------------|--|
| Maximum operating pressure: | <ul style="list-style-type: none">• 210 bar |
| Tractor pump capacity: | <ul style="list-style-type: none">• min. 85 l/min at 150 bar (+45 l/min über Gelenkwelle)• At least 130 l/min at 150 bar (with steering axle)• At least 105 l/min at 150 bar (without steering axle) |
| Machine hydraulic fluid: | <ul style="list-style-type: none">• HLP68 DIN 51524 <p>The machine hydraulic fluid is suitable for the combined hydraulic/transmission fluid circuits of all standard makes of tractor.</p> |
| Hydraulic control units: | <ul style="list-style-type: none">• Depending on equipment, see page 62 |

Universal joint shaft

- | | |
|-----------------------|---|
| Required speed: | <ul style="list-style-type: none">• Depending on equipment, 1000 min¹ |
| Direction of rotation | <ul style="list-style-type: none">• Clockwise, viewed from rear toward the tractor. |

Brake system

- | | |
|--------------------------------------|---|
| Dual circuit service brake system: | <ul style="list-style-type: none">• 1 hose coupling (red) for the supply line• 1 hose coupling (yellow) for the brake line |
| Single circuit service brake system: | <ul style="list-style-type: none">• 1 service line hose coupling for the brake line |
| Hydraulic brake system: | <ul style="list-style-type: none">• 1 hydraulic coupling, conforms to ISO 5676 |



The hydraulic brake system is prohibited 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.

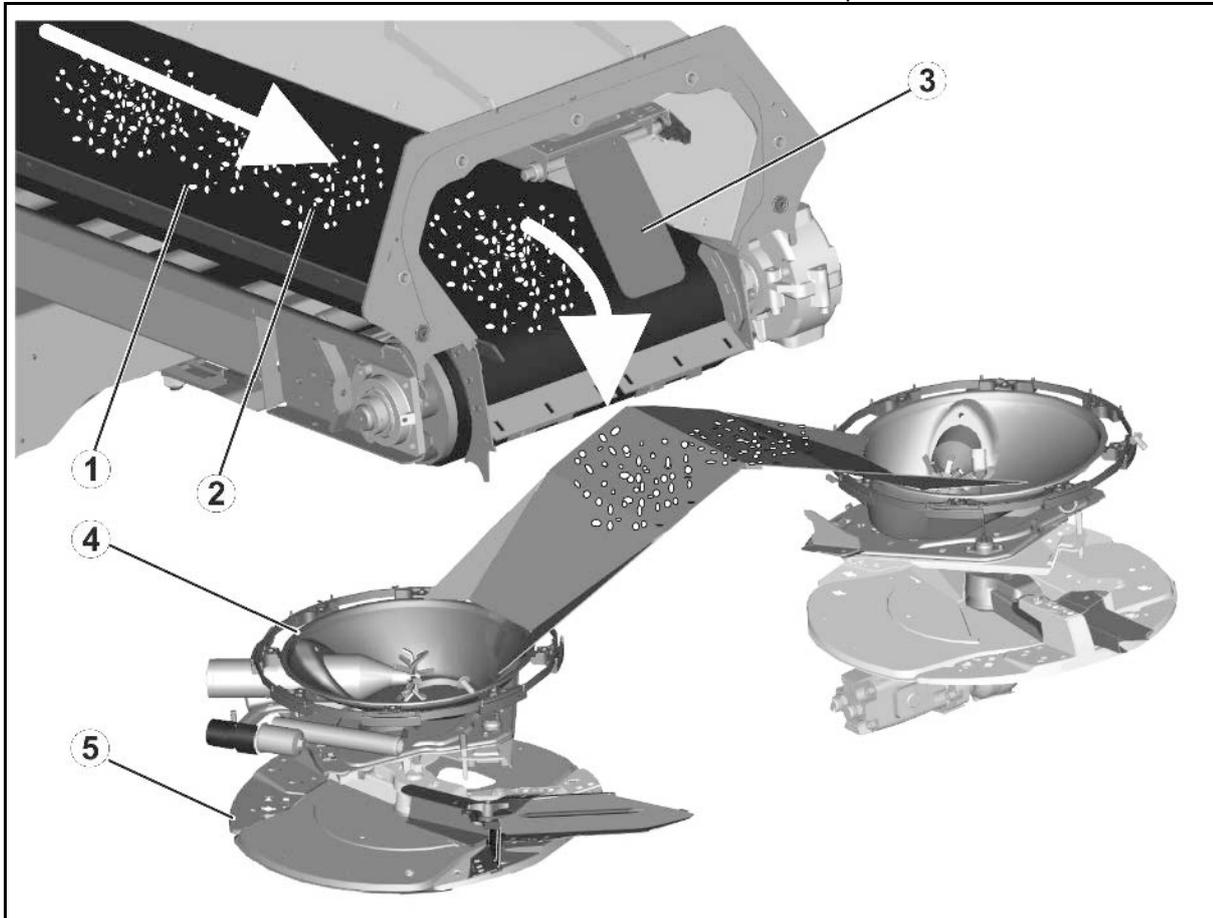
Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5 Structure and function

5.1 Function

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



The AMAZONE ZG-TS is a fertiliser spreader for spreading granulated fertiliser.

The product (2) is transported out of the hopper by the belt conveyor (1) by means of a flap controller (3) and delivered into the fertiliser antechamber. From there, the fertiliser is delivered to the spreading discs (5) via the hopper tips (4).

Equipment:

- o Speed-dependent metering via electro-hydraulically controlled belt conveyor.
- o Hydraulic drive for the spreading discs
- o ISOBUS on-board computer
- o Weigh cell (optional)

5.2 Fertilising technology

5.2.1 Setting chart

All commercially available fertiliser types are spread in the AMAZONE spreading hall and the setting data determined in this manner are included in the setting chart. The fertiliser types listed in the setting chart were in a perfect state when determining the values.



It is recommended to use the fertiliser database with the biggest fertiliser selection for all countries and the most current setting recommendations

- Through the FertiliserService application for Android and iOS mobile devices
- From the online FertiliserService

See www.amazone.de → Service → FertiliserService

Using the QR codes shown below, you can directly access the AMAZONE website to download the FertiliserService application.

iOS



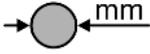
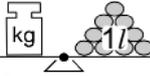
Android



Contact partners in the respective countries:

					
(GB)	0044 1302 755720	(I)	0039 (0) 39652 100	(H)	0036 52 475555
(IRL)	00353 (0) 1 8129726	(DK)	0045 74753112	(HR)	00385 32 352 352
(F)	0033 892680063	(FIN)	00358 10 768 3097	(BG)	00359 (0) 82 508000
(B)	0032 (0) 3 821 08 52	(N)	0047 63 94 06 57	(GR)	0030 22620 25915
(NL)	0031 316369111	(S)	0046 46 259200	(AUS)	0061 3 9369 1188
(L)	00352 23637200	(EST)	00372 50 62 246	(NZ)	0064 (0) 272467506
				(J)	0081 (0) 3 5604 7644

Identification of the fertiliser

 <p>Representation of the fertiliser</p>	<p>Name of the fertiliser</p>	
		<p>Grain diameter</p>
		<p>Bulk density</p>
		<p>Throw distance parameter for WindControl</p>
<p>Calibration factor</p>		<p>The calibration factor is used as a default value for fertiliser calibration.</p>

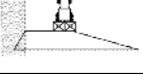
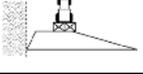
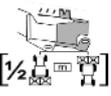
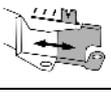
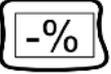
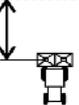
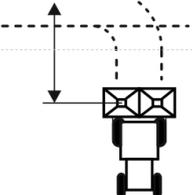
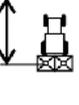
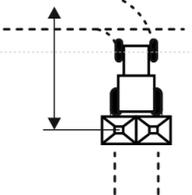
	<p>If you cannot definitively assign the fertiliser to a kind listed in the setting chart</p> <ul style="list-style-type: none"> the AMAZONE Fertiliser Service will assist you over the telephone in assigning the fertilisers and setting recommendations.  +49 (0) 54 05 / 501 111 the AMAZONE Fertiliser Service provides setting recommendations after a small fertiliser sample (3 kg) is sent in. please consult the contact partner in your country
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Settings

	Side spreading	Boundary spreading	Ditch spreading	Side spreading	Boundary spreading	Ditch spreading	Side spreading	Boundary spreading	Ditch spreading	Switching on point	Switching off point	Throwing direction	Throwing direction	Throwing direction	Throwing direction
Spreading vane unit															
Working width															
Position of the feed system															
Spreading disc speed for normal spreading															
Telescope for boundary spreading															
Position of the telescope during Side spreading	2	720	2	5	600	2	10	550	24	-2	165				
Spreading disc speed for side spreading	2	720	2	5	600	2	10	550	24	-2	176				
Position of the telescope during boundary spreading	2	900	2	7	800	2	12	720	29	-1	176				
Rate reduction boundary spreading	2	800	2	20	720	2	25	600	36	0	216				
Spreading disc speed for boundary spreading	3	900	3	15	800	3	20	720	39	2	246				
Position of the telescope during ditch spreading	3	800	3	10	720	3	10	720	45	4	329				
Rate reduction ditch spreading															
Spreading disc speed for ditch spreading															
Switching on point when driving into the field															
Switching off point when driving into the headlands															
Throwing direction (Argus Twin)															
Manually before use															
On the operating terminal before use															
On the operating terminal before use / Manually before use															
Hydro: On the operating terminal before use / Tronic: Manually during use															
Manually before use															
Manually before use															
Hydro: On the operating terminal before use / Tronic: Manually during use															
Manually before use															
On the operating terminal before use															
Hydro: On the operating terminal before use / Tronic: Manually during use															
Manually before use															
On the operating terminal before use															
Hydro: On the operating terminal before use / Tronic: Manually during use															
On the operating terminal before use (GPS) Manually during use															
On the operating terminal before use (GPS) Manually during use															
Argus Twin: on the control terminal before use															
Operate settings...															

Structure and function

Symbols and units:

<p style="text-align: center;">TS-2</p>	<p>Fit spreading vane units TS1, TS2 or TS3 onto the spreading disc for one working width spectrum each</p>	
	<p>Working width in m (metre)</p>	
	<p>Position of the inlet system as value in the adjustment scale or entry in the In-cab terminal</p>	
	<p>Spreader disc speed in rpm depending on the type of spreading</p>	
	<p>Side spreading</p>	
	<p>Boundary spreading</p>	
	<p>Ditch spreading</p>	
	<p>Select telescope A, B, C or D for boundary spreading for a half working width as boundary stand-off distance</p>	
	<p>Setting 1, 2 or 3 on the telescope for boundary spreading 0 - do not use the telescope for boundary spreading</p>	
	<p>Quantity reduction for boundary spreading / ditch spreading in % for entry in the control terminal</p>	
<p style="text-align: center;">X</p>	<p>Border spreading without switching on the boundary / ditch spreading vanes</p>	
	<p>Switch-on point (point at which the shutters open) when driving into the field given as distance in m. Measured from the centre of the spreading disc to the centre of the track in the headlands.</p>	
	<p>Switch-off point (point at which the shutters close) prior to driving into the headlands given as distance in m. Measured from the centre of the spreading disc to the centre of the track in the headlands.</p>	
	<p>Throwing direction (ArgusTwin)</p>	

5.2.2 Spreading discs TS

Variants:

- Spreading vane unit TS1 for small working widths.
- Spreading vane unit TS2 for medium working widths.
- Spreading vane unit TS3 for large working widths.

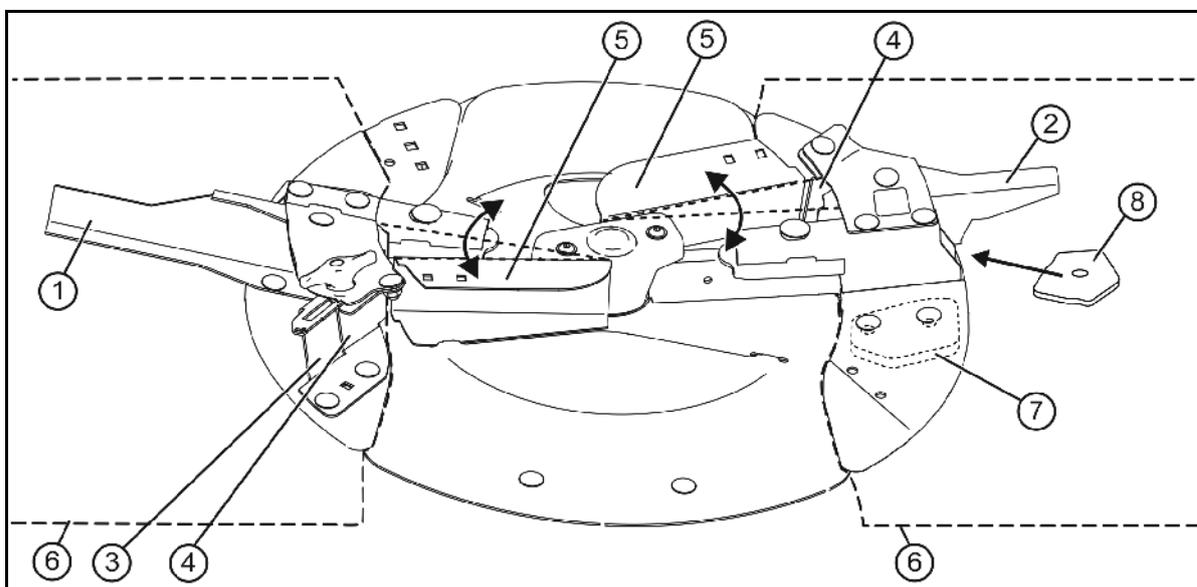


The implement is equipped with the TS boundary spreading system.

The boundary spreading system is available in the versions AutoTS and ClickTS, and can be selected as desired for any spreading disc.

AutoTS is switched using the control terminal.

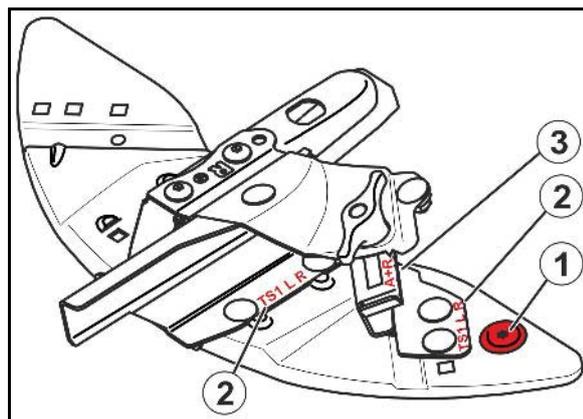
ClickTS is adjusted manually on the spreading disc.



- (1) Long spreading vane for normal spreading
- (2) Short spreading vane for normal spreading
- (3) Telescopic spreading vane for border spreading
- (4) Rigid spreading vane for border spreading
- (5) Swivel-mounted inner part of the spreading vane
- (6) Replaceable spreading vane unit for varying the spectrum of the working width
- (7) Standard balancing weight
- (8) Balancing weights for telescopic spreading vanes for boundary spreading D

Structure and function

- (1) Coloured marking of the spreading vane unit
- (2) Markings on the spreading vanes
- (3) Marking on the telescopic boundary spreading vane



Selection of the spreader units:

TS 1, TS 2, TS 3

Selection of the telescopic boundary spreading vane:

A, A+, B, C, D

Adjustment range according to the setting chart

- 1, 2, 3
- 0 - no telescope

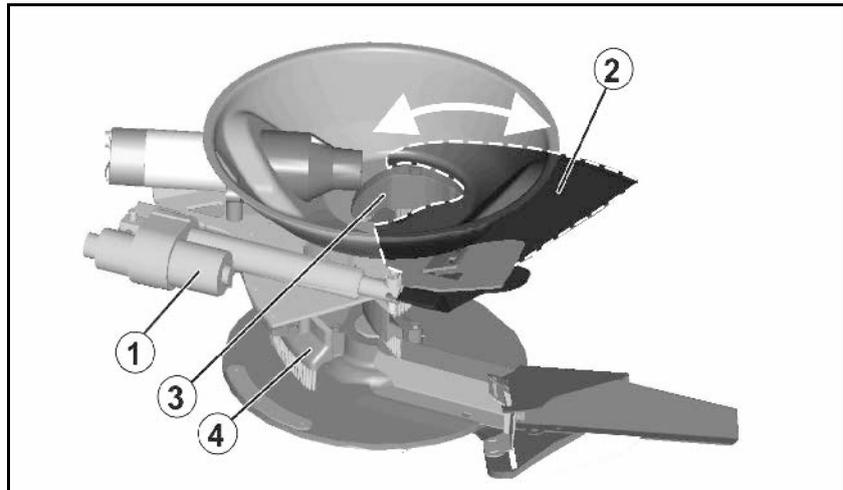
5.2.3 Agitator

Agitators in the tips of the hopper ensure a uniform fertiliser flow to the spreading discs. The slowly rotating agitators convey the fertiliser uniformly to the respective outlet opening.

The drive is carried out electrically.



5.2.4 Spread rate metering



- (1) Setting motor for metering
- (2) Metering shutter
- (3) Outlet opening
- (4) Brushing unit

The spread rate is set **electronically** via the control terminal.

In this case, dosing sliders operated by setting motors release a range of different diameters at the outlet openings.

The brushing unit ensures a clean delivery onto the spreading disc without fertiliser turbulence and dust.

When the metering shutter is completely shut it closes the outlet opening in the tank.

Depending on the equipment, the spread rate is regulated proportional to the speed via:

FlowControl

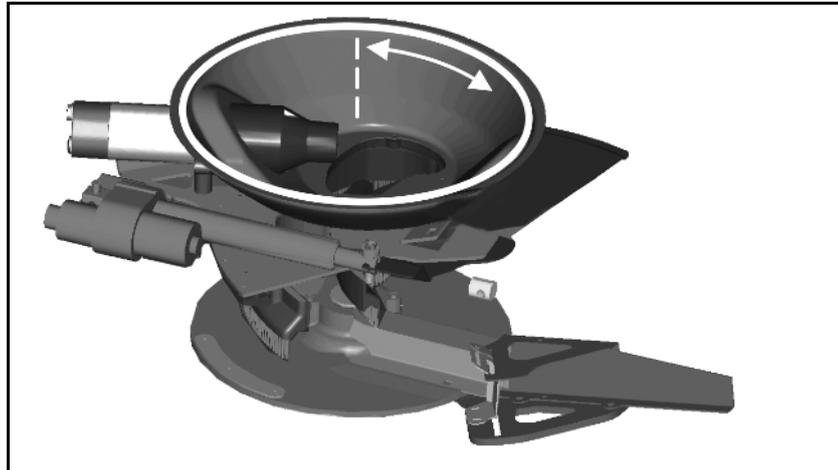
- Weighing technology
- Calibration at a standstill

5.2.5 Drop-point system

The drop-point system that drops the fertiliser onto the spreading disc is above the spreading discs.

The drop-point system can be attached so that it rotates under the tips of the tank.

The position of the drop point system influences the lateral distribution and must be adjusted as specified in the setting chart.



Using the operating terminal, the feed system at both hopper tips can be electrically adjusted according to the setting chart.

The position of the feed system over the spreading disc depends on:

- the working width and
- the type of fertiliser.

The ArgusTwin and WindControl systems automatically optimise the position of the delivery system.

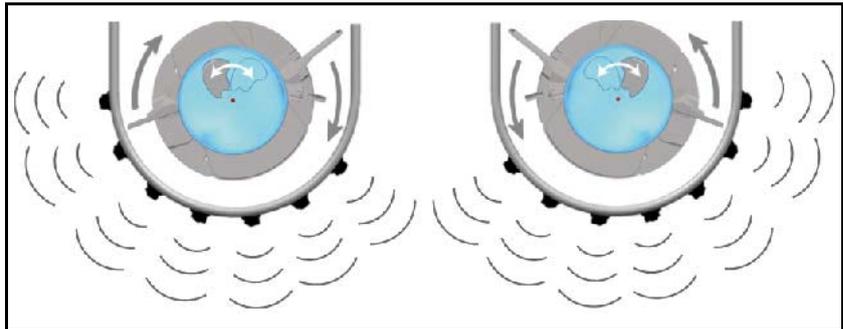
5.2.6 ArgusTwin (optional)

ArgusTwin constantly measures and regulates the throwing direction of the fertiliser spreader to optimise the lateral distribution.

The actual throwing direction is compared to the target values. If there are deviations, the position of the delivery system will be adjusted.

The target throwing direction is taken from the setting chart or determined using the mobile test rig.

The throwing direction is measured by 7 radar sensors respectively on each side of the spreader unit.



The throw direction depends on the fertiliser properties, working width, spreading vane unit and spreading disc speed.

ArgusTwin compensates for irregularities in the fertiliser, fertiliser deposits on the spreading vanes, working on slopes, starting and braking processes.



WARNING

Health hazard due to radiation exposure!

Before you switch on the spreading discs, ensure that people maintain a safe distance of 20 cm from the sensors.



ArgusTwin and mobile test rig!

Check the throwing direction using the mobile test rig with the ArgusTwin activated.

→ During the evaluation of the results from the mobile test rig, a corrected value is automatically saved for the throwing direction.

For unknown fertilisers, the correct throw direction can be determined with the mobile test rig. Use the throwing direction from a similar fertiliser as a basic setting.

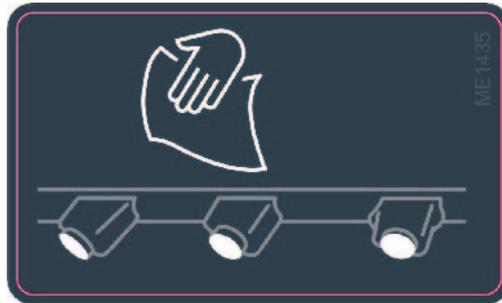


ArgusTwin is only permitted at ambient temperatures from -20°C to $+50^{\circ}\text{C}$.

- ! Faulty fertilising due to soiled radar sensors of the ArgusTwin-system!

Strong or uneven dirt accumulations can prevent ArgusTwin from properly regulating the delivery system, and the crops are then over- or under-fertilised in strips.

- Depending on the operating conditions, check the radar sensors regularly for strong or uneven dirt accumulations.
- Clean the radar sensors if necessary.



