

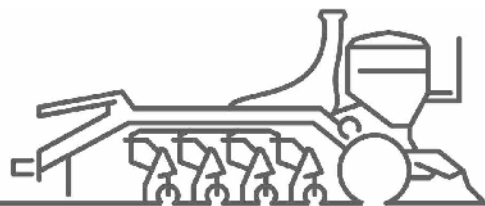
Operating Manual

AMAZONE

Primera

DMC 6000-2 DMC 6000-2C

Trailed seed drill



MG6488
BAG0140.9 06.22
Printed in Germany

SmartLearning



**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. Sark.

Identification data

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

Machine identification number:
(ten-digit)

Type:

Primera

Year of manufacture:

Basic weight (kg):

Approved total weight (kg):

Maximum load (kg):

Manufacturer's address

AMAZONEN-WERKE

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Spare part orders

Online spare parts catalogue: www.amazone.de

When ordering spare parts, always specify the (ten-digit) machine identification number.

Formalities of the operating manual

Document number: MG6488

Compilation date: 06.22

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AMAZONEN-WERKE H. DREYER SE & Co. KG.

Foreword

Foreword

Dear Customer,

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

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Using the delivery note, check that the machine was delivered in full including the ordered special equipment. 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. Send us your suggestions by fax.

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1 User Information

The User Information section supplies 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

Handling instructions and reactions

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

Example:

1. Handling instruction 1
- Machine response to instruction 1
2. Handling instruction 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 brackets refer to item numbers in diagrams. The first number refers to the diagram and the second number to the item in the figure.

Example: (Fig. 3/6)

- Figure 3
- Item 6

2 General Safety Instructions

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

2.1 Obligations and liability

Comply with the instructions in the operating manual

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

Obligations of the operator

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

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

The operator is obliged

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

If you still have queries, please contact the manufacturer.

Obligations of the user

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

- To comply with the basic workplace safety instructions and accident prevention regulations.
- To read and understand the section "General safety information" of this operating manual.
- To read the section "Warning symbols and other labels on the machine" (page 16) of this operating manual and to follow the safety instructions represented by the warning symbols when operating the machine.
- To get to know the machine.
- To read the sections of this operating manual, important for carrying out your work.

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

General Safety Instructions

Risks in handling the machine

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

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

Only use the machine

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

Eliminate any faults immediately which could impair safety.

Guarantee and liability

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

- Improper use of the machine.
- Improper installation, commissioning, operation and maintenance of the machine.
- Operation of the machine with defective safety equipment or improperly attached or non-functioning safety equipment.
- Non-compliance with the instructions in the operating manual regarding commissioning, operation and maintenance.
- Independently-executed construction changes to the machine.
- Insufficient monitoring of machine parts 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 gravity of the risk and has the following significance:



DANGER

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

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



WARNING

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

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



CAUTION

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



IMPORTANT

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

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



NOTE

Indicates handling tips and particularly useful information.

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

2.3 Organisational measures

The operator must provide the necessary personal protective equipment in accordance with the information provided by the manufacturer of the crop protection agent to be used, such as:

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



The operation manual

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

Check all the available safety equipment regularly.

2.4 Safety and protection equipment

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

Faulty safety equipment

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

2.5 Informal safety measures

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

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

2.6 User training

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

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

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

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

- 1) A person who can assume a specific task and who can carry out this task for an appropriately qualified company.
- 2) A person shall be considered as having been instructed, if they have been instructed in the tasks they have to carry out and in the possible risks in the case of improper behaviour and also 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.



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

2.7 Safety measures in normal operation

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

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

2.8 Dangers from residual energy

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

Check all the screw connections for a firm seat. On completing maintenance work, check the function of safety and protection equipment.

2.10 Constructive changes

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

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

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



WARNING

Risk of contusions, cuts, dragging, catching or knocks from support parts.

It is forbidden to:

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

2.10.1 Spare and wear parts and aids

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

Use only genuine AMAZONE spare and wear parts or the parts cleared by AMAZONEN-WERKE so that the operating permit retains its validity in accordance with national and international regulations. 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 accepts no liability for damage arising from the use of non-released spare parts, wear parts or auxiliary materials.

2.11 Cleaning and disposal

Handle and dispose of any materials used carefully, in particular

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

2.12 User workstation

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

2.13 Warning pictograms and other signs on the machine



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

Warning pictograms - structure

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

A warning pictogram consists of two fields:



Field 1

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

Field 2

is a pictogram showing how to avoid the danger.