Simplified Declaration of Conformity

AMAZONEN-WERKE H.Dreyer GmbH & Co. KG hereby declares that the radio communication unit type Argus complies with Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following website:

<https://info.amazone.de/>

Radio frequency and transmission power



- ArgusTwin's transmission frequency range is from 24.150 GHz to 24.250 GHz.
- The equivalent isotropically radiated power (EIRP) is 17.6 dBi EIRP per radar module.

5.3 WindControl

WindControl is a system developed by Prof. Dr. Karl Wild for constant and automatic compensation of wind effects on the spread pattern.

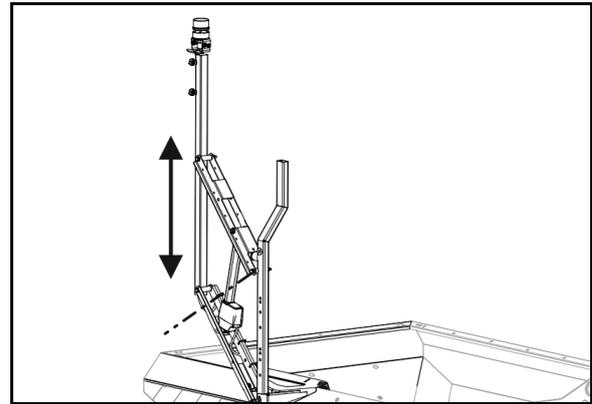
The wind effects are compensated by changing the spreading disc speed and the delivery system.

- Only in combination with ArgusTwin
- Only with hydraulic spreading disc drive
- Only for spreading vanes TS 2 and TS 3

When switching on the spreading discs, the sensor is automatically raised into operating position.

When the spreading discs are switched off, the sensor is automatically lowered into transport position.

- Condition: forward speed 0-3 km/h



In the working position, the sensor must be 500 mm above the highest point of the implement and tractor.

However, the total height may not exceed 4 m.

5.3.1 EasyCheck

EasyCheck is the digital test rig to check the lateral distribution on the field.

EasyCheck consists of collection mats for fertiliser and the smartphone app to determine the fertiliser lateral distribution on the field.

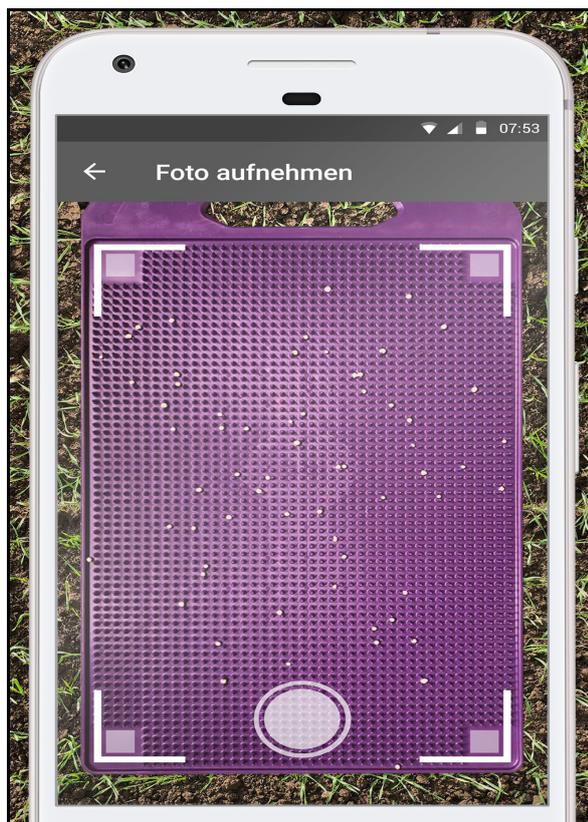
The collection mats are placed at defined positions on the field and are strewn with fertiliser by driving back and forth.

Afterwards, the collection mats are photographed using the smartphone. The app checks the lateral distribution using the photos.

If necessary, changes to the settings are suggested.

Use the AMAZONE Website to download the following:

- EasyCheck app
- EasyCheck operating manual



5.3.2 Mobile test rig

The mobile test rig serves to check the lateral distribution on the field.

The mobile test rig consists of collection trays for the fertiliser and a measuring cup.

The collection trays are placed at four defined positions on the field and are strewn with fertiliser by driving back and forth.

Afterwards, the collected fertiliser is filled into a measuring cup. The evaluation is based on the fill levels in the measuring cup.

The evaluation is performed using:

- The calculation model in the mobile test rig operating manual.
- The implement software on the control terminal
- The EasyCheck app (AMAZONE Website)

Refer to the operating manual for the mobile test rig



5.4 FlowControl (optional)

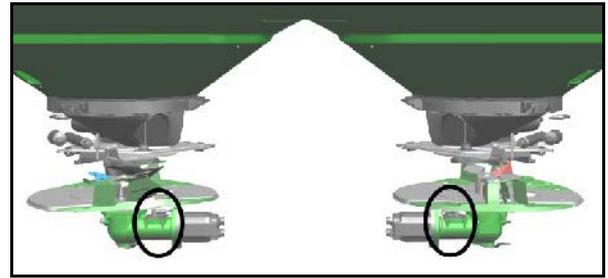
FlowControl is a constant control and correction of the speed-proportional spread rate (kg/ha).

FlowControl records the torques for the spreading disc drives and uses them to calculate the metering shutter position independently of the side.

A previous manual spread rate check (determining of the calibration factor) is not necessary.

With the weighing spreader, the measured values are referenced over a longer period of measurement with the weighing technology.

Moreover, FlowControl enables the detection and elimination of blockages and the detection of empty hopper tips.



5.5 Fertiliser hopper

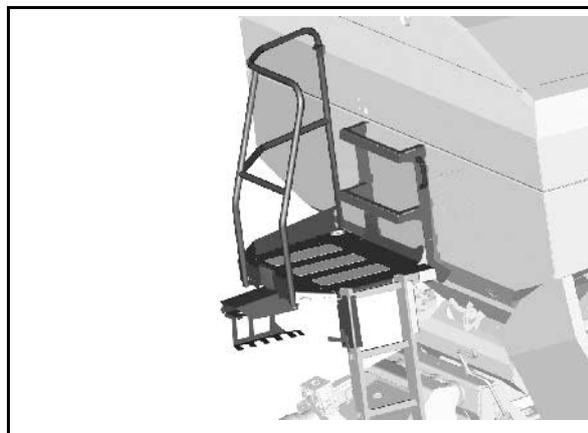
5.5.1 Fertiliser hopper maintenance platform

The maintenance platform with ladder enables access to the inside of the hopper for cleaning or maintenance.



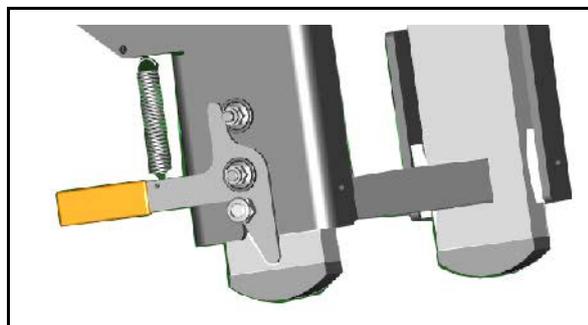
CAUTION!

Before driving off, lock the ladder in transport position.



The raised ladder locks automatically when it reaches the end position.

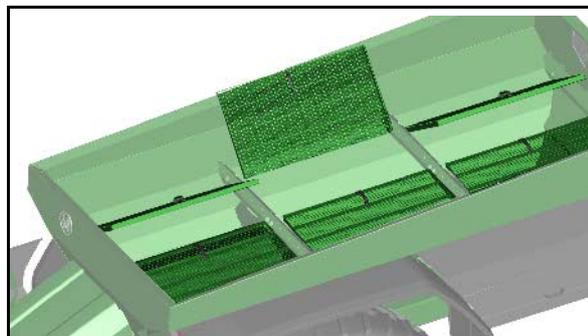
To lower the ladder, release the lock using the hand lever.



5.5.2 Charging sieves

The foldable charging sieves cover the entire hopper and protect against foreign particles and fertiliser clods during filling.

The charging sieves can be trodden on in order to clean the inside of the hopper.



5.5.3 Rollup cover tarpaulin (optional)

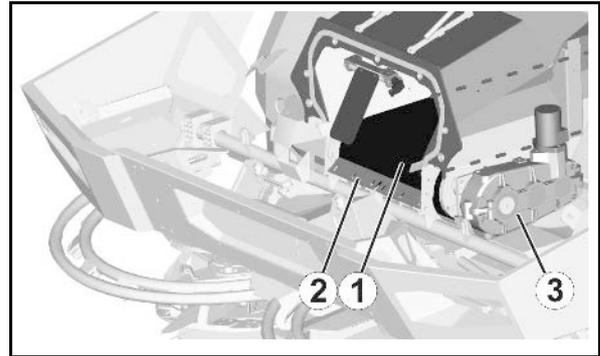
The rollup cover tarpaulin opens and closes the hopper hydraulically.



5.5.4 Hydraulically driven conveyor belt

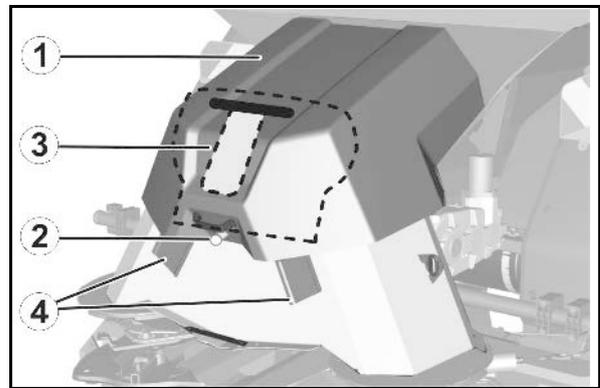
The spreading material from the hopper is fed on the conveyor belt via the fertiliser pre-chamber with shutter control to the spreaders.

- (1) Conveyor belt
- (2) Adjustable scraper
- (3) Gearbox with hydraulic motor to drive the conveyor belt



5.5.5 Fertiliser pre-chamber

- (1) Hood
- (2) Hood locking mechanism
- (3) Shutter control in the fertiliser pre-chamber
- (4) Maintenance flap



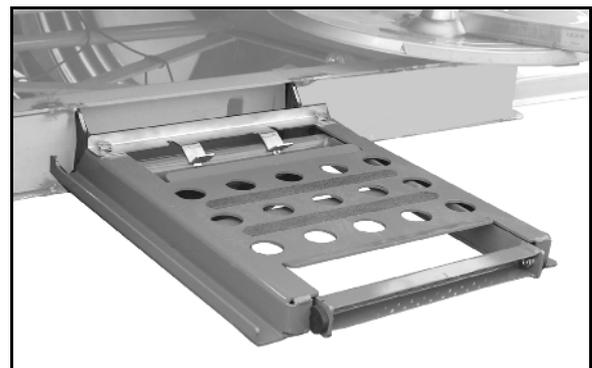
5.5.6 Fertiliser pre-chamber maintenance platform

Ascent with platform to the fertiliser pre-chamber with shutter control for cleaning and maintenance purposes.

- To climb up, pull the ladder with the platform to the rear and fold down the ladder.
- When not in use, swivel the ladder up and push to the front with the platform.



Make sure that the pushed-in ascent is locked in the end position.



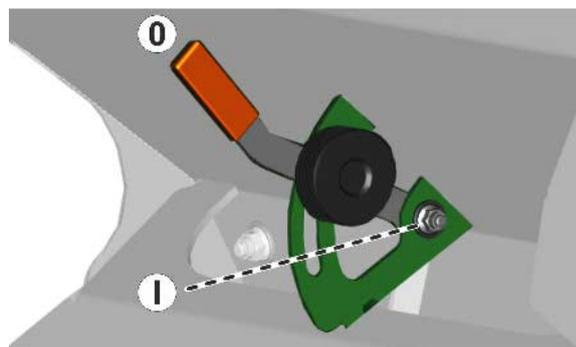
Structure and function

5.5.7 Drainage flap

Flap for draining the fertiliser hopper during cleaning.

- Hand lever in position 0: Default position
- Hand lever in position I: Drainage

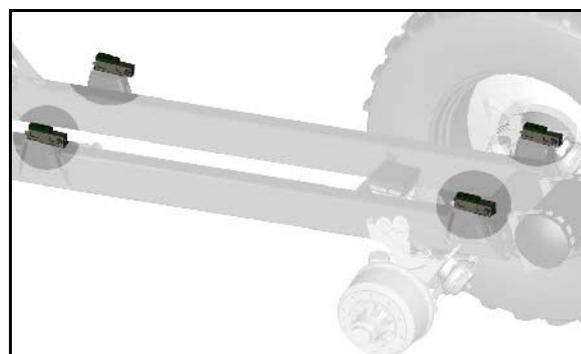
Secure the position of the hand lever with the knob.



5.5.8 Weighing technology

The machine can be equipped with a weighing device with 4 weigh cells:

- Determine tank capacity.
- To perform the spread rate check (offline / online calibration)

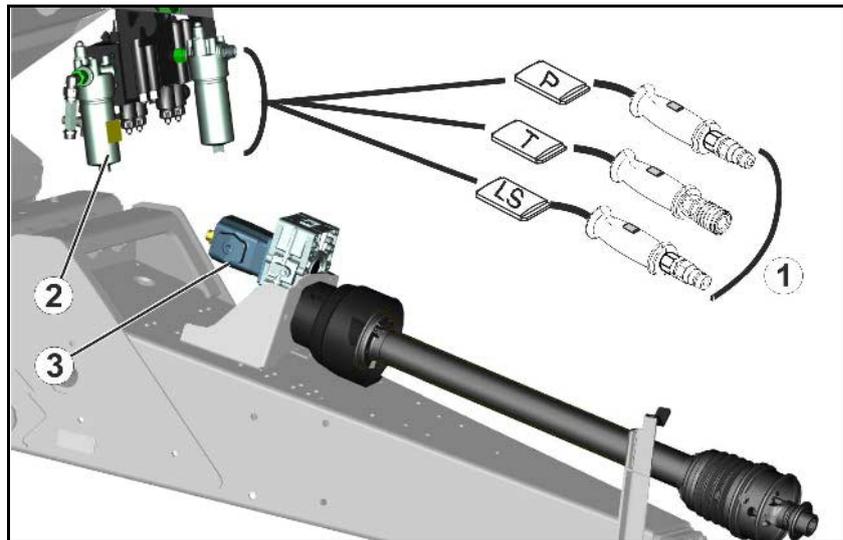


5.6 Drives

5.6.1 Hydraulic system

The hydraulic system serves to drive the spreading discs, floor belt and steering system.

To execute all functions during operation, the implement requires an oil volume flow of 130 l/min.



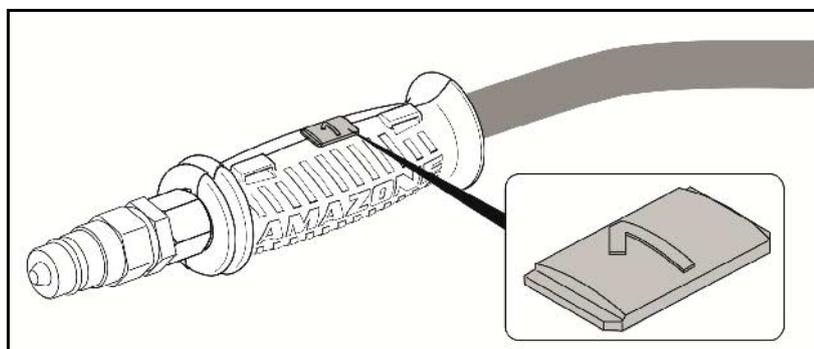
The required oil volume must be provided by the tractor. As an option, an oil pump can reduce the oil quantity required from the tractor.

- (1) Oil supply via load sensing pressure line, pressureless return flow and load sensing control line
- (2) Hydraulic block with oil filter to control the required oil quantity
- (3) Hydraulic pump with universal joint shaft to the tractor PTO shaft, depending on the equipment.
 - o The maximum permissible universal joint shaft speed of 1000 rpm results in an additional oil quantity of 46 l/min.
 - o Depending on the oil requirement, the universal joint shaft speed can be reduced.

5.6.2 Hydraulic connections

- All hydraulic hose lines are equipped with grips.

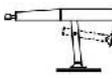
Coloured markings with a code number or code letter have been applied to the gripping sections in order to assign the respective hydraulic function to the pressure line of a tractor control unit!



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	
natural	1		open	Double acting	
	2		close		
blue	3		lifting	Double acting	
	4		lowering		
red	P	Load-Sensing- pressure line		Single-acting	
red	T	Pressure-free return flow			
red	LS	Load sensing control line			

Maximum permissible pressure in oil return: 8 bar

Therefore do not connect the oil return to the tractor control unit, but to a pressure-free oil return flow with a large plug coupling.

**WARNING**

For the oil return, use only DN16 lines and select short return paths.

Pressurise the hydraulic system only when the free return has been correctly coupled.

Install the coupling union (supplied) on the pressure-free oil return flow.

**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.

5.6.3 Coupling the hydraulic hose lines

**WARNING**

Risk of contusions, cutting, catching, drawing in and knocks from 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 200 bars.
- Only couple clean hydraulic connectors.
- Plug the hydraulic connector(s) into the hydraulic sleeves, until the hydraulic connector(s) audibly lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Swivel the actuation lever on the spool 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).

5.6.4 Decoupling the hydraulic hose lines

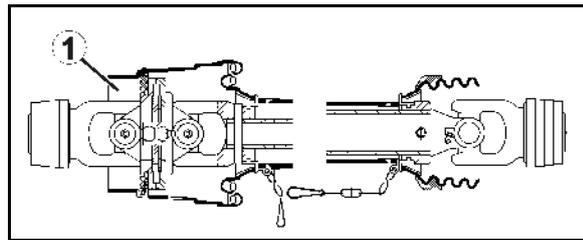
1. Swivel the actuation lever on the tractor control unit on the tractor to float position (neutral position).
2. Unlock the hydraulic connectors from the hydraulic sockets.
3. Protect the hydraulic plug and hydraulic socket against soiling using the dust protection caps.
4. Place the hydraulic hose lines in the hose cabinet.

5.6.5 PTO shaft

The PTO shaft transmits power between the tractor and machine.

One-sided PTO shaft with wide angle (1)

- Wide angle attached on the tractor side, standard
- Wide angle attached on implement side if TrailTron is used.



WARNING

Danger of crushing from tractor and machine unintentionally starting up or rolling away!

Couple or decouple the PTO shaft and tractor only when tractor and machine have been secured against both unintentional starting and unintentional rolling away.



WARNING

Danger of catching or entrapment due to the unprotected gearbox input shaft owing to the use of a PTO shaft with a short PTO shaft guard!

Use only one of the listed permissible PTO shafts.

**WARNING****Danger of trapping and entrapment by unguarded PTO shaft or damaged safety devices!**

- Never use the PTO shaft if the safety device is missing or damaged, or without correctly using the supporting chain.
- Before all use, check that
 - all PTO shaft protective devices are installed and fully functional.
 - the clearance around the PTO shaft is sufficient in all operating modes. Insufficient clearance will result in damage to the PTO shaft.
- Attach the supporting chains in a way that ensures sufficient swivelling range of the PTO shaft in all operating positions. Supporting chains must not become caught on machine or tractor parts.
- Have any damaged or missing parts of the PTO shaft replaced immediately with OEM parts from the PTO shaft manufacturer. Note that only a specialist workshop may repair a PTO shaft.
- After decoupling the PTO shaft, place it on the holder provided. This protects the PTO shaft from damage and dirt.
 - Never use the supporting chain of the PTO shaft to suspend the uncoupled PTO shaft.

**WARNING****Danger from being entangled and drawn in by unguarded PTO shaft parts in the power transmission area between the tractor and driven machine!**

Work only when the drive between the tractor and driven machine is fully guarded.

- The unguarded parts of the PTO shaft must always be guarded by a shield on the tractor and a PTO shaft guard on the machine.
- Check that the shield on the tractor or the PTO shaft guard on the machine and the safety devices and guards of the extended PTO shaft overlap by at least 50 mm. If they do not, you must not power the machine via the PTO shaft.



- Use only the provided PTO shaft or one of the same type.
- Read and follow the operating manual provided for the PTO shaft. Correct use and maintenance of the PTO shaft prevents serious accidents.
- When coupling the PTO shaft
 - refer to the operating manual provided for the PTO shaft.
 - observe the permissible drive speed of the machine.
 - observe the correct installation length of the PTO shaft. Here, see the chapter "Adjusting the length of the PTO shaft to the tractor", page 91.
 - observe the correct installation position of the PTO shaft. The tractor symbol on the protective tube of the PTO shaft identifies the tractor-side connection of the PTO shaft.
- Always mount the overload or freewheel clutch on the machine if the PTO shaft has an overload or freewheel clutch.
- Before switching on the universal joint shaft, read and follow the safety precautions for universal joint shaft operation in the chapter entitled "Safety information for the user", page 31.

5.6.6 Coupling the PTO shaft



WARNING

Danger from crushing or impact if there is insufficient clearance when coupling the PTO shaft!

Couple the PTO shaft with the tractor before coupling the machine with the tractor. This will ensure the necessary clearance for safe coupling of the PTO shaft.

1. Drive the tractor up to the machine, leaving a clearance of approximately 25 cm between the tractor and the machine.
2. Secure the tractor against unintentional starting and rolling away, see the chapter "Securing the tractor against unintentional starting and rolling away", from page 94.
3. Check whether the universal joint shaft of the tractor is switched off.
4. Clean and grease the tractor's universal joint shaft.
5. Fit the latch of the PTO shaft over the universal joint shaft of the tractor until the latch is heard to engage. When coupling the PTO shaft, refer to the operating manual provided for the PTO shaft and observe the permissible universal joint shaft speed of the tractor.
6. Secure the PTO shaft guard using the supporting chain(s) to prevent movement.
 - 6.1 Fasten the supporting chain(s) so that it is as perpendicular to the PTO shaft as possible.
 - 6.2 Attach the supporting chain(s) in a way that ensures sufficient swivelling range of the PTO shaft in all operating positions.



Supporting chains must not become caught on machine or tractor parts.

7. Check that there is sufficient clearance around the PTO shaft in all operational positions. Insufficient clearance will result in damage to the PTO shaft.
8. Provide the necessary clearance (if required).

5.6.7 Uncoupling the PTO shaft

**WARNING**

Danger from crushing or impact if there is insufficient clearance when uncoupling the PTO shaft!

First uncouple the machine from the tractor before uncoupling the PTO shaft from the tractor. This will ensure the necessary clearance for safe uncoupling of the PTO shaft.

**WARNING**

Danger from burns on hot components of the PTO shaft!

Do not touch components of the PTO shaft that have become hot (particularly clutches).



- After decoupling the PTO shaft, place it on the holder provided. This protects the PTO shaft from damage and dirt. Never use the supporting chain of the PTO shaft to suspend the uncoupled PTO shaft.
- Clean and lubricate the universal joint shaft if it will not be used for an extended period.

1. Uncouple the machine from the tractor. Also refer to the chapter "Uncoupling the machine", page 97.
2. Drive the tractor up to the machine, leaving a clearance of approximately 25 cm between the tractor and the machine.
3. Secure the tractor against unintentional starting and rolling away, see the chapter "Securing the tractor against unintentional starting and rolling away", from page 94.
4. Pull the latch of the PTO shaft off the universal joint shaft of the tractor. Observe the operating manual supplied with the PTO shaft when uncoupling the PTO shaft.
5. Place the PTO shaft in the holder provided.
6. Clean and lubricate the universal joint shaft if it is not going to be used for a longer period of time.

5.7 Brake system

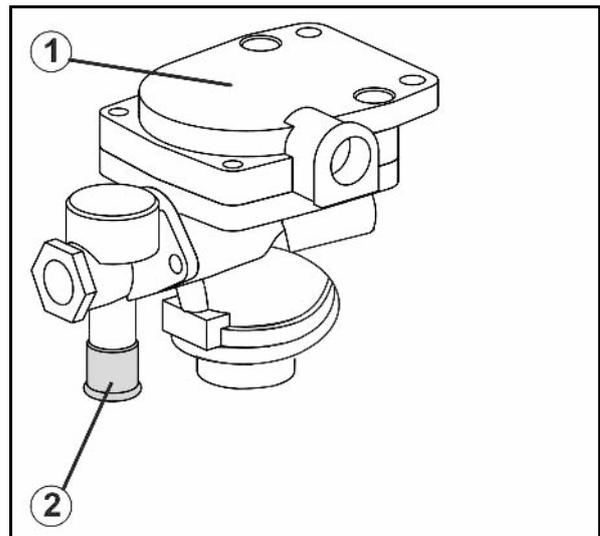
5.7.1 Air-pressure brake system

Brake system with ALB

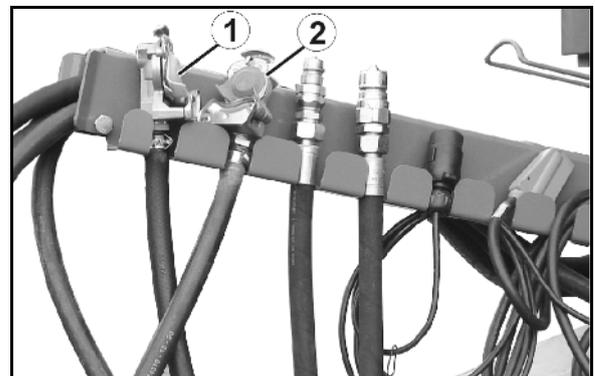
The brake system is equipped with an ALB (automatic load related braking valve).

The braking force is regulated according to the implement weight.

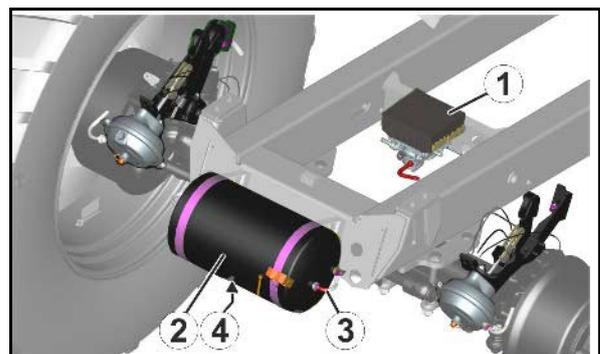
- (1) Brake force regulator
- (2) Hand lever for manual adjustment of the braking force



- (1) Brake line coupling head (yellow)
- (2) Supply line coupling head (red)

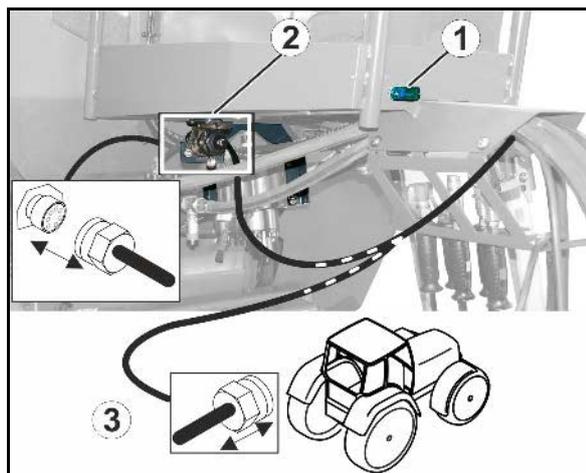


- (1) Electric brake system
- (2) Air reservoir
- (3) Test connection
- (4) Drainage valve for condensation water



Structure and function

- (1) The fault light for the electronic brake system signals a fault in the brake system.
Have faults promptly repaired by a specialist workshop.
- (2) For tractors without electric brake system: Plug with socket for power supply to the electronic brake systems
- (3) For tractors with electric brake system: Couple the plug to the tractor.



WARNING

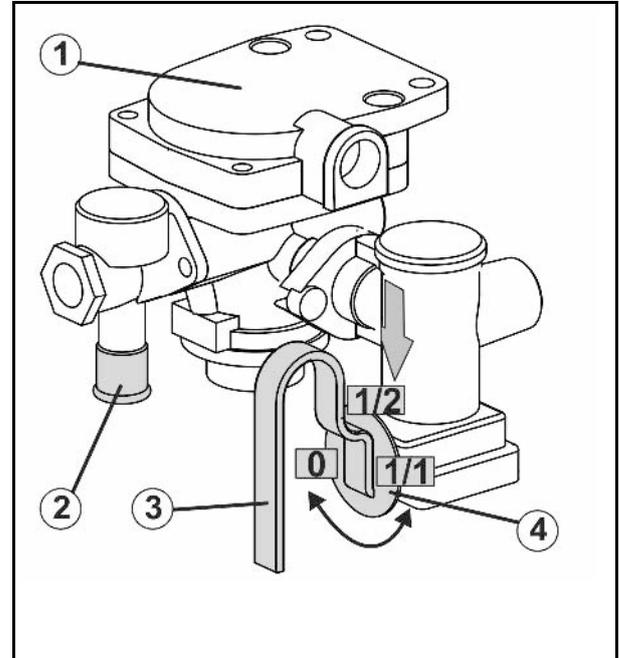
Risk of accident due to incorrect connection of the brakes / electronics

- The ISOBUS plug must also be coupled for road travel.
- For tractors with socket for the electronic brake system:
Couple the implement-side plug with the socket.
- For tractors without socket for the electronic brake system:
Couple the implement-side plug to the implement-side socket.

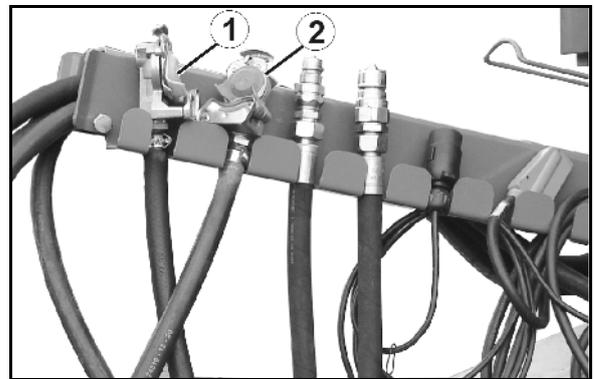
Brake system with manual braking force regulator

The setting of the brake force is made in 3 stages, depending on the loading condition of the implement.

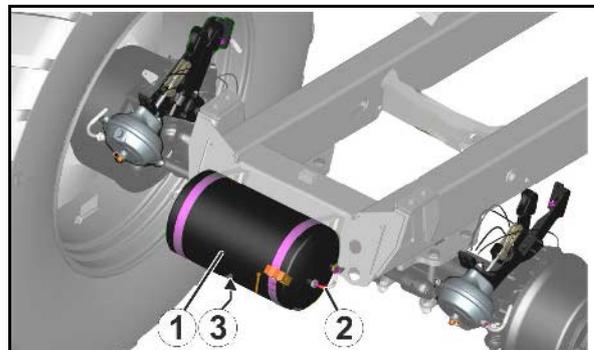
- (1) Brake force regulator
- (2) Hand lever for manual adjustment of the braking force
- (3) Setting positions for manual brake force regulator
 - Full implement → **1/1**
 - Partially filled implement → **1/2**
 - Empty implement → **0**
- (4) Release valve actuation button
 - must be pushed in up to the stop to release the service brake system (to manoeuvre the uncoupled implement).
 - must be pulled out to the stop to brake the implement again.



- (1) Hose coupling on brake line (yellow)
- (2) Hose coupling on supply line (red)



- (1) Air reservoir
- (2) Test connection
- (3) Drainage valve for condensation water



Coupling the brake system

**WARNING**

Risk of crushing, cutting, being caught or drawn in, or impact through incorrectly functioning brake system.

- When coupling the brake and supply line, ensure that
 - The sealing rings on the hose couplings are clean
 - The sealing rings on the hose couplings seal properly
- Replace damaged sealing rings immediately
- Drain the air reservoir each day before the first use
- Only start up with the machine coupled if the pressure gauge on the tractor shows 5.0 bar

**WARNING**

Risk of crushing, cutting, being caught or drawn in, or impact through the accidentally rolling machine, if the service brake is released.

Dual-circuit pneumatic braking system:

- Always couple the hose coupling on the brake line (yellow) first and then the hose coupling on the supply line (red).
- The service brake on the machine is immediately released from the brake setting if the red hose coupling is coupled.

1. Open the cover on the hose coupling on the tractor.
2. Pneumatic braking system:
 - **Dual-circuit** pneumatic braking system:
 - 2.1 Fasten the brake line hose coupling (yellow) in the yellow coupling on the tractor, as specified.
 - 2.2 Fasten the supply line hose coupling (red) in the red coupling on the tractor, as specified.

→ When coupling the supply line (red), the supply pressure coming from the tractor automatically presses out the actuator button for the release valve on the trailer brake valve
 - **Single circuit** pneumatic braking system:
 - 2.1 Fasten the hose coupling (black) to the tractor, as specified.
3. Release the parking brake and/or remove the wheel chocks.

Uncoupling the brake system



WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through the accidentally rolling machine, if the service brake is released.

Dual-circuit pneumatic braking system:

- Always uncouple the supply line hose coupling (red) first, and then the brake line hose coupling (yellow).
- The service brake of the machine only moves into the brake position when the red hose coupling has been uncoupled.
- Always keep to this order, otherwise the service brake system will be released and may set the unbraked machine in motion.



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. To do this, use the parking brake and/or wheel chocks.
2. Pneumatic braking system
 - 2.1 Release the supply line hose coupling (red).
 - 2.2 Release the brake line hose coupling (yellow).
3. Close the hose coupling covers on the tractor.

5.7.2 Hydraulic service brake system

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

Coupling the hydraulic service brake system



Only couple clean hydraulic couplings.

1. Remove the protective caps.
2. Clean the hydraulic plug and hydraulic socket if necessary.
3. Insert the tractor's hydraulic plug into the machine's hydraulic socket.
4. Tighten the hydraulic screw union (if present) hand-tight.

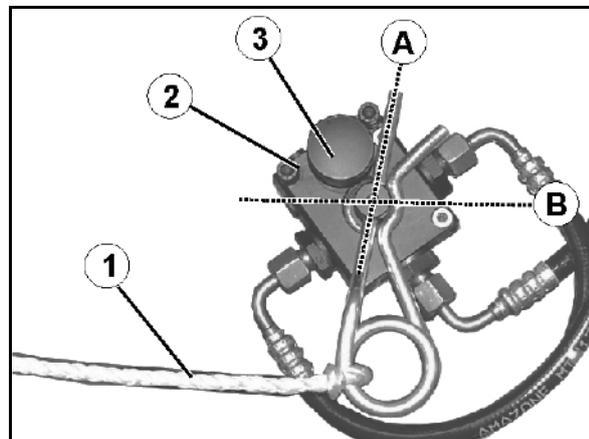
Uncoupling the hydraulic service brake system

1. Loosen the hydraulic screw union (if present).
2. Protect the hydraulic plug and hydraulic socket against soiling using the dust protection caps.
3. Store the hydraulic hose line in the hose cabinet.

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:

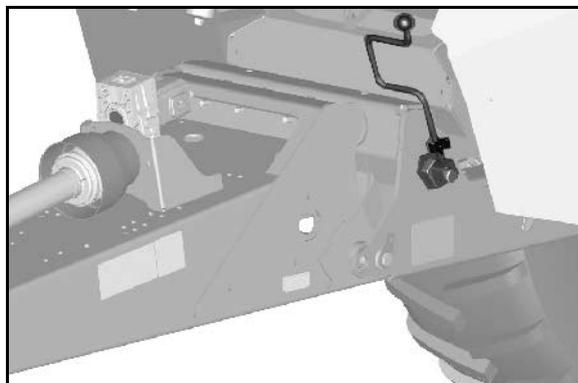
- into the brake and decelerates the implement,
- or
- into the hose line to the tractor and impedes the coupling of the brake line to the tractor.

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

5.7.3 Parking brake

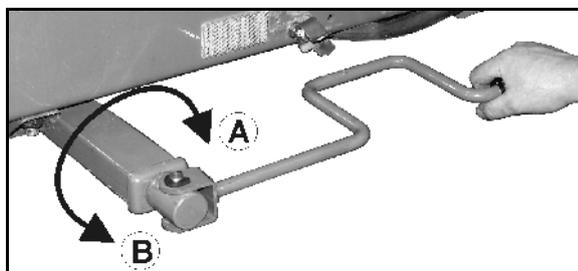
When the parking brake is on, it secures the uncoupled machine against unintentional rolling. The parking brake is operated by turning the crank, which in turn operates the spindle and bowden cable.

Crank; locked in idle position



Crank position for releasing / applying in the end area.

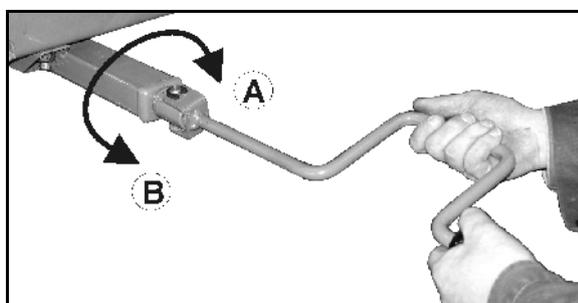
(the parking brake requires approx. 20 kg manual force to be applied).



Crank position for quick releasing / applying.

(A) Apply the tractor parking brake.

(B) Release parking brake.

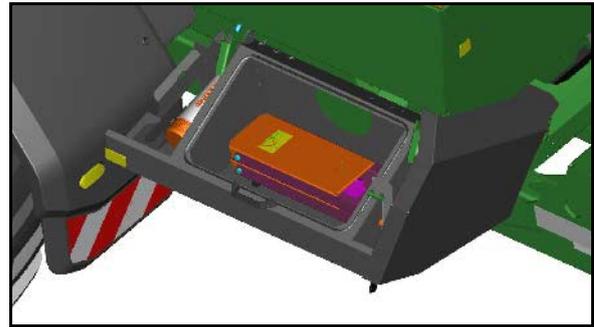


- Correct the setting of the parking brake if the spindle's tension is no longer sufficient.
- Ensure that the bowden cable is not lying or rubbing against other vehicle parts.
- When the parking brake is off, the bowden cable must be slightly slack.

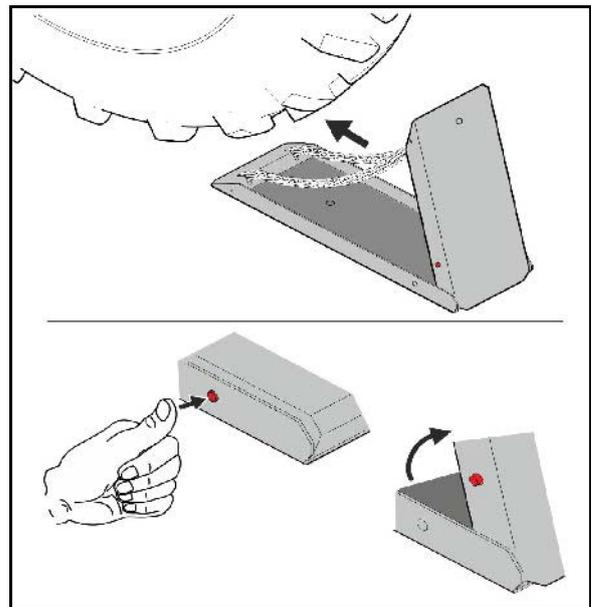
5.7.4 Wheel chocks

Use wheel chocks to prevent the machine from rolling.

- (1) Foldable wheel chocks
- (2) Wheel chock storage



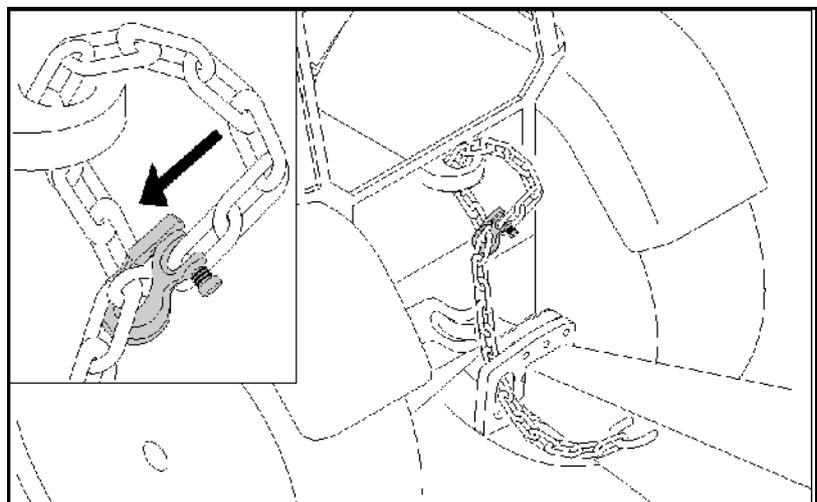
Put the foldable wheel chocks into operating position by pressing the button and apply directly on the wheels before uncoupling.



5.8 Safety chain between tractor and implements

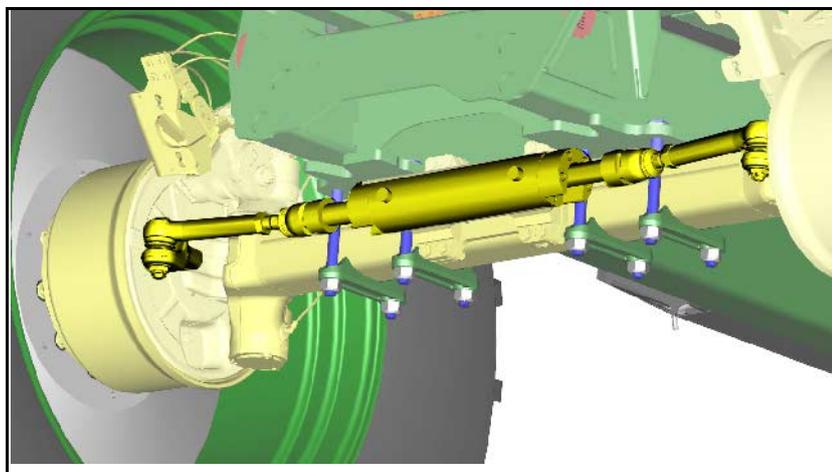
Depending on country-specific regulations, implements are equipped with a safety chain.

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



5.9 AutoTrail steering axle

The AutoTrail tracking control serves for precise tracking of the implement behind the tractor.



See operating manual for software ISOBUS.

Transportation



DANGER

Risk of accident due to implement tipping over when the axle is steered!

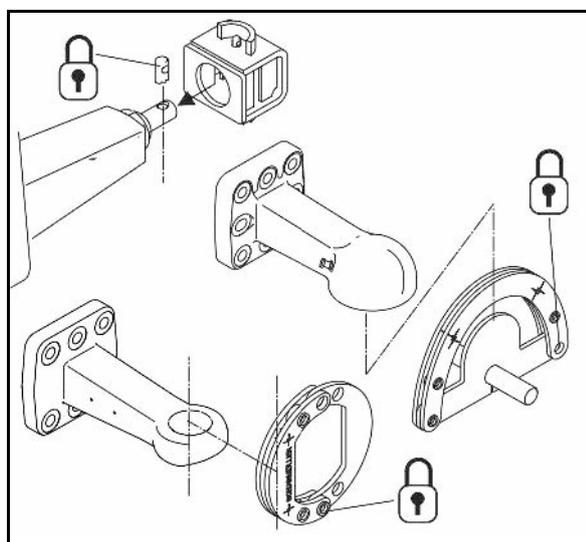


Activate the locking mechanism before driving on roads.

→ When moving off, the axle is moved to the centre position and is automatically locked.

5.10 Safety device against unauthorised use

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



5.11 Hydraulic jack

The hydraulically actuated jack supports the uncoupled implement. It is actuated using a double-acting control valve.