Warning pictograms - explanation

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

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

2.13.1 Positioning of warning pictograms and other labels

Warning pictograms

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

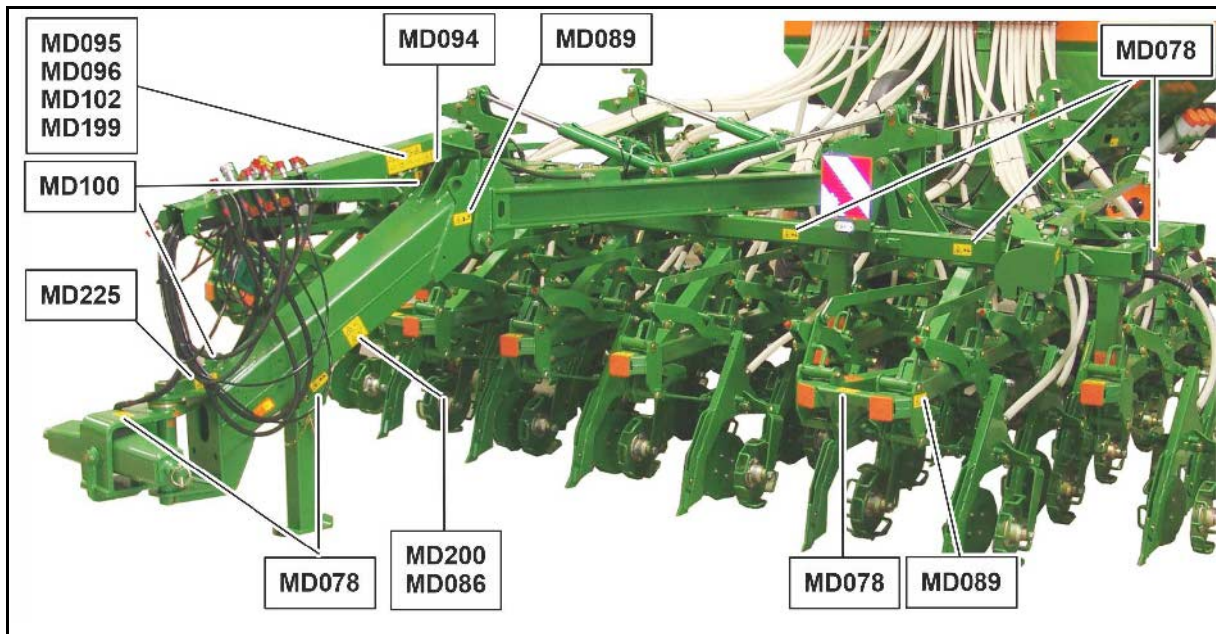


Fig. 1



Fig. 2

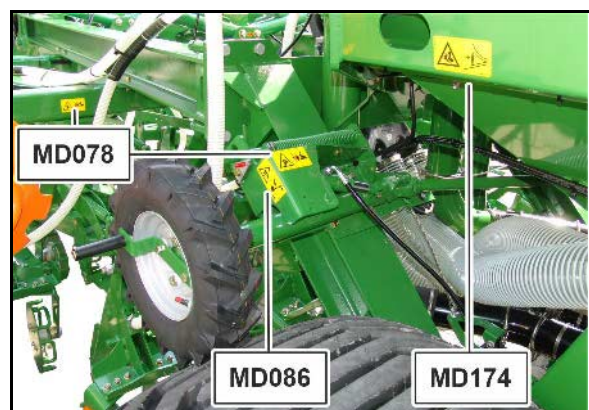


Fig. 3

Order number and explanation

Warning pictograms

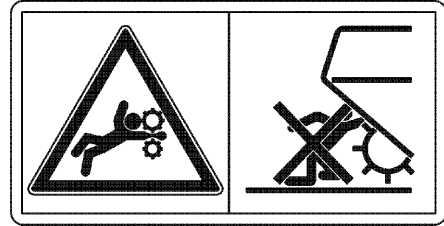
MD 077

Risk of arms being caught or drawn into the machine, caused by accessible, moving parts involved in the work process.

This risk can cause extremely serious and potentially fatal injuries.

Never reach into the danger area,

- when the tractor engine is running with a PTO shaft / hydraulic / electronic system connected.
- or the ground wheel drive is moving.



MD 078

Risk of fingers or hands being crushed caused by accessible moving parts in the machine.

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 a PTO shaft / hydraulic / electronic system connected.



MD 082

Risk of falling as a result of persons riding on treads or platforms.

This danger can cause extremely serious and potentially fatal injuries.

It is prohibited to ride on the machine as a passenger or to climb onto machines while they are running. This ban also applies to machines with treads or platforms.

Ensure that no-one rides with the machine.



General Safety Instructions

MD 084

Risk of the entire body being crushed, as a result due to standing in the swivel range when machine parts are being lowered.

This risk can cause extremely serious and potentially fatal injuries.

- It is prohibited to stand in the swivel range of the machine when machine parts are being lowered.
- Instruct personnel to leave the swivel range of any parts which can be lowered before you lower the parts on the machine.