Blue tractor control unit

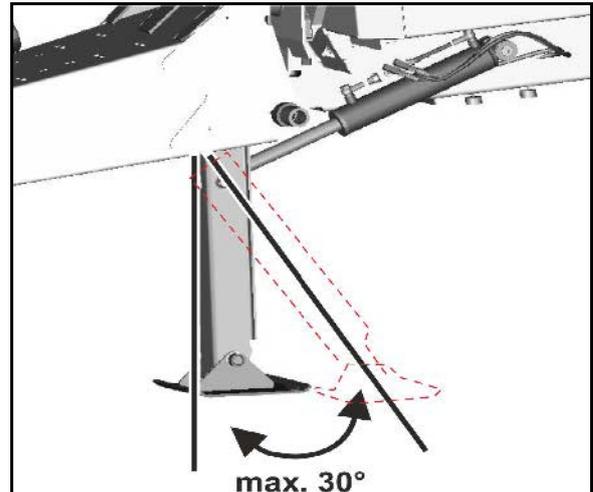


DANGER

When resting the machine on the hydraulic stand, it must not be more than 30° off the vertical.

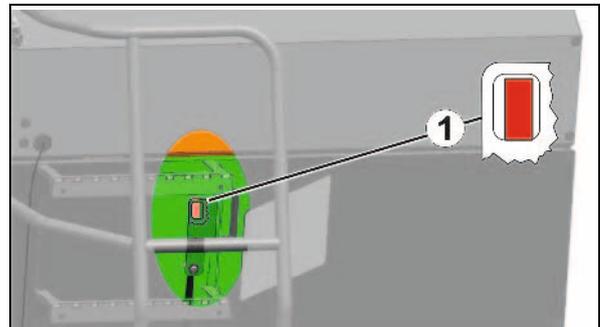


When the jack is actuated, push on the coupling on the tractor to relieve the pin of the trailer coupling / hitch.



If the red indicator on the front wall of the hopper is visible, the jack is lowered.

Raise the jack completely for road transport.



5.12 In-cab terminal



It is absolutely imperative to pay attention to the operating manual for the In-cab terminal and the operating manual for the software for implement control!

An ISOBUS compatible operating terminal makes it easy to control, operate and monitor the machine.

The spread rate is set electronically.

AmaTron 4



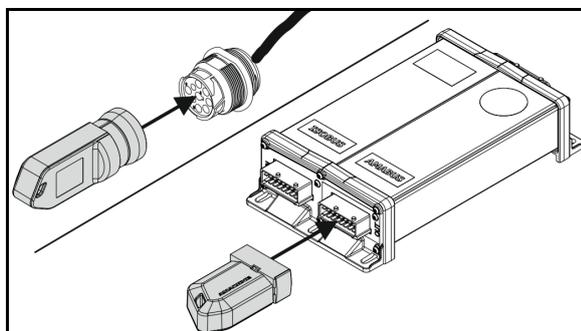
AmaPad 2



5.13 Bluetooth connection

For a Bluetooth connection, the Bluetooth adapter must be connected to the implement computer or to the diagnosis plug.

For Bluetooth coupling, refer to the ISOBUS software operating manual.



5.14 MySpreader app

The AMAZONE mySpreader app enables convenient handling of the implement using a mobile device.

The implement can be connected to a mobile end device via Bluetooth.

The fertiliser spreader can exchange data with the mySpreader app via Bluetooth.

Content of the mySpreader app:

- FertiliserService app with settings for the fertiliser spreader
- EasyCheck app to determine the lateral distribution
- EasyMix app with setting recommendations for mixed fertiliser



The app can be purchased from the iOS Store or the Play Store.

To purchase the app, use the QR code or the link

www.amazone.de/qrcode_mySpreader.



5.15 Camera system



WARNING

Risk of injury or even death.

If the camera display alone is used for manoeuvring, persons or objects can be overlooked. The camera system is an aid. It does not replace the operator's awareness of the immediate surroundings.

- **Before manoeuvring, ensure that there are no people or objects in the manoeuvring area by taking a direct look**

5.16 Work lights



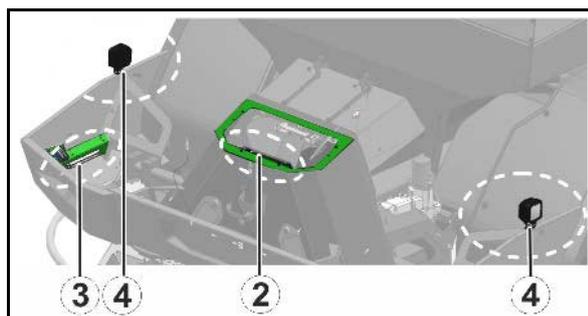
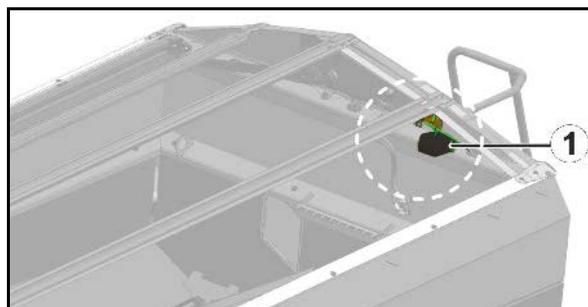
2 variants:

- Separate power supply from the tractor is required, operation via the control box.
- Power supply and operation via ISOBUS (only LED floodlights with a total power of 48 W).

The work lights ensure good vision on the working field at night.

The work lights are located

- (1) in the hopper
- (2) under the hood in the pre-chamber
- (3) on both sides of the spreader unit
- (4) installed on the sides for illuminating the spread fan during operation



6 Commissioning

This section contains information

- on commissioning your machine.
- 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.
- Comply with the chapter "Safety information for the operator", from Page 24 when
 - connecting and disconnecting the machine
 - transporting the machine
 - using the machine
- Only couple and transport the machine to/with a tractor which is suitable for the task.
- The tractor and machine must meet the national road traffic regulations.
- The operator and the operator 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
- require a floating position or pressed position to function

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 connecting the machine to the tractor.
You may only connect the machine to tractors suitable for the purpose.
- Carry out a brake test to check whether the tractor achieves the required braking delay with the machine connected.

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

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

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

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

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

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



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

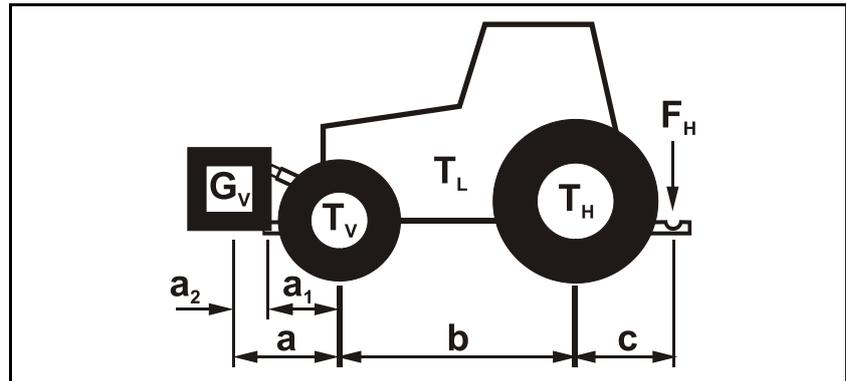
- Tractor empty weight,
- ballast weight and
- total weight of the connected machine or drawbar load of the connected machine



This information is only valid for the Federal Republic of Germany:

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

6.1.1.1 Data required for the calculation



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

Commissioning

6.1.1.2 Calculation of the required minimum ballasting at the front $G_{V \min}$ of the tractor to assure the steering functions properly

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

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 $T_{V \text{tat}}$

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

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

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

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 $T_{H \text{tat}}$

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

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

6.1.1.6 Tyre load capacity

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

6.1.1.7 Table

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



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



WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through insufficient stability and insufficient tractor steering capability 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 of components during operation through unapproved combinations of connecting equipment.

- Ensure:
 - that the connection fitting on the tractor possesses a permissible drawbar load sufficient for the actual drawbar load.
 - 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 A not automatically B automatic smooth pin C automatic curved pin (ISO 6489-2)	Drawbar eye	Socket \varnothing 40 mm	(ISO 5692-2)
	Drawbar eye	\varnothing 40 mm	(ISO 8755)
	Drawbar eye	\varnothing 50 mm, only compatible with form A	(ISO 1102)
Upper / lower hitch			
Ball head coupling \varnothing 80 mm	(ISO 24347)	Ball coupling	\varnothing 80 mm (ISO 24347)
Lower hitch			
Towing hooks / hitch hooks (ISO 6489-19)	Drawbar eye	Centre bore \varnothing 50 mm Eyelet \varnothing 30 mm	(ISO 5692-1)
	Swivel drawbar eye	compatible only with form Y, hole \varnothing 50 mm,	(ISO 5692-3)
	Drawbar eye	Centre bore \varnothing 50 mm Eyelet \varnothing 30 - 41 mm	(ISO 20019)
Drawbar - Category 2	(ISO 6489-3)	Drawbar eye	Socket \varnothing 40 mm (ISO 5692-2)
			\varnothing 40 mm (ISO 8755)
Drawbar	(ISO 6489-3)	Drawbar eye	(ISO 21244)
Drawbar / Piton-fix (ISO 6489-4)	Drawbar eye	Centre bore \varnothing 50 mm Eyelet \varnothing 30 mm	(ISO 5692-1)
	Swivel drawbar eye	compatible only with form Y, hole \varnothing 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)


DANGER

Damage to the implement due to use of non-approved coupling devices.

A Category 2 drawbar may not be coupled to a drawbar eye with a \varnothing 50 centre hole.

6.1.2.2 Compare the permissible D_c value with actual D_c value



WARNING

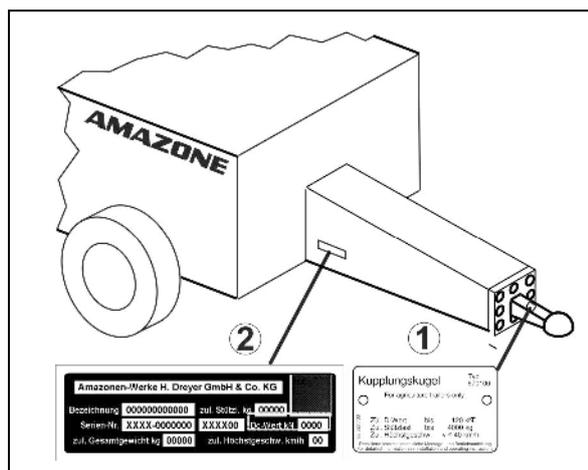
Danger from breaking the coupling devices between the tractor and the implement when the tractor is not used for its intended purpose!

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 (\leq) 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

kN

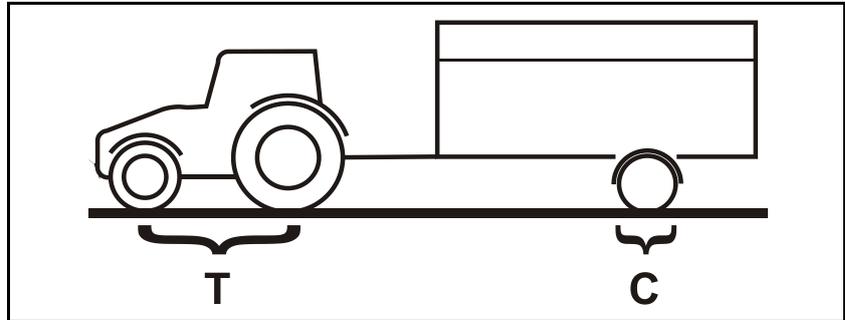
specified D_c value

Coupling device on the tractor	kN
Coupling device of the implement	kN
Drawbar of the implement	kN

Calculate the actual D_c value for the combination to be coupled

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

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



- 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 Adjusting the length of the PTO shaft to the tractor



WARNING

Danger from

- **damaged and/or destroyed, flying parts for the operator / third party if the PTO shaft is compressed or pulls apart while the machine coupled to the tractor is being raised/lowered, because the length of the PTO shaft has not been adjusted properly.**
- **being caught and drawn in if the PTO shaft is installed incorrectly or if unauthorised design changes are made.**

Have the length of the PTO shaft checked in all operating positions by a specialist workshop and, if necessary, adjusted before coupling the PTO shaft to your tractor for the first time.

Always observe the operating manual supplied with the PTO shaft when adjusting the PTO shaft.



This adjustment of the PTO shaft applies only for the current tractor type. You may need to readjust the PTO shaft if you couple the machine to another tractor.



WARNING

Risk of being caught and drawn in if the PTO shaft is installed incorrectly or if unauthorised design changes are made.

Only a specialist workshop may make design changes to the PTO shaft. When doing so, read and follow the operating manual from the manufacturer.

Adjusting the length of the PTO shaft is permitted with consideration of the minimum profile overlap.

Design changes to the PTO shaft that are not described in the operating manual from the PTO shaft manufacturer are not permitted.



WARNING

Risk of crushing between the rear of the tractor and the machine when raising and lowering the machine to determine the shortest and longest operating position of the PTO shaft.

Only actuate the operator controls for the tractor's three-point linkage

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

**WARNING****Risk of crushing from unintentional:**

- **rolling of the tractor and the connected machine.**
- **lowering of the raised machine.**

Secure the tractor and machine from unintentionally starting or rolling and secure the raised machine against unintentional lowering before entering the danger zone between the tractor and raised machine in order to adjust the PTO shaft.



The PTO shaft is at its shortest when it is horizontal. The PTO shaft is at its longest when the machine is fully lifted.

1. Couple the tractor to the machine (do not connect the PTO shaft).
2. Apply the tractor's parking brake.
3. Determine the clearance height of the machine with the shortest and longest operating position for the PTO shaft.
 - 3.1 To do so, raise and lower the machine via the tractor's three-point hydraulic system.

While doing so, actuate the manual controls for the tractor's three-point hydraulic system on the rear of the tractor, from the provided workstation.
4. Secure the machine, lifted in the measured clearance height, against unintentional lowering (for example, by supporting it or hooking it to a crane).
5. Secure the tractor from unintentional starting before entering the danger area between the tractor and machine.
6. When measuring the length and shortening the PTO shaft, read and follow the operating manual from the PTO shaft manufacturer.
7. Put the shortened halves of the PTO shaft back together.
8. Grease the universal joint shaft of the tractor and the gearbox input shaft before connecting the PTO shaft.

The tractor symbol on the protective tube of the PTO shaft identifies the tractor-side connection of the PTO shaft.

6.3 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 falling of the unsecured machine raised using the tractor's three-point linkage.**
- **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 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 running
 - For as long as the tractor engine is running with a connected turbine shaft / hydraulic system.
 - When the ignition key is inserted in the tractor and the tractor engine with the connected turbine shaft / hydraulic system could be started unintentionally.
 - When the tractor and machine are not secured against unintentional rolling using their parking brakes and/or wheel chocks.
 - When moving parts are not blocked against unintentional movement.

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

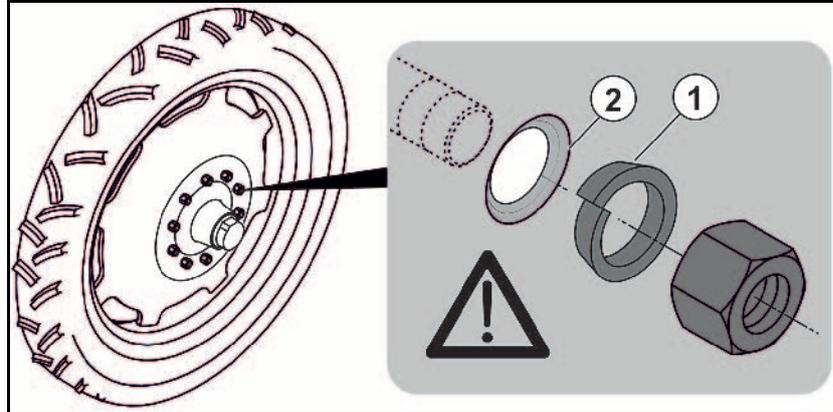
1. Lower the raised, unsecured machine / raised, unsecured parts of the machine.
- This is how to prevent unintentional falling:
2. Shut down the tractor engine.
 3. Remove the ignition key.
 4. Apply the tractor's parking brake.
 5. Secure the machine against unintentional rolling (only attached machine)
 - On flat ground using the parking brake (if available) or wheel chocks.
 - On uneven ground or slopes using the parking brake and wheel chock.

6.4 Fitting wheels



To assemble the wheels, use:

- (1) conical rings in front of the wheel nuts.
- (2) only rims with a fitting countersink for the conical ring.



If the machine is fitted with inflatable spare tyres, running wheels must be fitted before putting into operation.

Workshop work



WARNING

Wheel rims that are suitable for the tyres used must have a rim that has been fully welded all the way round.

1. Lift machine slightly using lifting crane.



DANGER

Use the attachment points marked for lifting belts.

See also "Loading" section, page 33.

2. Loosen wheel nuts on the inflatable spare tyres.
3. Remove inflatable spare tyres.



CAUTION

Take care when removing the inflatable spare tyres and putting the running wheels in place.

4. Place the running wheels on threaded bolts.
5. Tighten wheel nuts.



Required tightening torque for wheel nuts: 510 Nm.

6. Lower machine and remove lifting belts.
7. After 10 hours of operation, tighten the wheel nuts.

6.5 Initial operation of service brake system

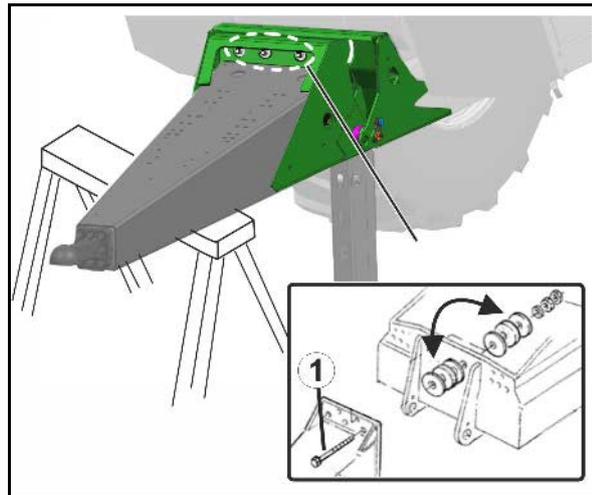


Perform a brake test while the machine is empty, and again when it is loaded to test the braking behaviour of the tractor with coupled machine.

We recommend that you have a specialist workshop balance the brakes on the tractor and the machine in order to attain optimum braking and minimum wear to brake pads (see "Maintenance" section, page 143).

6.6 Adjusting the height of the machine drawbar

1. Uncouple the spreader from the tractor and park it using the support.
2. Support the drawbar on a stable trestle and unscrew both securing screws (1).
3. The spacer discs can be turned evenly to adjust the drawbar. The buffers must not be removed. They absorb any impact transferred from the tractor to the spreader.
4. Screw the drawbar tight
tightening torque 162 Nm.



7 Coupling and uncoupling the machine



When coupling and decoupling the machine, comply with the chapter "Safety information for the operator", page 24.



WARNING

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

Secure the tractor and machine against unintentional start-up and rolling, before entering the danger area between the tractor and machine when coupling or decoupling the machine. See also Page 94.

7.1 Coupling the machine



WARNING

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

You may only connect the machine to tractors suitable for the purpose. For this, see the chapter "Checking the suitability of the tractor", page 84.



WARNING

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

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

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



WARNING

Risk of crushing, being caught or pulled in, or impact when the machine is unexpectedly released from the tractor.

Use the intended equipment to connect the tractor and the machine in the proper way.



WARNING

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

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

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

1. Direct people away from the danger area between the tractor and machine before you approach the machine with the tractor.
2. Couple the supply lines first before coupling the machine with the tractor.
 - 2.1 Drive the tractor up to the machine, leaving a clearance of approximately 25 cm between tractor and machine.
 - 2.2 Secure the tractor against unintentional starting and unintentional rolling.
 - 2.3 Check whether the universal joint shaft of the tractor is switched off.
 - 2.4 Connect the supply lines to the tractor.
3. Now reverse the tractor towards the machine so that the connection fitting can be coupled.
4. Couple the connection fitting.
5. Lift the stand into transport position.
6. Hydraulic system brake / overrun brake: Fasten the ripcord for the parking brake to the tractor.
7. Remove wheel chocks, release the parking brake.

7.2 Uncoupling the machine



DANGER

Risk of tipping.

- Only park the implement when the hopper is max. half full.
- Before uncoupling the implement, evenly distribute residual quantities in the hopper!
The implement must not be uncoupled when the load is towards the rear! Otherwise the implement can tip over to the rear.
- Park the implement on a level parking surface with solid ground.



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

1. Park the machine in a level parking area on solid ground.
2. Uncouple the machine from the tractor.
 - 2.1 Secure the machine against unintentionally rolling. See page 94.
 - 2.2 Lower the stand to the parking position.
 - 2.3 **Uncouple** the connection fitting.
 - 2.4 Draw the tractor approximately 25 cm forwards.
The space created between the tractor and the machine allows better access for decoupling the PTO shaft and the supply lines.
 - 2.5 Secure the tractor and machine against unintentional starting and unintentional rolling.
 - 2.6 Uncouple the supply lines.
 - 2.7 Fasten the supply lines in the corresponding parking sockets.
 - 2.9 Hydraulic brake: Release the ripcord for the parking brake from the tractor.

7.2.1 Manoeuvring the uncoupled machine



DANGER

You must be particularly careful when manoeuvring the machine with the service brake system released, since only the manoeuvring vehicle is now braking the machine.

The machine must be connected to the manoeuvring vehicle before you actuate the release valve on the trailer brake valve.

The manoeuvring vehicle must be braked.



The service brake system cannot be released using the release valve if the air pressure in the air reservoir drops below 3 bar (e.g. if the release valve has been actuated multiple times or if there are leaks in the brake system).

To release the service brake

- Fill the air reservoir.
- Remove all air from the braking system at the drain valve on the air reservoir.

1. Connect the machine to the manoeuvring vehicle.
2. Brake the manoeuvring vehicle.
3. Remove the wheel chocks and release the parking brake.
4. **Pneumatic braking system** only:
 - 4.1 Press in the actuator button on the release valve as far as it will go (see page 49).
 - 4.2 The service brake system is released and the machine can be manoeuvred.
 - 4.3 Once the manoeuvring procedure is finished, pull out the actuator button on the release valve as far as it will go.
 - 4.4 The pressure from the air reservoir brakes the machine again.
5. Actuate the brakes on the manoeuvring vehicle again once you have finished manoeuvring the machine.
6. Firmly apply the parking brake again and secure the machine against rolling with wheel chocks.
7. Uncouple the machine and manoeuvring vehicle.

8 Adjustments



When performing any adjustment work on the machine, observe the information in the following chapters

- "Warning symbols and other labels on the machine" from page 17 and
- "Safety information for the operator" from page 24.

Observing this information is important for your safety.



WARNING

Danger of, shearing, cutting, entrapment, entanglement, being drawn in, caught or struck during all adjustment work on the machine

- **due to unintentional contact with moving operating elements (spreading vanes of rotating spreading discs).**
- **due to tractor and connected machine unintentionally starting up or rolling away.**
- Secure the tractor and the machine against unintentional start-up and rolling, before adjusting the machine. See page 94.
- Only touch moving operating elements (rotating spreading discs) when they have come to a complete standstill.



WARNING

Risk of catching, trapping and knocks during all adjustment work on the machine due to unintentional lowering of the coupled and raised machine.

Secure the tractor cabin against entry of other persons to prevent unintentional actuation of the tractor's hydraulic system.

Please note that the individual spreading properties of the spread material have a significant influence on the lateral distribution and spread rate. For this reason, the listed setting values should only be considered as a reference.

The spreading properties depend on the following factors:

- The fluctuations in the physical data (specific weight, grain size, frictional resistance, cw value, etc.) within the same type and brand
- The different properties of the spread material due to weather factors and/or storage conditions.

As a result of this, we cannot guarantee that your spreading material, even with the same name and from the same manufacturer, has the same spreading properties as the listed spreading material. The specified setting recommendations for the lateral distribution are based exclusively on the weight distribution and not on the nutrient distribution (this applies particularly for mixed fertilisers) or the active substance distribution (e.g., for slug pellets or lime). Claims for damages not caused by the centrifugal spreader itself are excluded.

Adjustments

All settings on the machine are made on the basis of the setting chart for the corresponding fertilizer.

- Pay attention to the grain diameter and bulk density.
 - The calibration factor can be used as a starting value for fertilizer calibration.
 - Eingabe Wurfweitenparameter für WindControl am Bedien-Terminal.
1. Pay attention to the working width.
 2. **ZG-TS** Selection of spreading vane unit.
 3. Position of the delivery system (manual/on the control panel, optional).
 4. Setting of the spreader vane speed (via PTO shaft speed / on the control terminal with a hydraulic drive).
 5. Setting for boundary and trench spreading, see page 107.

Excerpt from the setting chart

YaraMila® NPK

3,61 mm

1,08 kg/l

Calibration factor **0,99**

13,8

					Side spreading		Boundary spreading		Ditch spreading							
TS-2	24,0	16	600	B	2	720	2	5	600	2	10	550	24	-2	166	
	27,0	16	600	B	2	720	2	5	600	2	10	550	24	-2	172	
	30,0	16	800	B	2	900	2	7	800	2	12	720	29	-1	172	
TS-3	36,0	18	720	C	2	800	2	20	720	2	25	600	36	0	184	
	40,0	25	800	C	3	900	3	15	800	3	20	720	39	2	224	
	48,0	36	800	D	X	900	3	5	800	3	10	720	45	4	324	

8.1 Setting the spread rate

	See the ISOBUS-Software operating manual.
---	---

The **slider position** required for the desired **spread rate** is adjusted electronically via the two rate slides.

After entering the desired spread rate on the in-cab terminal [nominal quantity in kg/ha], the fertiliser calibration factor must be determined (spread rate check). It determines the spread rates set by the **in-cab terminal**.

8.2 Spread rate control (fertiliser calibration)

	See operating manual Implement control software ISOBUS / Chapter Calibrate Fertilizer
---	---

Prior to checking the spread rate, see the setting chart for the calibration factor (as the initial basis) for the respective fertiliser, and enter it in the Fertiliser menu of the ISOBUS software.

Prerequisite	Different methods for spread rate check
Weighing spreader	<p>Constant calibration while spreading</p> <p>(calibration methods on the field)</p> <p>Online calibration using weighing technology:</p> <p>Configure implement menu</p> <p>→ Calibration method: online calibration.</p>
FlowControl	<p>Online calibration using FlowControl torque recording:</p> <p>Configure implement menu</p> <p>→ Calibration method: online FlowControl or online FlowControl and scale.</p>
Weighing spreader	<p>Calibration before / when beginning spreading operation</p> <p>Calibrate with each fertiliser change / change in the spread rate / change in the working width / deviations between the desired and the actual spread rate.</p> <p>At the beginning of spreading operation, during the calibration run when spreading the first 1000 kg of fertiliser.</p> <p>Configure implement menu:</p> <p>→ Calibration method: switch on offline calibration.</p>
Calibration device	<p>Work menu: Select automatic fertiliser calibration.</p> <p>Calibration before spreading operation when the implement is at a standstill.</p> <p>Fertiliser menu:</p> <p>→ Calibration method: lateral opening (via calibration device)</p>

8.3 Setting the spreading disc speed



See the setting chart for the spreader disc speed for the respective fertiliser, and enter it in the Fertiliser menu of the ISOBUS software.

- Hydro: The spreader disc speed is regulated automatically when witching on.

8.4 Setting the working width



- There are different spreading disc pairs for the various working widths.
- The existing tramline system (distance between the tramlines) determines the selection of the required spreading disc pair.

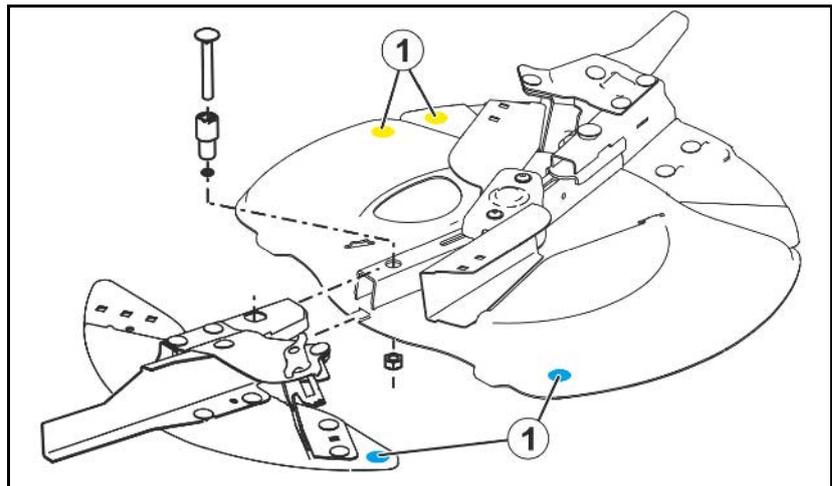


The primary factors that affect the spreading properties are:

- Granule size
- Bulk density
- Surface condition
- Humidity

We therefore recommend the use of a well granulated fertiliser by a renowned manufacturer and also checking of the working width setting using the mobile fertiliser test rig.

8.4.1 Replacing the spreading discs



1. Undo the bolt and remove the screw and the bushing.
2. Remove the spreading vane unit to the outside.
3. Insert the other spreading vane in reverse order and secure it with bolts and bushing.

See the setting chart for the designation of the spreading vane unit and enter it in the Fertiliser menu of the ISOBUS software.



Always change short and long spreading vane units on both sides.

When mounting the spreading vane units on the spreading disc, ensure that the coloured markings (1) are the same!

8.4.2 Setting the feed system



The setting of the inlet system is carried out according to the details in the setting chart automatically using an electric motor according to the entry in the in-cab terminal.



Setting the feed system to a higher value widens the working width, a smaller value reduces the working width.

8.5 Checking the working width and lateral distribution

The working width is influenced by the respective spreading properties of the fertiliser.

The most important influential factors on the spreading properties are known to be

- the grain size,
- the bulk density,
- the surface properties and
- the moisture.

The setting values from the setting chart are therefore only to be considered as **reference values**, since the spreading properties of the fertiliser types can change.

Check the working width and lateral distribution and optimise the fertiliser spreader settings by using:

- a mobile test rig
 - EasyCheck
- See separate operating manual



Specifications for checking the working width and lateral distribution:

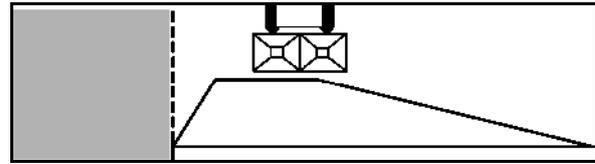
- as little wind as possible (wind speeds < 3 m/s).
- never perform a spreading test with side winds. If necessary, adjust the orientation of the spreading test for the wind direction.

8.6 Boundary, ditch and side spreading

1. Boundary spreading in accordance with fertiliser ordinance:

Along the field boundary there is a road, a field path or another person's lot.

Fertiliser is not permitted to fall beyond the boundaries in accordance with the fertiliser ordinance.

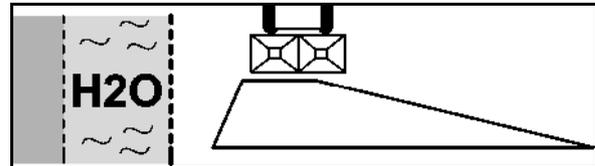


2. Ditch spreading in accordance with fertiliser ordinance:

There is body of water or a ditch along the field boundary.

The fertiliser ordinance specifies the following:

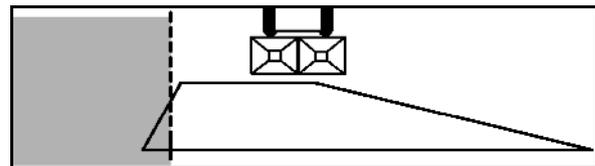
- No fertiliser must be spread within one metre of the boundary (with use of boundary spreading devices).
- No fertiliser must be spread within three metres of the boundary (without use of boundary spreading devices).
- Erosion and wash-away (e.g. in surface waters) must be prevented.



3. Side spreading in accordance with fertiliser ordinance (

The boundary is delineated by an area in agricultural use. It is acceptable for a small amount of fertiliser to be thrown across the field boundary.

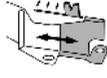
The fertiliser distribution in towards the centre of the field is still close to the nominal quantity. A small amount of fertiliser is thrown across the field boundary.



8.6.1 Settings for border spreading



See the setting chart for the values for boundary spreading the appropriate fertiliser and enter them in the Fertiliser menu of the ISO-BUS software:

- 
 - Select TS border spreading vane (A, A+, B, C, D).
 - 
 - Set TS border spreading vane (1, 2, 3)
 - 0 – do not mount a telescope
 - **X** – Perform border spreading with normal spreading vanes. Border spreading is not switched on with the operating terminal (without TS)
- Do not switch ClickTS to the boundary spreading position.
- PTO shaft drive: reduce r.p.m.
- Hydro: On the boundary side, the quantity and spreading vane r.p.m. (Hydro) are reduced automatically.

Setting the TS border spreading vane on the long spreading vane on the right / left depends on:

- boundary clearance,
- type of fertilizer

The value to be set should be read from the setting chart.

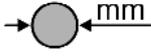


- The values in the setting table are intended as guideline values, since fertiliser condition may differ.
- The border distance on the setting chart basically represents half the working width.

Excerpt from the setting chart

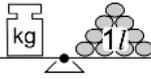


YaraMila® NPK



mm

3,61 mm



kg

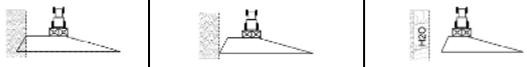
1,08 kg/l

Calibration factor

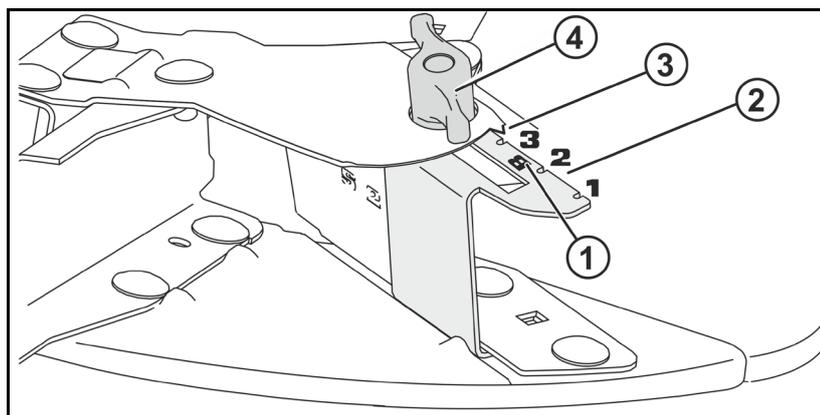
0,99



13,8

								Side spreading			Boundary spreading			Ditch spreading		
					Side spreading			Boundary spreading			Ditch spreading					
																
TS-2	24,0	16	600	B	2	720	2	5	600	2	10	550	24	-2	166	
	27,0	16	600	B	2	720	2	5	600	2	10	550	24	-2	172	
	30,0	16	800	B	2	900	2	7	800	2	12	720	29	-1	172	
TS-3	36,0	18	720	C	2	800	2	20	720	2	25	600	36	0	184	
	40,0	25	800	C	3	900	3	15	800	3	20	720	39	2	224	
	48,0	36	800	D	X	900	3	5	800	3	10	720	45	4	324	

Setting the Auto TS border spreading vane



(1) Telescope identification

TS1 → A, A+ / TS2 → B, C / TS3 → C, D

(2) Scale (1, 2, 3)

(3) Pointer

(4) Thumb nut

1. Undo thumb nut.
2. Read the set value from the setting chart.
3. Set the telescopic part of the border spreading vane to the required value on the scale.
4. Tighten the thumb nut.



Setting the boundary spreading vane TS

- to a higher value causes an elongation of the spreading range toward the border,
- to a smaller value causes a reduction of the spreading range toward the field.



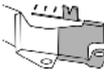
Replacing the telescope (A, A+, B, C, D) for the boundary spreading vane, see page 136.

8.6.2 Adapting the settings for boundary spreading

To optimise the boundary spreading pattern, the settings can be adapted in deviation from the setting chart.

To adapt the settings you must proceed in the following sequence.

Always make only one change at a time.

	Elongation of the spreading range toward the boundary (more fertiliser to the outside)	Delimitation of the spreading range toward the field (less fertiliser to the outside).
1. 	Telescope of the boundary spreading vane to a larger adjustment value.	Telescope of the boundary spreading vane to a smaller adjustment value.
Telescope is already set to the maximum value: 2. 	Replace telescope of the boundary spreading vane. A → A+ → B → C → D	Replace telescope of the boundary spreading vane. D → C → B → A+ → A
3. 	Increase spreading disc speed.	Reduce spreading disc speed.
For extremely large working widths: 4. X	Do not switch on Auto TS / ClickTS for boundary spreading.	

8.7 Switch-on point and switch-off point

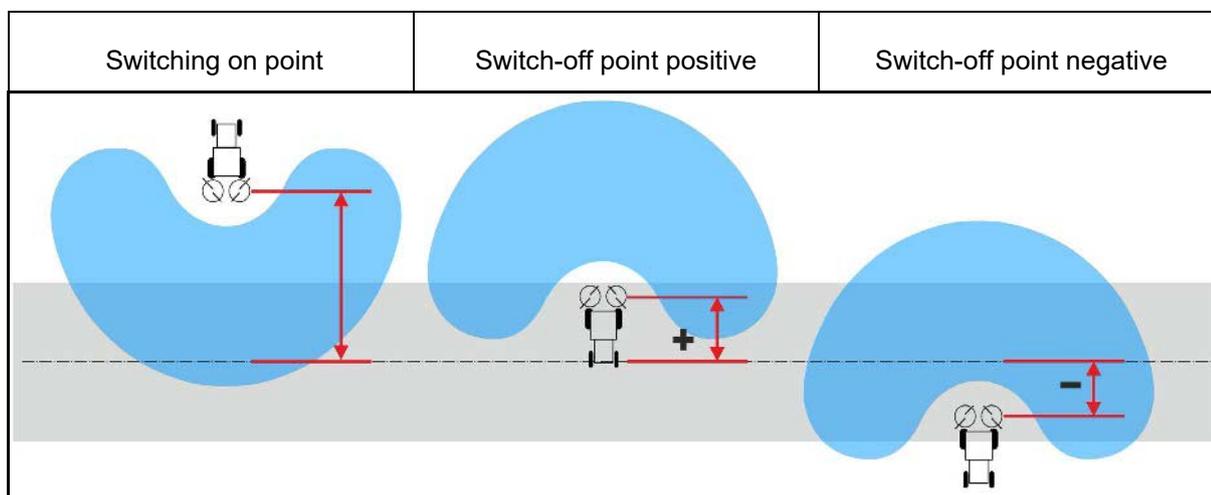
- The switch-on point is the position for opening the shutters when moving out of the headlands at which the best possible fertiliser distribution is achieved.
- The switch-off point is the position for closing the shutters when moving onto the headlands at which the best possible fertiliser distribution is achieved..

The switch-on point and switch-off point are measured from the centre of the headlands to the centre of the spreading disc.

See the setting chart for the switch-on point and switch-off point and enter it in the Fertiliser menu of the ISOBUS software.

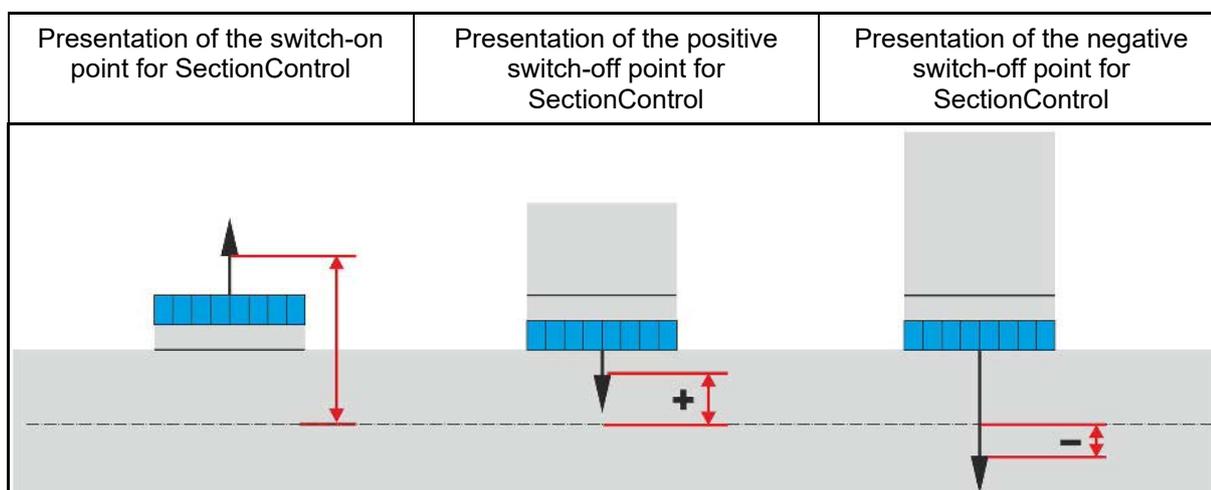
Implements without SectionControl:

- Open shutters at the switch-on point.
- Close shutters, at the switch-off point.



If direct moving into the tramline of the headlands is desired, it may be necessary to increase the value for the switch-off point. However this is not positive for fertiliser distribution on the headlands.

Switch-on point and switch-off point for SectionControl



Adjusting the switch-off point for the driving style

The selection of the switch-off point depends on the driving style on the headlands.

- Distribution-optimised driving style

With the distribution-optimised driving style, it is not possible to turn into the headland tramline in many cases, as, in particular with small/negative switch-off points, the shutters close too late.

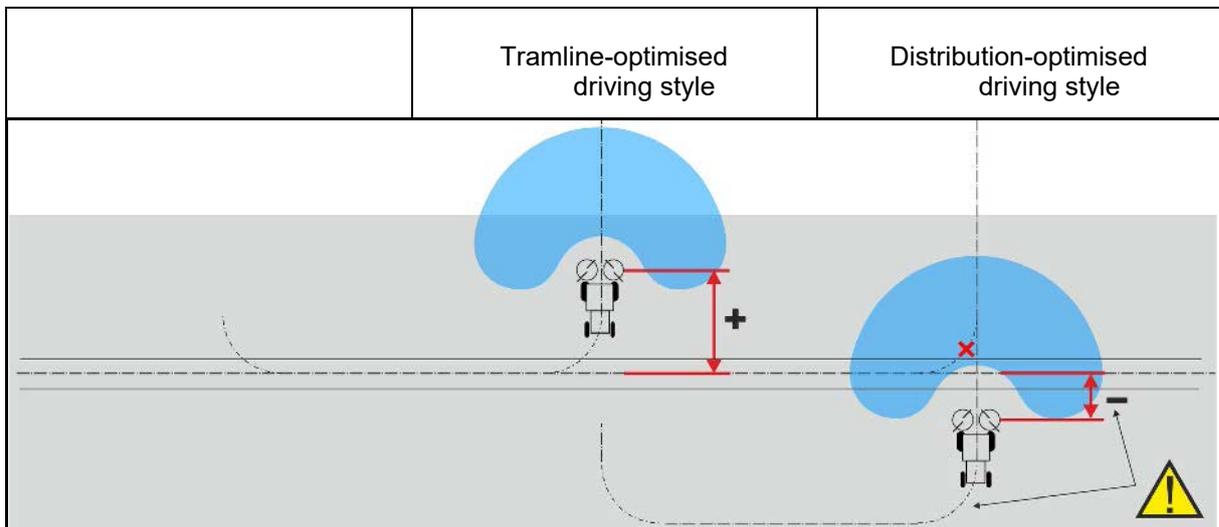
→ Read the switch-off point from the setting chart.

- Tramline-optimised driving style

- With the tramline-optimised driving style, the switch-off point must be big enough so that the shutters close in due time before driving into the headland tramline.

However, this is not positive for fertiliser distribution on the headlands.

→ Switch-off point: at least 7 m.



9 Transportation



- Comply with the chapter "Safety information for the operator", from page 26 when moving.
- 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 function of the brake system.



WARNING

Risk of crushing, shearing, cutting, being caught and/or drawn in, or impact when making interventions in the machine, through unintentional machine movements.

- Secure the machine against unintentional movements before starting transportation.



WARNING

Danger of injury for persons standing in the vicinity of the machine due to unintentional start-up of the implement!

Switch-off the control terminal before road transport.



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.



WARNING

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

These risks pose serious injuries or death.

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

**WARNING****Risk of falling from the machine if riding against regulations!**

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

Instruct people to leave the loading site before approaching the machine.