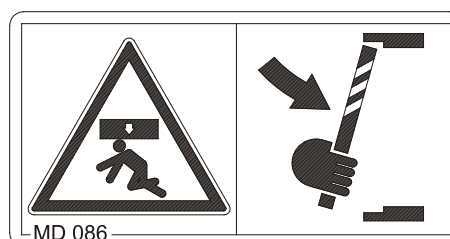
MD 086

Risk of the entire body being crushed as a result of unavoidable periods spent under raised, unsecured machine parts.

This risk can cause extremely serious and potentially fatal injuries.

Before spending time in the danger area underneath raised machine parts, secure the raised parts to prevent them being accidentally lowered.

To do this, use the mechanical support device or the hydraulic locking device.



MD 089

Risk of the entire body being crushed as a result of standing under suspended loads or raised machine parts.

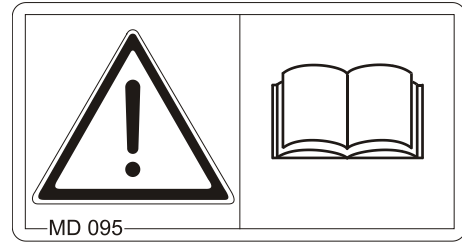
This risk can cause extremely serious and potentially fatal injuries.

- It is prohibited to stand under suspended loads or raised machine parts.
- Maintain an adequate safety distance from any suspended loads or raised machine parts.
- Ensure that all persons maintain an adequate safety distance from suspended loads or raised machine parts.



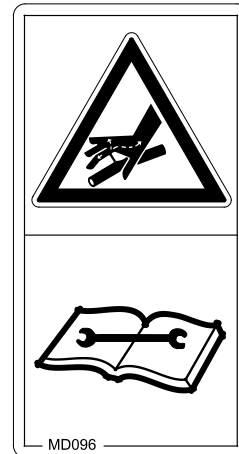
MD 095

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

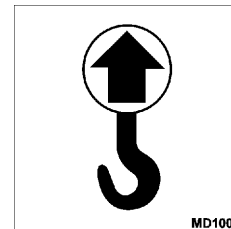
**MD 096****Hazard from escaping high-pressure hydraulic fluid due to leaking hydraulic hose lines.**

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

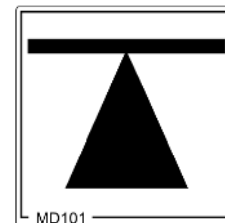
- Never attempt to stop leaks in hydraulic hose lines with your hand or fingers.
- Read and observe the information in the operating manual before carrying out maintenance and repair work on the hydraulic hose lines.
- If you are injured by hydraulic fluid, contact a doctor immediately.

**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).

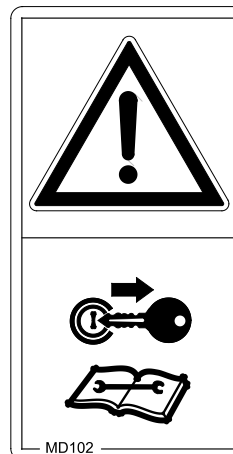


MD 102

Hazards from work operations on the machine, e.g. installation, adjustment, troubleshooting, cleaning, maintenance and repair, due to the tractor and the machine being started unintentionally and rolling away.

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.

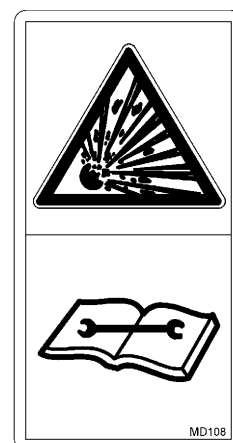


MD 108

Risk of explosion, or danger from hydraulic fluid escaping under high pressure, caused by the pressure accumulator which is under pressure from gas and oil.

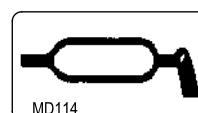
These dangers can cause serious and potentially fatal injuries if highly pressurised, escaping hydraulic fluid penetrates the skin and passes into the body.

- Read and observe the instructions in the operating manual before carrying out any maintenance or repair work.
- If you are injured by hydraulic fluid, contact a doctor immediately.



MD 114

This symbol indicates a lubrication point



MD139

The torque of the screw connection is 450 Nm.

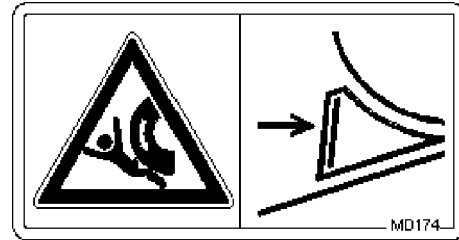


MD 174

Danger from unintended continued movement of the machine.