**CAUTION**

- Comply with the chapter "Safety information for the operator", from page 26 when moving.
- Transportation is prohibited with a locked tractor control unit. As a general rule, put the tractor control unit on the tractor into neutral for transportation.
- Use transport locking for locking the raised ladder to prevent it from folding down again accidentally.

**WARNING****Risk of accident due to incorrectly working brake system!**

When the maintenance light is green, the brakes must be checked immediately by a specialist workshop.

The brakes have emergency features and are therefore not out of service.



- Close the shutters during road transport.
- Close the swivelable hopper cover.
- Put the work platform ladder in transport position.
- Put the ladder and platform for the fertiliser chamber in transport position.



Implement with track width smaller than 2 metres:

Drive in curves (roundabouts) with reduced speed to prevent the implement from tipping over.

**CAUTION**

- Switch the work lights off during transport to avoid blinding other motorists.

10 Use of the machine



When using the machine, observe the information in the following sections:

- "Warning symbols and other labels on the machine" from page 17 and
- "Safety information for the operator", on page 24 ff.

Observing this information is important for your safety.



ArgusTwin

.Faulty fertilising due to soiled radar sensors of the ArgusTwin system, see page 54.



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 contusions, cutting, catching, drawing in and knocks through

- **Unintentional start-up and rolling of the tractor-machine combination.**

Secure the tractor and the machine against unintentional start-up and rolling, before eliminating faults on the machine. See page 94.

Wait for the machine to stop before entering the machine danger area.



WARNING

Danger of catching or entanglement and drawing in or entrapment of loose clothing by moving elements (rotating spreading discs)!

Do not wear loose-fitting clothing. Tight clothing reduces the risk of unintentional catching or entanglement and drawing in or entrapment by moving elements.



Some products, such as Excello granulate and magnesium sulphate, cause increased wear to the spreading vanes (optional spreading vanes with enhanced wear resistance are available).

When spreading mixed fertilisers, note the following:

- Each variety may have different flight characteristics.
- The individual varieties may separate.

The recommended settings specified for lateral distribution pertain solely to weight distribution, not to nutrient distribution.



- For new machines, after 3-4 full hopper loads, check that the screws are tight and retighten if necessary.
- Use only fertiliser with the proper grain size, of the kinds listed in the setting chart. If the type of fertiliser is not known exactly, check the working width using the mobile fertiliser test rig.
- The technical condition of the spreading vanes, including their swivel vanes, is essential for uniform lateral distribution of the fertiliser on the field (i.e. forming strips).
- After every use, remove any fertiliser clinging to the spreading vanes.

10.1 Filling the machine



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. If necessary, drive only with a partially filled hopper.



WARNING

Couple the bulk fertiliser spreader to the tractor before loading.



- Remove residues or foreign bodies from the hopper before filling with fertiliser.
- Make sure that the charging sieve is always closed before you fill the hopper. Only a closed charging sieve prevents clumps of fertiliser and/or foreign bodies getting into the hopper and blocking the agitator.
- Let the floor belt run for a short period to reduce friction.
- It is essential to observe the safety instructions from the fertiliser manufacturer. Use appropriate protective clothing as necessary.

10.2 Spreading operation



- The spreading vanes are made of especially hard-wearing stainless steel. However, the spreading vanes are wearing parts.
- The type of fertiliser, times of use and spread rates influence the service life of spreading vanes.
- The technical condition of the spreading vanes is essential for uniform lateral distribution of the fertiliser on the field (i.e. forming strips).



WARNING

Danger of ejection of parts of the spreading vanes, caused by worn spreading vanes!

Every day, at the start and end of spreading work, check all spreading vanes for visible damage/defects. Refer to the criteria for the replacement of wearing parts in the chapter, page 136.



WARNING

Danger from materials or foreign objects that are thrown from or ejected by the machine at high speeds.

- Make sure that uninvolved persons are kept well clear of the danger area of the machine in the following situations:
 - Before you switch on the power for the spreading discs.
 - While the tractor engine is running.
- When spreading at the edge of fields in residential areas / near roads, make sure you do not endanger anybody or damage anything. Keep an adequate safety distance or use suitable devices for boundary spreading and / or reduce the drive rev. speed of the spreading discs.



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.



The machine is operated using the operating terminal.

- Refer to operating manual Implement Control Software ISOBUS.
- Refer to the operating manual for the operating terminal.

- The fertilizer spreader is connected to the tractor.
- The supply lines are connected.
- The operating terminal is connected.
- The settings have been made.



1.  Switch on spreading discs.
2. Hydraulic pump: uncouple the PTO shaft at low tractor engine speed.



- Hydraulic pump: first switch on the spreading discs, then switch on the tractor PTO shaft.
- Maintain a constant spreading disc speed.
- Always carry out a spread rate check or turn on the online calibration at the beginning of the spreading process.



Observe the point for switching on and off in the setting chart!

The point for switching on and off is specified as distance in metres from the spreading disc centre to the centre of the track in the headlands in the setting chart.



-  Switching on point when driving into the field.



-  Switching off point when driving into the headlands.



3.  Moving to, and when the switching on point is reached, open the shutter.



4.  At the switching off point before reaching the headlands, close the shutter.

5. For border spreading: Use the boundary spreading system.
6. After finishing spreading.

6.1 Close shutter.

6.2 Hydraulic pump: Switch off the tractor PTO shaft.



- 6.3  Disengage spreader disc drive.



To ensure low-vibration running of the spreading discs, balancing weights are installed on the spreading disc. A certain degree of vibrations caused by the manufacturing tolerances and resonances cannot be avoided. The spreading discs are balanced at the centre position (Position 2) of the telescope for the boundary spreading vanes. In Positions 1 and 3 of the respective telescopes, there may be vibrations caused by technical reasons!

The vibrations do not affect the service life of the implement.

Check for the presence of balancing weights when using spreading disc TS 3 with telescope D, see page 136.



- After long transport with a full hopper, ensure that the yield is correct before spreading begins.



- The service life of the spreading vanes depends on the kinds of fertiliser used, the operating times and the spread rates.

10.3 Notes for spreading slug pellets (e.g. MesuroI)



CAUTION

After the special spread rate check, the machine is suitable for the application of slug pellets.



Pay attention to the following particularities for application of slug pellets.

- Select fine special spreading material on the control terminal.
 - Spreading of slug pellets must be executed at constant forward speed because speed-proportional quantity regulation is not active.
 - Calibration of slug pellets is executed on the left hopper tip with the calibration chute.
 - Automatic refilling of the pre-chamber using the floor belt is not active.
- **Pay attention to the emptying of the pre-chamber and run the floor belt manually through the control terminal, if necessary**



Before spreading fine special spreading material, check the scraper position on the floor belt so that no spreading material can escape through the crack.



CAUTION

When filling the spreader, avoid inhaling product dust and direct skin contact (wear protective gloves). After use, thoroughly clean hands and all affected parts of the skin with water and soap.

**DANGER**

Slug pellets in some cases can be very dangerous for children and pets. Store in a place that is inaccessible to children and pets. Always comply with the instructions for use provided by the agent manufacturer!

Concerning the handling of slug pellets, in all other aspects we refer you to the instructions provided by the manufacturer of the agent and to the general precautionary measures for handling agricultural pesticides.

- When spreading slug pellets, ensure that the outlet openings are always covered with the spreading material, and that the implement runs at constant spreading disc speed. A residual quantity of \square ubstan. 0.7 kg per hopper tip cannot be properly applied. To empty the spreader, open the shutters and collect the spreading material that trickles out (e.g. on a tarpaulin).
- Slug pellets must **not** be mixed with fertiliser or other \square ubstances in order to work with the spreader in a different adjustment range.

10.4 Complete discharging



DANGER

Risk of injury from rotating spreader discs.

Do not drive spreader discs to remove any residue.

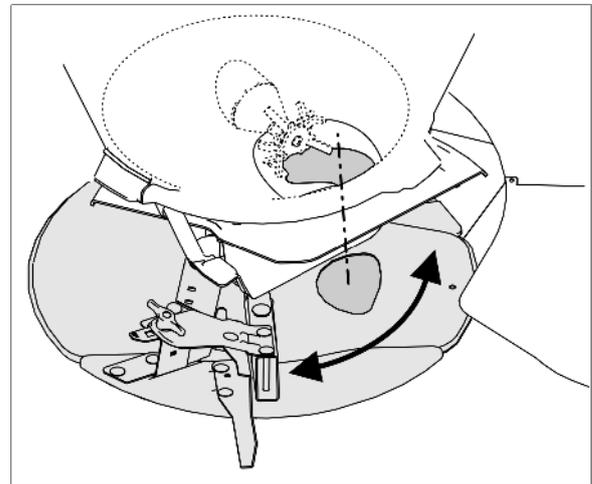


WARNING

Danger of being caught and drawn in with driven agitator!

- Never open the guard and function screen while the tractor engine is running.
- Never insert any object through the protection grating and function screen when the agitator is running.

1. Secure the tractor against unintentional start-up and unintentional rolling.
2. Turn the spreader disc by hand so that the hole in the spreader disc is pointing inwards, directly under the opening on the hopper.
3. On the operating terminal:
 - 3.1 Open shutter.
 - 3.2 Switch agitator on.
4. Finish emptying process once hopper is empty.



Keep the hood of the fertiliser pre-chamber closed. Otherwise the agitator will switch of and prevent emptying.

11 Faults



WARNING

Danger of crushing, shearing, cutting, being drawn in and/or caught if the tractor/machine combination is started and/or rolls unintentionally.

Secure the tractor and the machine against unintentional start-up and rolling, before eliminating faults on the machine. See page 94.

Wait for the machine to stop before entering the machine danger area.

11.1 Hydraulic system faults



The implement requires a tractor with load sensing system.

11.2 Eliminating agitator malfunctions



WARNING

Danger from crushing, shearing and/or impact through unintentional closing of the open, unsecured guard and function screen!

Secure the open guard and function screen so that it cannot move accidentally before carrying out work in this area.

11.3 Faults in electronics

Close the shutter manually



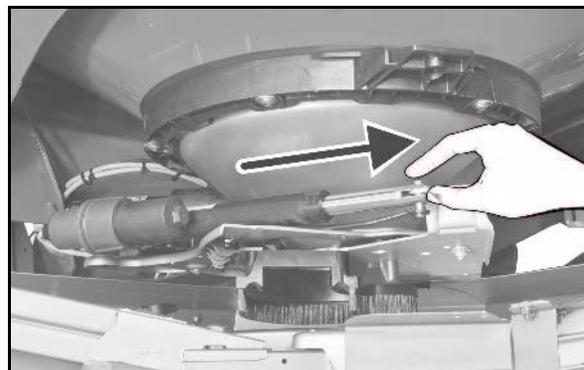
The manual closing of the shutter prevents the fertilizer from running out accidentally if the electrics do not react due to a fault.

1. De-energize the electrics.
2. Secure the tractor against unintentional start-up and unintentional rolling.
3. Pull out the actuator of the piston rod manually.

→ Shutter closes.

Adjustment force required: 150 N

4. Switch the operating terminal back on and check the functions.



11.4 Faults, causes and remedies

Fault	Cause	Remedy
Fertiliser lateral distribution not uniform.	Fertiliser deposits on the spreading discs and the spreading vanes.	Clean the spreading discs and the spreading vanes.
	The spreading properties of your fertiliser differ from those of the one we tested when creating the setting chart.	Contact the AMAZONE Fertiliser Service. ☎ 05405-501 111
Too much fertiliser in the tractor track	Prescribed spreading disc speed is not reached.	Increase tractor engine speed.
	Spreading vanes and outlets defective or worn.	Check the spreading vanes and outlets. Replaced defective or worn parts immediately.
	The spreading properties of your fertiliser differ from those of the one we tested when creating the setting chart.	Contact the AMAZONE Fertiliser Service. ☎ 05405-501 111
The floor belt is not conveying	Oil pressure is too low.	Increase the oil pressure from the tractor.
The swivelling hopper cover does not open / opens too fast	The throttle is not correctly set.	Set the throttle.
No hydraulic functions	Fluid supply at the tractor is not switched on.	Switch on fluid supply at the tractor.
	Power supply to valve block interrupted.	Check cable, plug and contacts.
	Oil filter contaminated.	Replace/clean oil filter. (Seite 154).
	Solenoid valve dirty	Rinse solenoid valve (sivulla 154).
The on-board computer does not indicate any function	Power supply defective.	Check the power supply to the on-board computer
The spreading discs do not start rotating when they are switched on via the on-board computer	The button for switching on the spreading disc drive was not held for at least 3 seconds (safety function).	Press and hold the button for switching on the spreading disc drive for at least 3 seconds.
	The oil supply from the tractor is not switched on	Switch on the oil supply from the tractor.
The spreading disc speed cannot be reached.	Oil pressure in the return flow is too high.	Go to a tractor specialist workshop.

12 Cleaning, maintenance and repairs



WARNING

Risk of crushing, shearing, cutting, being caught and/or drawn in, or impact through

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

Secure the tractor and machine against unintentional start-up and rolling, before carrying out cleaning, maintenance or repair work on the machine when coupling or decoupling the machine. See also page 94.



WARNING

Risk of crushing, shearing, cutting, being caught and/or drawn in, or impact through unprotected danger points

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



DANGER

- **When carrying out maintenance and repair, observe the safety instructions (see page 32).**
- **You may only carry out maintenance or repair work under moving machine parts that are in a raised position if such parts are secured with suitable, positive-fit locking devices against accidental lowering.**



- Regular and proper maintenance will keep the machine in good condition for a long time, and will prevent early signs of wear. Regular and proper maintenance is a requirement of our warranty conditions.
- Use only genuine AMAZONE spare parts (see "Spare and wear parts and auxiliary materials" section, page 16).
- Only use genuine AMAZONE replacement hoses, and hose clamps made of V2A for assembly.
- Testing and maintenance operations require specialist knowledge. This is not provided in this operating manual.
- Observe environmental protection measures when carrying out cleaning and maintenance work.



- Observe legal requirements when disposing of lubricants, e.g. oils and grease. These legal requirements also affect parts that come into contact with these lubricants.
- Do not exceed a greasing pressure of 400 bar when greasing with high pressure grease guns.
- The following are prohibited:
 - drilling the running gear.
 - drilling through existing holes on the transport frame.
 - welding load-bearing components.
- Protective measures are necessary, such as covering lines or extending lines in particularly critical locations
 - during welding, drilling and grinding work.
 - when working with cut-off wheels near plastic wires and electric wires.
- Clean the machine thoroughly with water before carrying out repair work.
- Carry out repair work on the machine with the pump switched off.
- Disconnect the machine cable and power supply from the on-board computer when carrying out any cleaning or maintenance work. This applies especially to welding on the machine.

12.1 Cleaning



- Monitor brake, air and hydraulic hose lines particularly carefully.
- Never treat brake, air and hydraulic hose lines with benzene, benzole, petroleum or mineral oils.
- After cleaning, grease the machine, in particular after cleaning with a pressure washer / steam jet or liposoluble agents.
- Observe the statutory requirement for the handling and removal of cleaning agents.

Cleaning with a pressure washer / steam jet



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

- Clean machine with regular water jet (oiled implements only at washbays with oil separators).
- Give particular attention to cleaning discharge openings and sliders.
- Remove fertiliser deposits from the spreading discs and the spreading vanes.
- Before cleaning, open the drainage flap of the hopper using the hand lever. Close it again after cleaning.
- When the machine is dry, apply a coat of anti-rust compound. (Use only biodegradable compounds).
- Park the machine with the slide gates **opened**.
- Clean the spreading discs very carefully and protect from corrosion.



Stainless steel components can also corrode when they come into contact with the spreading material, however, this does not affect their function.

12.2 Lubrication point overview

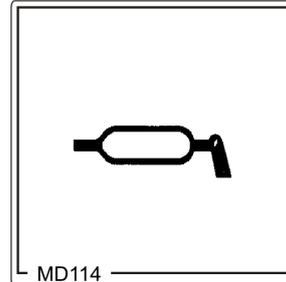


Lubricate all the lubricating nipples (keep the seals clean).

Lubricate / grease the machine at the specified intervals (operating hours h).

The lubrication points on the machine are indicated with the film.

Carefully clean the lubrication points and grease gun before greasing, so that no dirt enters the bearing. Completely press out the soiled grease in the bearings and replace it with new grease.



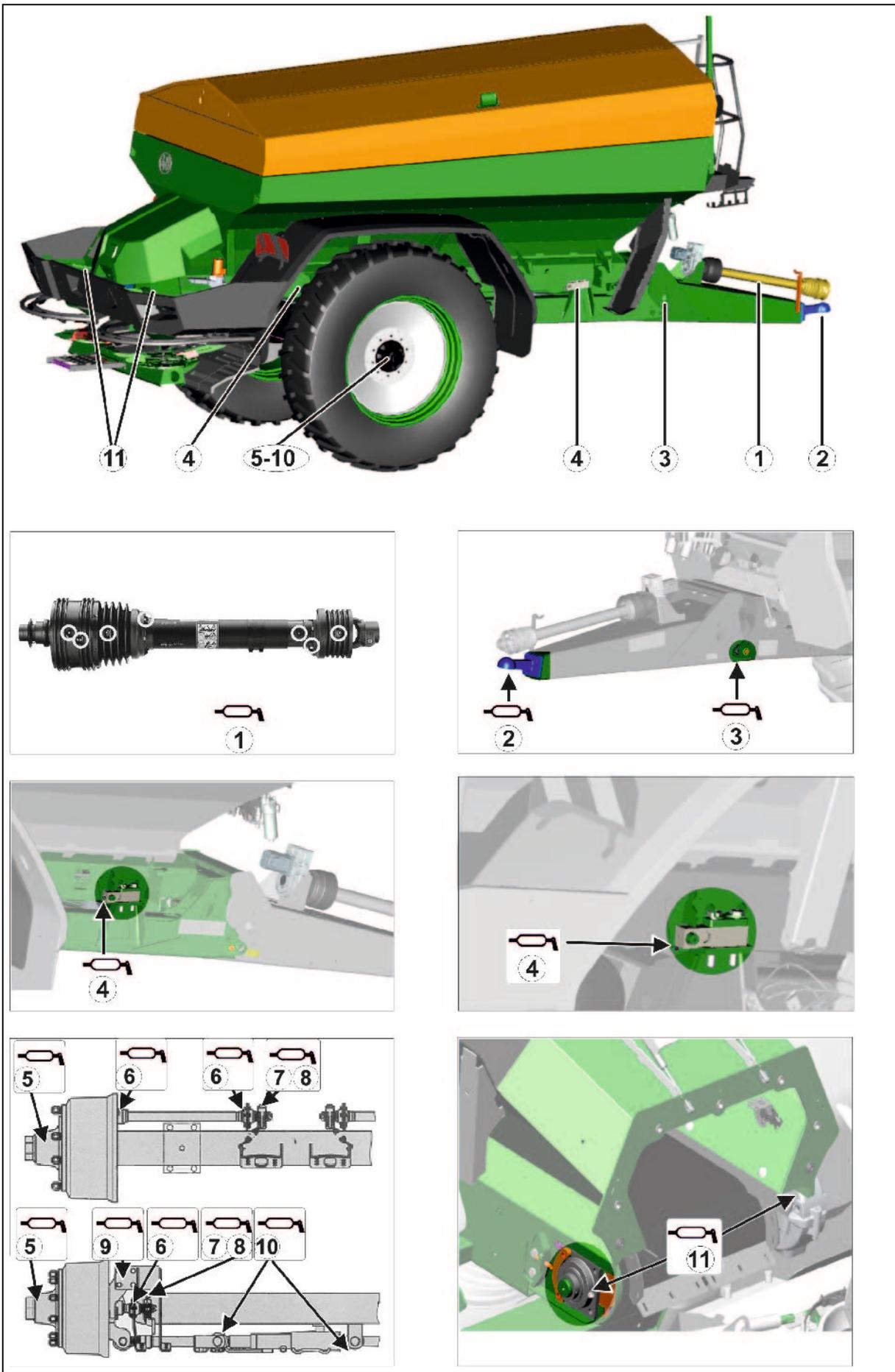
Lubricants

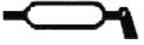


For lubrication, use a lithium saponified, multipurpose grease with EP additives:

Company	Lubricant designation	
	Normal use conditions	Extreme use conditions
ARAL	Aralub HL 2	Aralub HLP 2
FINA	Marson L2	Marson EPL-2
ESSO	Beacon 2	Beacon EP 2
SHELL	Retinax A	Tetinax AM

Overview of lubrication points



Lubrication point		Interval (h)					Type of lubrication 
		10	50	100	200	1000	
(1)	Universal joint shaft		×				Grease nipple
(2)	Ball coupling	×					Grease
(3)	Drawbar		×				Grease nipple
(4)	Weighing pin				×		Grease nipple
	Axle						
(5)	Wheel hub bearing					×	Grease nipple
(6)	Brake shaft bearing, outer and inner					×	Grease nipple
(7)	Slack adjuster		×				Grease nipple
(8)	Automatic slack adjuster ECO-Master				×		Grease nipple
(9)	Steering pin bearing, top and bottom		×				Grease nipple
(10)	Steering cylinder heads on steering axles				×		Grease nipple
(11)	Floor belt flange bearing			×			Grease nipple

Steering cylinder heads on steering axles

In addition to this lubrication work, it must be ensured that the steering cylinders and the supply line are always vented.

Automatic slack adjuster ECO-Master

Each time the brake linings are changed:

1. Remove the rubber sealing cap.
2. Lubricate (80g) until sufficient fresh grease emerges at the adjusting screw.
3. Turn the adjusting screw approx. one turn back with a ring spanner. Actuate the brake lever several times by hand.
4. In doing so, the automatic readjustment must take place smoothly. Repeat several times if necessary.
5. Put on the sealing cap. Grease again.

Brake shaft bearing, outer and inner

Caution: no grease or oil should be allowed to get into the brakes. Depending on the model series, the cam bearing for the brakes may not be sealed.

Only use lithium saponified grease with a dropping point greater than 190 °C.

Renewing the wheel hub bearing grease

1. Jack up the vehicle securely and release the brakes.
2. Remove the wheels and dust caps.
3. Remove the lynch pin and unscrew the axle nut.
4. Use a suitable extraction device to remove the wheel hub and brake drum, taper roller bearing and sealing elements from the axle stub.
5. Label the removed wheel hubs and bearing cages so that you do not confuse them when refitting.
6. Clean the brakes, check for wear, sound condition and function and replace worn parts.

The interior of the brake must be kept free from lubricants and dirt.

7. Thoroughly clean the interior and exterior of the wheel hubs. Remove all traces of old grease. Thoroughly clean the bearings and seals (diesel oil) and check for reusability.

Before refitting the bearings, lightly grease the bearing carrier and then refit all parts in the reverse order. Carefully fit parts with press fits and pipe bushings so that they are not twisted or damaged.

The bearings, the wheel hub cavity between the bearings and the dust cap must be smeared with grease before fitting. The grease should fill approximately a quarter to a third of the space in the fitted hub.

8. Fit the axle nut and adjust the bearing and brake. Finally, carry out a function check and an appropriate test run and rectify any detected faults.



The wheel hub bearing must only be greased with BPW special longlife grease with a dropping point greater than 190 °C.

The wrong grease or too great a quantity can result in damage.

Mixing lithium-saponified grease with sodium-saponified grease can result in damage caused by incompatibility.

12.3 Maintenance schedule – 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.

Before each start-up

1. Check hoses/tubes and connection pieces for any visually obvious defects/leaking connections.
2. Repair any areas of chafing on pipes and hoses.
3. Immediately replace worn or damaged hoses and pipes.
4. Immediately repair leaking connections.

Once after 50 operating hours

Component	Maintenance work	see page	Workshop work
Angular gearbox	<ul style="list-style-type: none"> • Oil change 	155	

After the first working run

Component	Maintenance work	see page	Workshop work
Wheels	<ul style="list-style-type: none"> • Wheel nut check 	148	X
	<ul style="list-style-type: none"> • Check for play in the wheel hub bearing 	142	X
Hydraulic system	<ul style="list-style-type: none"> • Check for leak tightness 	150	X
	<ul style="list-style-type: none"> • Check for defective hose lines 		

Daily

Component	Maintenance work	see page	Workshop work
Whole implement	<ul style="list-style-type: none"> • Check for visible defects 		
Air reservoir for the air-pressure brake	<ul style="list-style-type: none"> • Drain the air reservoir 	144	
Control butterfly valve	<ul style="list-style-type: none"> • Check for ease of movement and adjust if necessary 	140	
Outlet openings	<ul style="list-style-type: none"> • Clean 		
Agitator	<ul style="list-style-type: none"> • Check for damage 		
Spreading vanes	<ul style="list-style-type: none"> • Condition check, replace if necessary 	136	
Hydraulic fluid filter	<ul style="list-style-type: none"> • Check clogging indicator, clean or replace if necessary 	154	X

Monthly / every 50 operating hours

Component	Maintenance work	see page	Workshop work
Hydraulic system	<ul style="list-style-type: none"> Check for leak tightness Check for defective hose lines 	150	X
Parking brake	<ul style="list-style-type: none"> Check the braking effect with the brake on 	146	
Wheels	<ul style="list-style-type: none"> Check the wheel nuts for firm seating. 	148	
	<ul style="list-style-type: none"> Check the air pressure. 		
Coupling device	<ul style="list-style-type: none"> Check for damage, deformation and cracks 	149	

Every three months / 200 operating hours

Component	Maintenance work	see page	Workshop work
Dual-circuit service brake system	<ul style="list-style-type: none"> Check for leak tightness Check pressure in the air reservoir Check brake cylinder pressure Visual inspection of brake cylinder Joints on brake valves, brake cylinders and brake linkages 	144	X
	<ul style="list-style-type: none"> Linkage adjuster brake settings 	143	X
	<ul style="list-style-type: none"> Brake pad check 	143	X
Line filter	<ul style="list-style-type: none"> Clean Replace damaged filter inserts 	145	
Coupling device	<ul style="list-style-type: none"> Check the fastening bolts for wear and tight fit 	149	

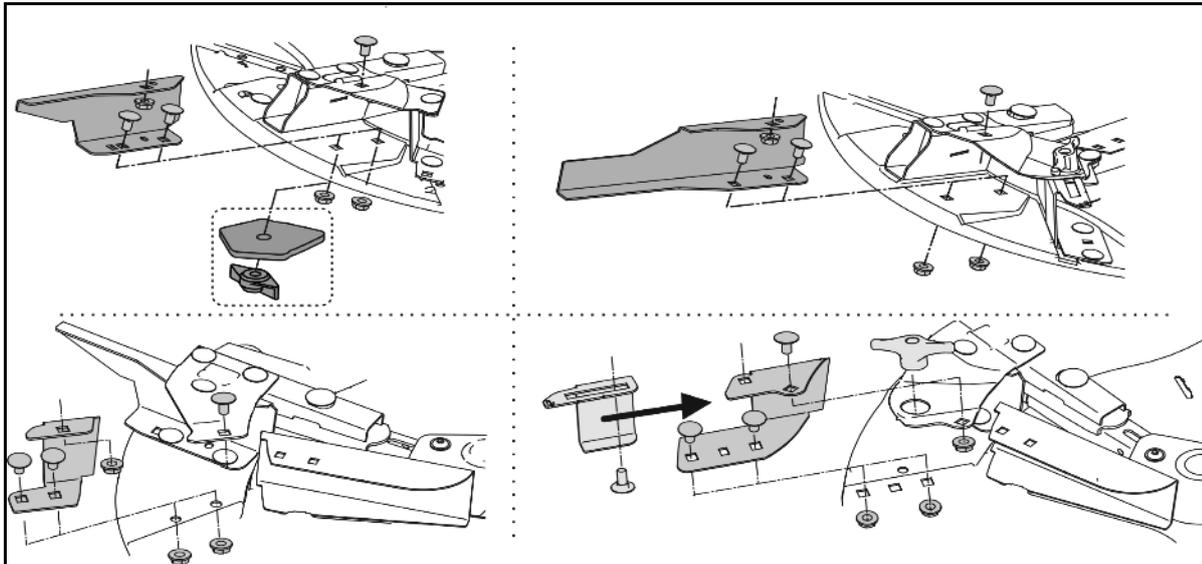
Annually / 1,000 operating hours

Component	Maintenance work	see page	Workshop work
Brake	<ul style="list-style-type: none"> Check the brake drum for dirt 	142	X
	<ul style="list-style-type: none"> Visual check for wear and damage 		
	<ul style="list-style-type: none"> Check the automatic slack adjuster 	143	
	<ul style="list-style-type: none"> Check the brake drum for the formation of cracks and the inner diameter 	143	X
Wheels	<ul style="list-style-type: none"> Check play on wheel hub bearings 	142	X
Conveyor belt	<ul style="list-style-type: none"> Check the central position of the conveyor belt in the floor belt 	139	X

As necessary

Component	Maintenance work	see page	Workshop work
Belt conveyor	<ul style="list-style-type: none">• Tension belt conveyor if it is running unevenly	137	
Drawbar	<ul style="list-style-type: none">• Replace if damaged	140	X

12.4 Replacing the spreading vanes



When using spreading disc TS 3 with telescope D, install an additional balancing weight under the short spreading vane and secure with a wing nut!



When exchanging the spreading vanes, use the assembly paste provided. This is the only way to ensure that the specified tightening torque is sufficient.

Required tightening torque: 19.3 Nm



- The technical condition of the spreading vanes is essential for uniform lateral distribution of the fertiliser on the field (i.e. forming strips).
- The spreading vanes are made of especially wear-resistant stainless steel. Nevertheless, we remind you that the spreading vanes and their swivel vanes are wear parts.



Replace the spreading vanes as soon as holes from abrasion are visible.

12.5 Belt conveyor with automatic belt control

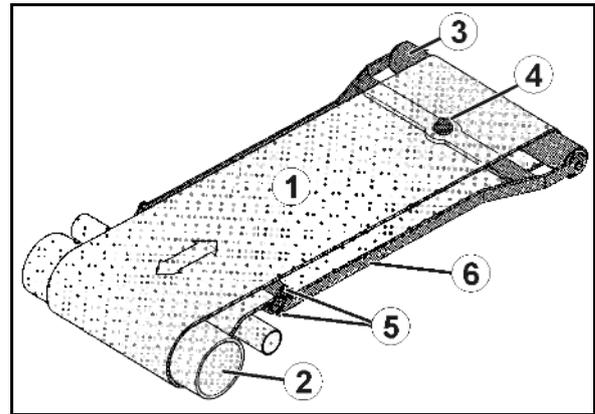
One property of belt conveyors (1) is that they give way under load on inclines such as on sloping terrain or if they are loaded on one side only. The belt conveyor then runs outwards. The automatic belt control prevents one-sided running of the conveyor belt on AMAZONE ZG-TS trailed spreaders.

The conveyor belt is tensioned in the floor belt with automatic belt control between the drive drum (2) and the pulley (3).

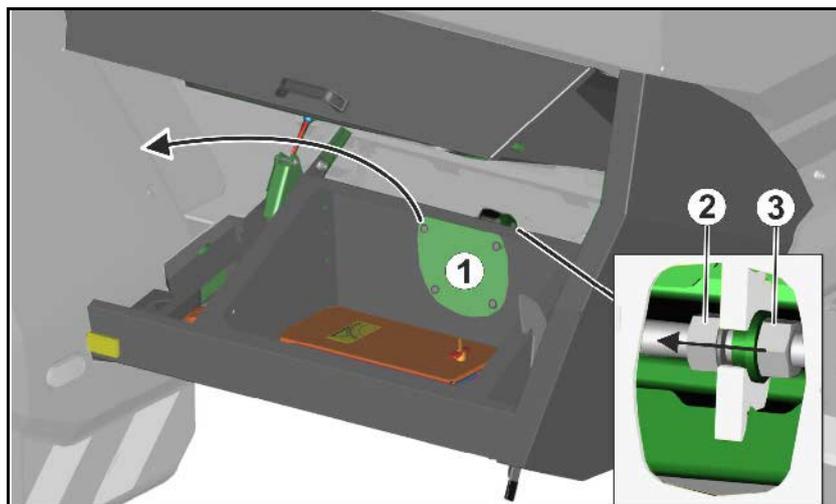
While the drive drum is secured rigidly in the floor belt, the pulley can turn around the swivel axle (4). The belt conveyor is also guided between two control rollers (5), which are connected to the pulley by a control frame (6).

If the belt conveyor runs outwards due to a one-sided load, the control rollers follow this movement. Consequently, this causes the pulley to turn around the swivel axle. As a result, the distance between the pulley and the drive drum increases on the side toward which the belt conveyor is moving.

The larger distance causes the belt conveyor to return to the middle and continue to settle down in the middle.



Tensioning the belt conveyor:



The conveyor belt is pretensioned in the floor belt for stable and uniform belt running. If the conveyor belt should run unevenly under certain circumstances, the conveyor belt must be retightened on both sides as follows:

1. Remove the cover (1).
2. Loosen the lock nut (2).
3. Increase the pretension using the setting nuts (3).

i The adjustment distance of the setting nuts (3) must be the same on both sides of the floor belt. Readjust both setting nuts by 1 ½ turns .

4. Tighten the lock nuts.
5. Check if the conveyor belt is driven evenly again.

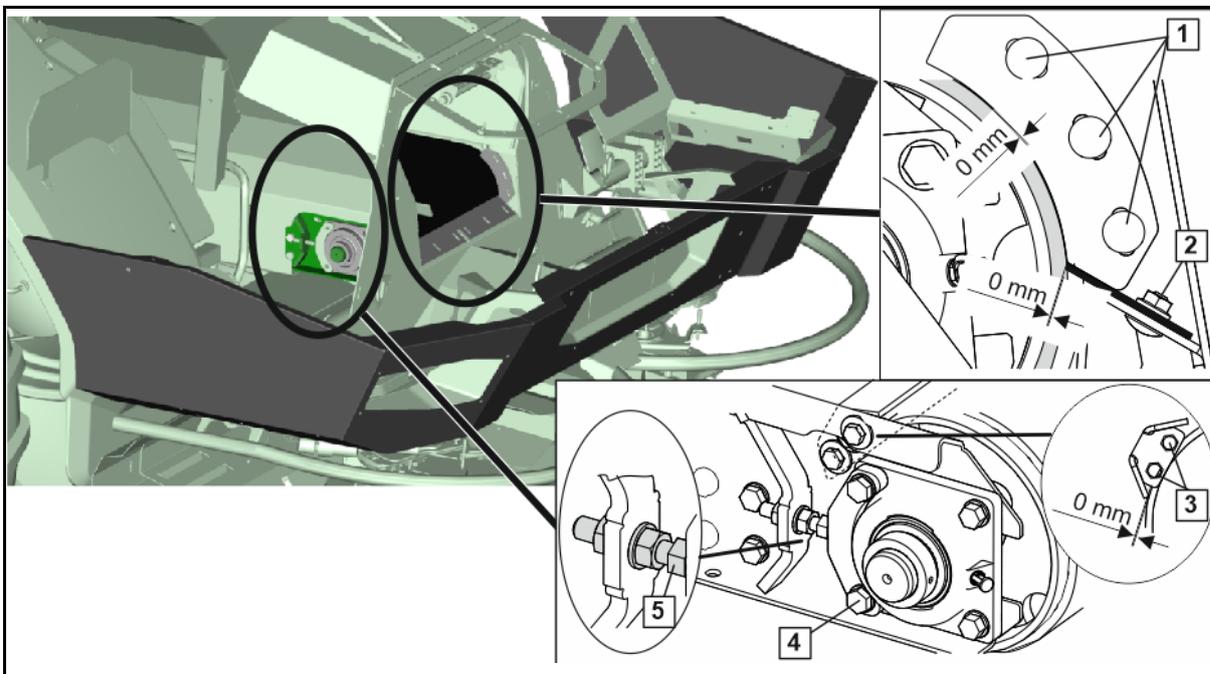
Centre the conveyor belt

If the automatic belt control cannot prevent the conveyor belt from deviating outwards, the drive drum must be adjusted.

Otherwise, the fertiliser can flow over the floor belt outwards.

The adjustment is necessary if the conveyor belt deviates by more than 10 mm. Perform a check measurement under the implement.

Make the setting on the left side.

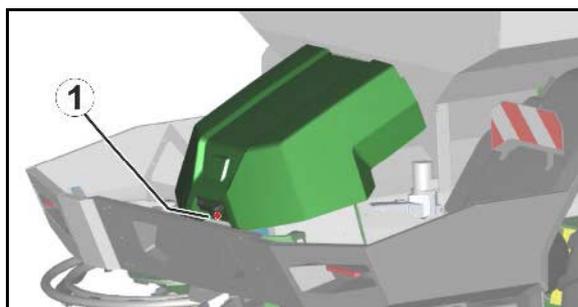


1. Loosen the bolts of the side sealing plates (1) on both sides, the conveyor belt scraper (2) and the drive drum scraper on the left (3).
 2. Loosen the bolts for the left flange bearing (4).
 3. Readjust the conveyor belt using the setting screw (5) by 1/2 a turn and secure with nuts.
 - Conveyor belt deviates to the left – Turn the bolt out
 - Conveyor belt deviates to the right – Turn the bolt in
 4. Retighten the bolts for the left flange bearing and make sure that the flange bearing is resting on the setting screw.
- 
5.  Drive the conveyor belt for 5 minutes using the empty hopper function on the control terminal.
At the same time, a second person must watch the conveyor belt.
 6. If the conveyor belt is not centred, repeat the setting.
 7. Retighten the bolts of the side sealing plates, the conveyor belt scraper, and the drive drum scraper. In doing so, maintain the gap dimension of 0 mm.

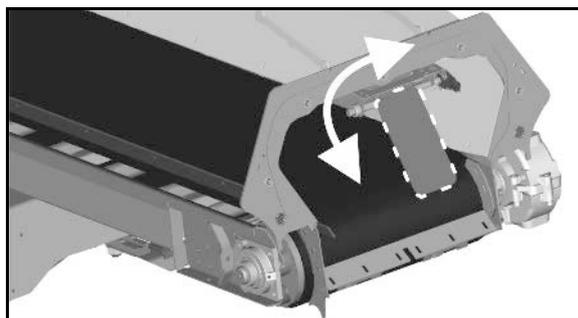
 The next time fertiliser is spread, check the leak tightness of the floor belt.

12.6 Checking the control butterfly valve, outlet openings and agitator

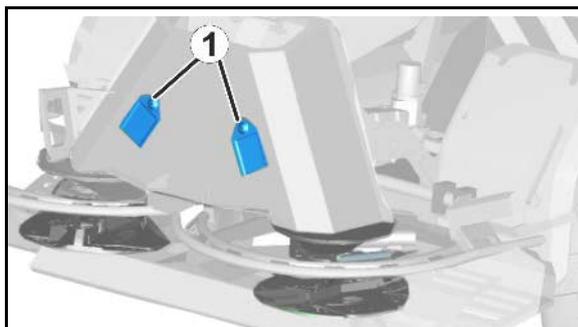
1. Release lock button of hood (1).
2. Open the hood.



3. Check the butterfly valve (1) for ease of movement and adjust the adjustment rings if necessary..



4. Loosen the bolt on the cover (1) of the installation openings and remove the covers.
5. Clean the outlet openings.
6. Install the cover.
7. Check the agitator for damage.
8. Close the hood again.



12.7 Axle and brake



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

Have the balancing process carried out before these empirical values are reached if you discover excessive wear on the brake pads.

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



WARNING

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

General visual inspection



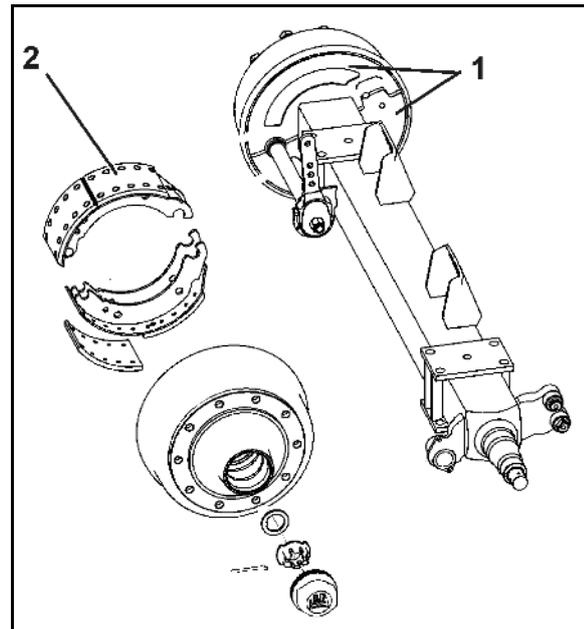
WARNING

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

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

Checking the brake drum for dirt

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



CAUTION

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

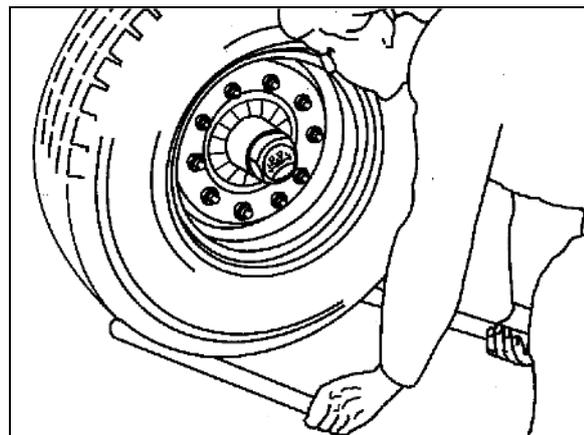
Risk of accident.

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 play on wheel hub bearings

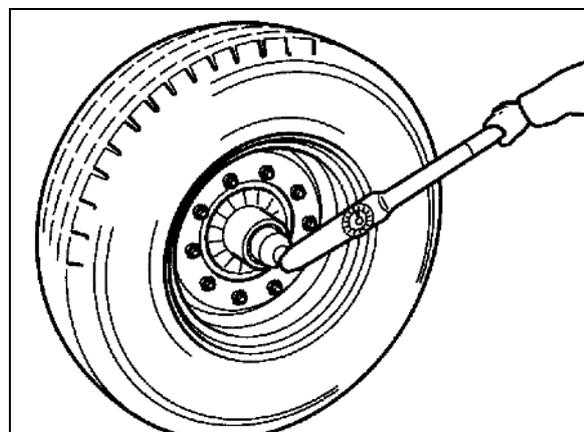
1. To check the play on wheel hub bearings, raise the axle until the wheels turn freely.
2. Release the brake.
3. Place a lever between the tyre and the ground and check the play.



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 the axle nut back to the next available split pin hole. If it is already over a hole, turn it to the next hole (max. 30°).
5. Fit the split pin and bend it slightly open.
6. Top up the dust cap with high melting point grease and drive it into, or screw it onto the wheel hub.



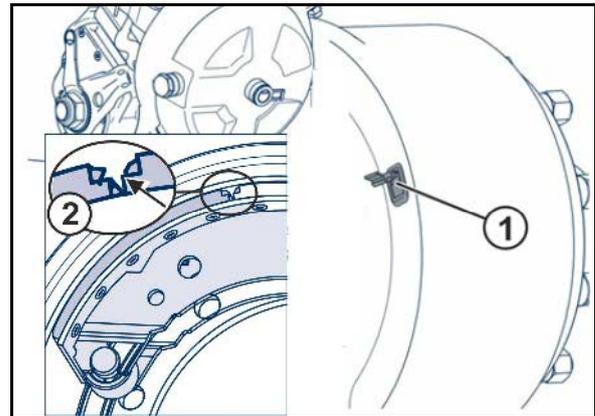
Brake pad check

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.

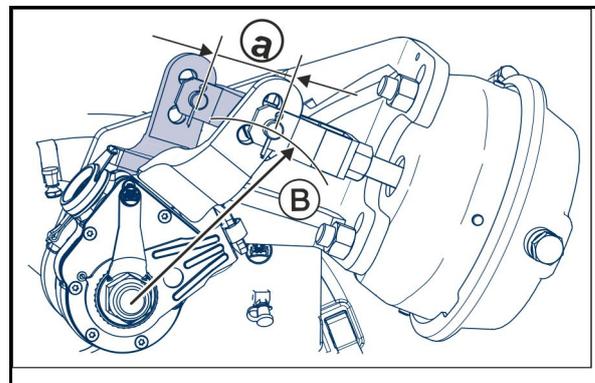


Checking the function of the automatic slack adjuster

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



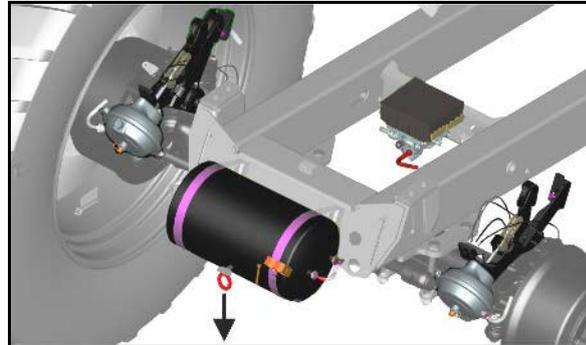
Air reservoir



Drain the air reservoir every day.

Draining the air reservoir

1. Pull the drain valve in a sideways direction using the ring until no more water escapes from the air reservoir.
- Water flows out of the drain valve.
2. Unscrew the drain valve from the air reservoir and clean the reservoir if there are signs of dirt.



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 any leaks.
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. Checking the pressure in the air reservoir

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

→ Set value 6.0 to 8.1 + 0.2 bar

3. Checking the brake cylinder pressure

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

→ Set value: with brake not applied 0.0 bar

If an ALB regulator is installed, the values are checked in line with the information on the Haldex ALB plate.

4. Visual inspection of the brake cylinder

1. Check the dust sleeves or gaiters 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.

Cleaning the line filter

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

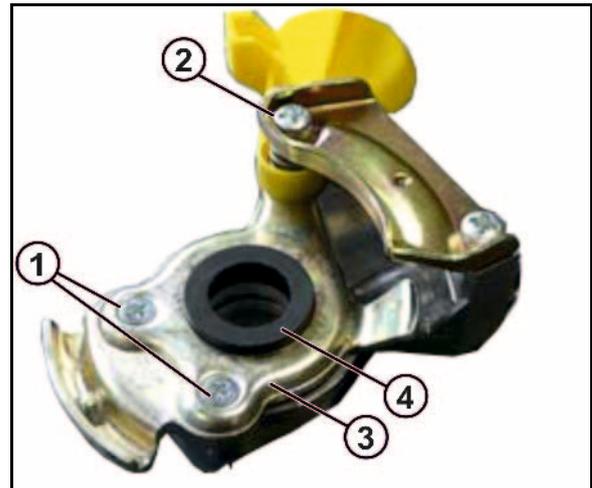
1. Remove the bolt locking compound by hammering and remove the bolts (1).
2. Unscrew the bolts (2) by a few turns.
3. Lift the plate (3) over the rubber seal (4) and turn to the side.

i The unit is under spring tension.

4. Remove the rubber seal.

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

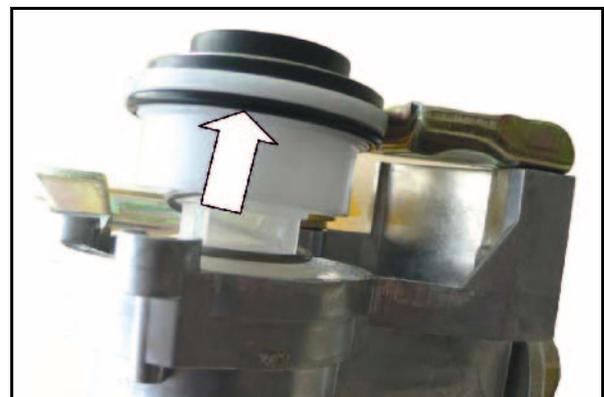
→ Replace the rubber seal if necessary.



! 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



12.8 Parking brake



On new machines, the brake cables of the parking brake may stretch. Readjust the parking brake,

- if three quarters of the spindle tensioning distance is required to firmly apply the parking brake.
- if you have just fitted new brake pads.

When carrying out maintenance on the brake system, comply with the chapter "Safety information for the operator", page 24.

Adjusting the parking brake



When the parking brake is off, the brake cable must be slightly slack (even if the air-sprung suspension is raised to the maximum or fully lowered). However, the brake cable must not rest or chafe against other parts of the vehicle.

12.9 Tyres / wheels

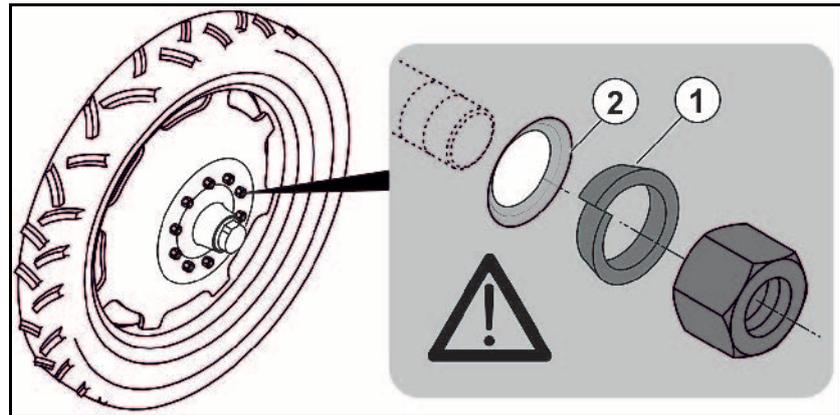


- **Required tightening torque for wheel nuts or bolts:
510 Nm**



To assemble the wheels, use:

- (1) conical rings in front of the wheel nuts.
- (2) only rims with a fitting countersink for the conical ring.



- Regularly check the
 - wheel nuts for firm seating.
 - tyre pressures.
- Only use the tyres and wheels which we have specified (see page 40).
- Repair work on tyres must only be carried out by specialists using suitable fitting tools.
- Installing tyres requires sufficient knowledge and proper fitting tools.
- Use the jack only at the jacking points indicated.

12.9.1 Tyre pressures



Inflate the tyres with the indicated nominal pressure.

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



- Check tyre pressures regularly when the tyres are cold, i.e. before starting a run (see page 40).
- The difference in pressure between the tyres on one axle must be no greater than 0.1 bar.
- Tyre pressure can be raised by up to 1 bar after a fast run or in warm weather. Tyre pressure should on no account be reduced as it is then too low when the tyres cool down.

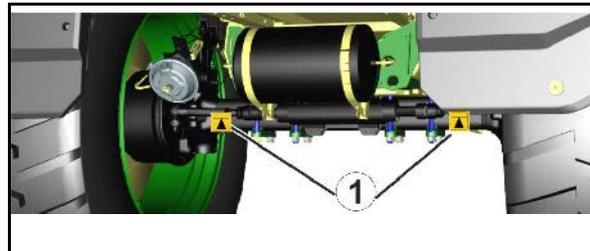
12.9.2 Fitting tyres



- Remove any instances 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.

Fitting tyres:

To jack up the ZG-TS for tyre changes, use the jack at the jacking points indicated (1).



12.10 Check the coupling device



DANGER!

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

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

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

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

12.11 Hydraulic system



WARNING

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

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



WARNING

Danger of unintentional contact with hydraulic fluid!

Please take the following first-aid measures:

- Following inhalation:
 - No special action required.
- Following contact with the skin:
 - Wash off with plenty of soap and water.
- Following contact with the eyes:
 - Rinse eyes for several minutes under running water, holding the eyelid open.
- Following ingestion:
 - Seek medical assistance.

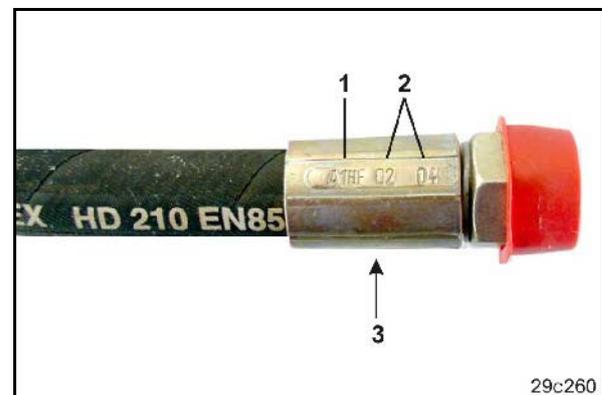


- When connecting the hydraulic hose lines to the hydraulic system of connected machines, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line if it is damaged or worn. Only use 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 connections made from thermoplastics, other guide values may be decisive.
- Dispose of old oil in the correct way. If you have problems with disposal, contact your oil supplier.
- Keep hydraulic fluid out of the reach of children!
- Ensure that no hydraulic fluid enters the soil or waterways.

12.11.1 Labelling hydraulic hose lines

The assembly labelling provides the following information:

- (1) Manufacturer's labels (A1HF)
- (2) Date of manufacture of the hydraulic hose lines (02 04 = 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 and in order to reduce pollution, ensure the following inspection criteria.

Replace hoses if the respective hose fulfils at least one of the following criteria:

- 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. Both in a depressurised and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
 - Leak points.
 - 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".



Common causes for leaking hoses / pipes and connection pieces include:

- missing O-rings or seals
- damaged or badly fitting O-rings
- brittle or deformed O-rings or seals
- foreign bodies
- badly fitting hose clips

12.11.4 Installation and removal of hydraulic hose lines



Use

- only genuine AMAZONE replacement hoses. These hoses stand up to chemical, mechanical and thermal loads.
- hose clips made from V2A for fitting hoses, as a rule.



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

- Ensure cleanliness.
- Always install the hydraulic hose lines to ensure the following in all operational positions
 - 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 overtensioned.
- Fix the hydraulic hose lines at the specified fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- The coating of hydraulic hose lines is not permitted.

12.11.5 Mounting hose fittings with O-rings and sleeve nuts

1. First, tighten the sleeve nut manually.
2. Then, use the spanner to tighten the sleeve nut at least $\frac{1}{4}$ to a maximum of $\frac{1}{2}$ turn.



You must not tighten screw unions with O-rings as tight as those with compression rings.

If you tighten the sleeve nut tighter than specified, the cone-shaped screw union may break (in particular at the welded pin on the hydraulic cylinder).

12.12 Hydraulic fluid filter

Hydraulic fluid filter with contamination indicator:

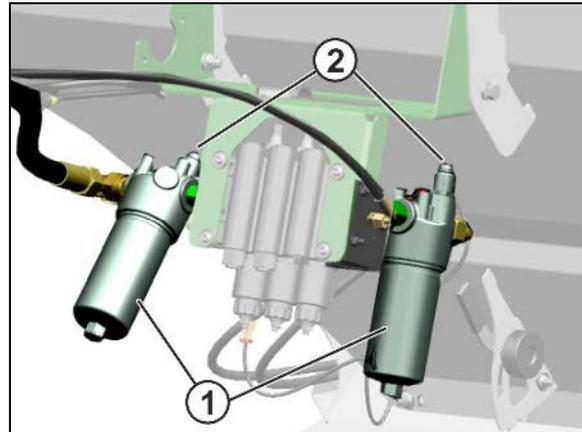
Green → Filter fully functional

Red → Replace filter

Checking the oil filter for contamination

The hydraulic oil must have reached operating temperature.

1. Press in the contamination indicator.
2. Continue working with the implement.
3. Observe the contamination indicator.



To remove the filter, twist off the filter cover and replace the filter.



CAUTION

Dump the pressure in the hydraulic system beforehand.

After replacing the filter, press the contamination indicator back into place.

→ Green ring again visible.

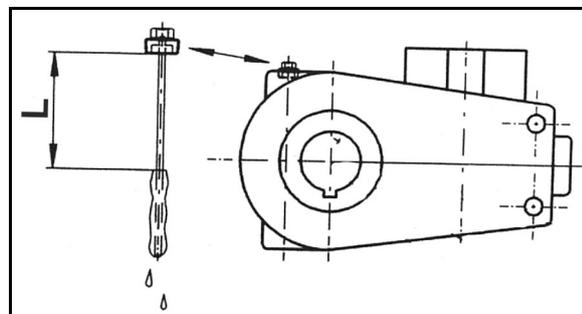
12.13 Conveyor belt gearbox

Gear oil: SAE 090

Fill levels: 1l

Correct oil fill level at L = 132 mm

There is no need to change the oil.



12.14 Oil change angular gearbox

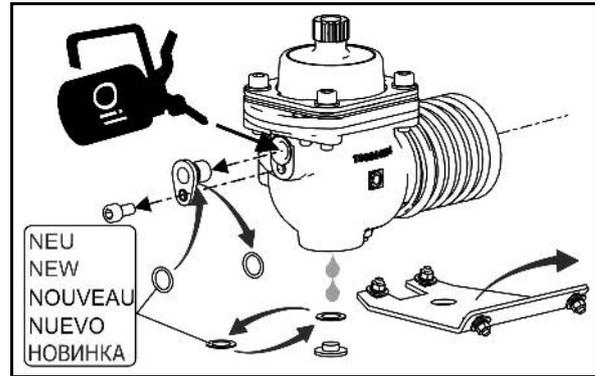
1. Dismantle the transport device if necessary.

Maintain the tension in the extension spring by inserting a retaining screw in the frame, swivel the transport device up and dismantle.

2. Dismantle the cover underneath the gearbox.
3. Place a container under the angular gearbox.
4. Remove the bleed screw.

→ Oil flows out.

5. Dismantle filler plug / sensor.
 6. Reinstall the bleed screw, use a new copper washer.
 7. Fill the gearbox with oil.
 8. Reinstall the filler plug / sensor.
 - o Use a new o-ring.
 - o Protect the cylindrical part of the sensor against moisture with a generous amount of grease.
 9. Reinstall the dismantled parts, remove the retaining screw from the extension spring.
- Oil: ISO VG 150 EP / SAE 90
 - Oil filling quantity: 0.23 l



12.15 Taring the spreader

If the on-board computer does not show 0 kg (+/- 5 kg) fill weight with the spreader empty, the spreader must be retared (see on-board computer operating manual).

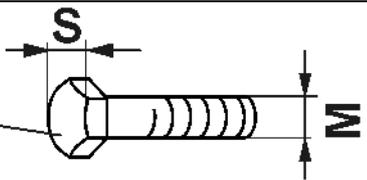
This may occur, for example, after the attachment of special accessories.

12.16 Calibrating the spreader

If after filling the retared spreader does not show the correct fill weight, the spreader must be recalibrated (see the on-board computer operating manual).

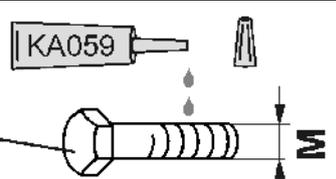
12.17 Screw tightening torques

8.8
10.9
12.9



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

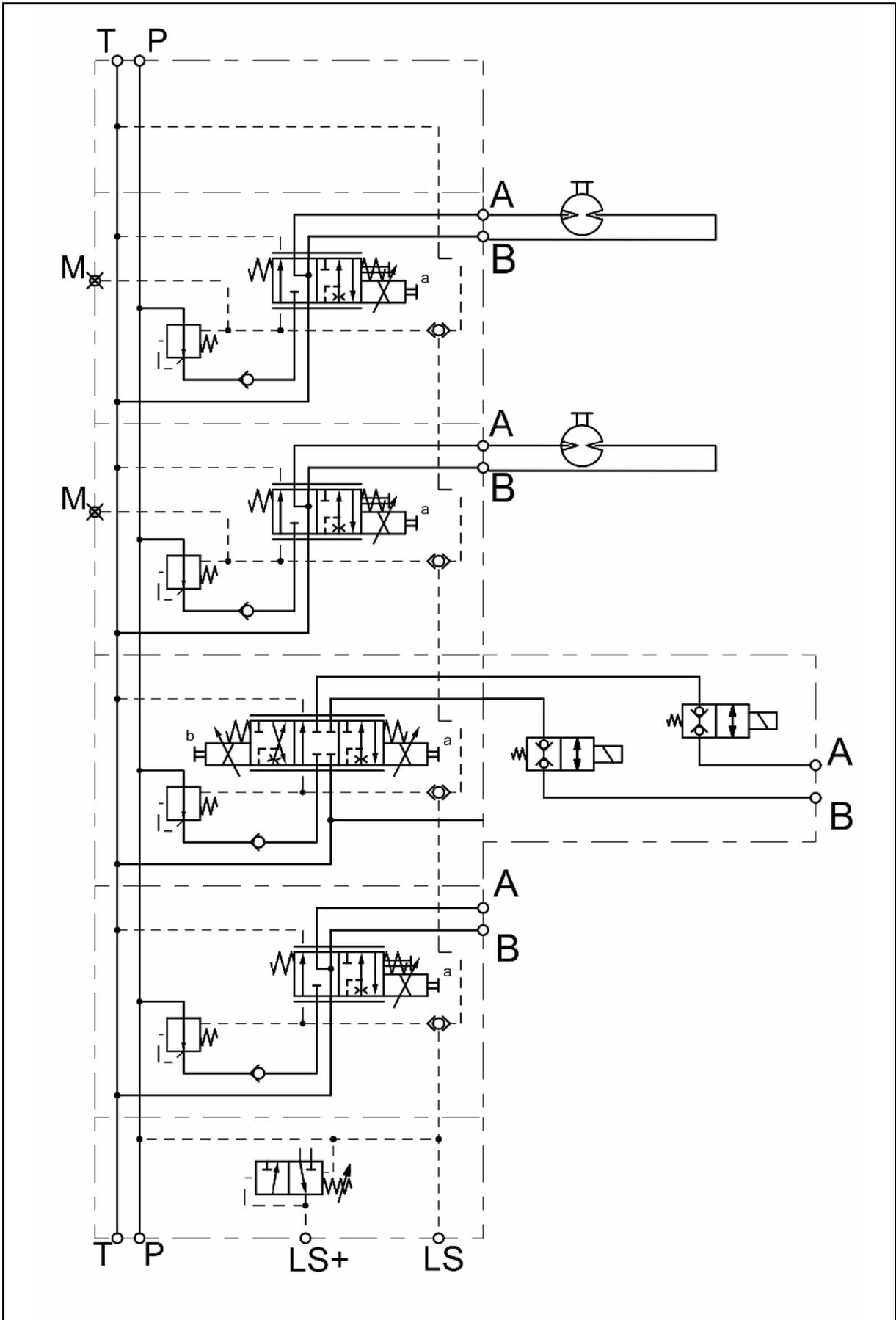
A2-70
A4-70



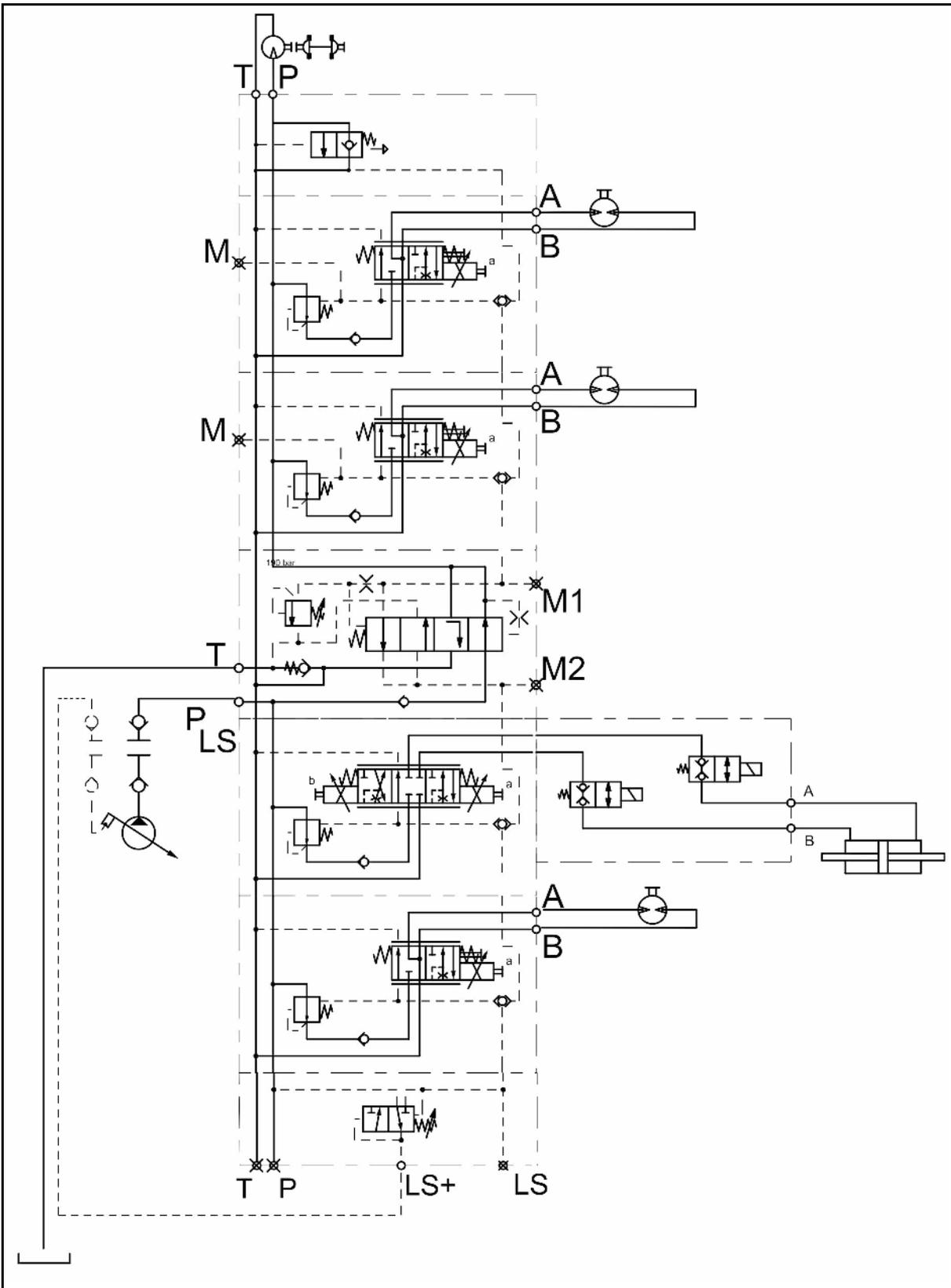
M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
Nm	2,4	4,9	8,4	20,6	40,7	70,5	112	174	242	342	470	589

Coated bolts have different tightening torques.
Observe the specific data for tightening torques in the maintenance section.

13 Hydraulic diagram



Hydraulic diagram with oil pump and steering system





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