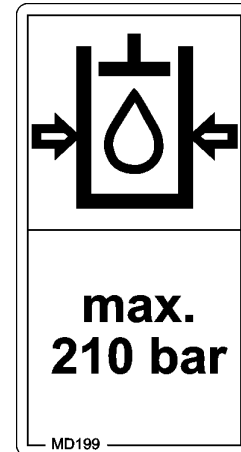
Causes serious, potentially fatal injuries anywhere on the body.

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



MD 199

The maximum operating pressure of the hydraulic system is 200 bar.

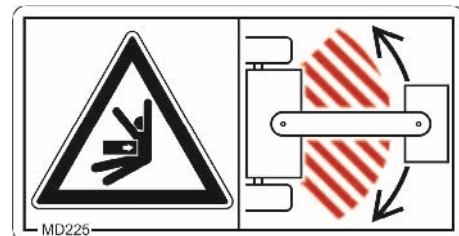


MD 225

Risk of the entire body being crushed, caused by remaining in the swivel range of the drawbar between tractor and attached machine.

This danger can cause extremely serious and potentially fatal injuries.

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



2.14 Hazards if safety information is not observed

Nonobservance of the safety information

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

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

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

2.15 Safety-conscious working

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

Comply with the accident prevention instructions on the warning pictograms.

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

2.16 Safety information for users



WARNING

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

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

Connecting and disconnecting the machine

- Only connect and transport the machine with tractors suitable for the task.
- When connecting machines to the tractor's 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 away before coupling or uncoupling the machine.
- It is forbidden for people to stand between the machine to be coupled and the tractor, whilst the tractor is moving towards the machine.

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



General Safety Instructions

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

Use of the machine

- Before starting work, ensure that you understand all the equipment and actuation elements of the machine and their function. There is no time for this when the machine is already in operation.
- Do not wear loose-fitting clothing. Loose clothing increases the risk over being caught by drive shafts.
- Only start-up the machine, when all the safety equipment has been attached and is in the safety position.
- Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor. If necessary, drive only with a partially-filled hopper.
- It is forbidden to stand in the working area of the machine.
- It is forbidden to stand in the turning and rotation area of the machine.
- There are contusion and cutting points at externally-actuated (e.g. hydraulic) machine points.
- Only actuate externally-actuated machine parts when you are sure that there is no-one within a sufficient distance from the machine.
- 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,
 - Lower the machine onto the ground
 - 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 released completely
 - the brake system functions properly
- Ensure that the tractor has sufficient steering and braking power. Any machines and front/rear weights connected to the tractor influence the driving behaviour and the steering and braking power of the tractor.
- If necessary, use front weights.

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

2.16.2 Hydraulic system

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

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

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

2.16.3 Electrical system

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

2.16.4 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.

2.16.5 Attached machines

- Comply with the approved combination options for the attachment equipment on the tractor and the machine drawbar.
Only couple approved combinations of vehicles (tractor and attached machine).
- In the case of single axle machines, observe the maximum permitted drawbar load of the tractor on the attachment equipment.
- Ensure that the tractor has sufficient steering and braking power.
Machines connected to a tractor can influence your driving behaviour, as well as the steering and braking power of the tractor, in particular in the case of single axle machines with the drawbar load on the tractor.
- Only a specialist workshop may adjust the height of the drawbar on yoke bars with a drawbar load.
- Implements without brake system:
Observe the national regulations for implements without a brake system.

2.16.6 Brake system

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

Compressed air brake system

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

Hydraulic braking system for export machines

- Hydraulic brake systems are not approved 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.

2.16.7 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.
- Observe the specified air pressure. If the air pressure in the tyres is too high, then there is a risk of explosions.
- Park the machine in a safe place and lock the machine against unintentional falling and rolling away (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.

2.16.8 Operation of the seed drill

- Comply with the permitted filling volumes of the seed hopper (seed hopper content).
- When filling the seed hopper, only use the ladder and the platform.
It is forbidden to ride on the machine during operation.
- During the calibration test, note the danger points from rotating and oscillating machine parts.
- Before transportation, remove the thrust collars of the tramline marker.
- Do not place any parts in the seed hopper.
- Before transportation, lock the track marker (construction-dependent) in the transport position.

2.16.9 Cleaning, maintenance and repairs

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

3 Loading and unloading

Loading and unloading with a tractor

**WARNING**

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



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

Compressed air brake system:

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

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

Loading:

A person to provide manoeuvring instructions is required for loading.

Secure the machine according to instructions. Apply the parking brake.

Then uncouple the tractor from the machine.

Unloading:

Remove the transportation safety equipment.

A marshalling person is required for unloading.

After unloading, park the machine and uncouple the tractor.

4 Product description

4.1 Overview of subassemblies

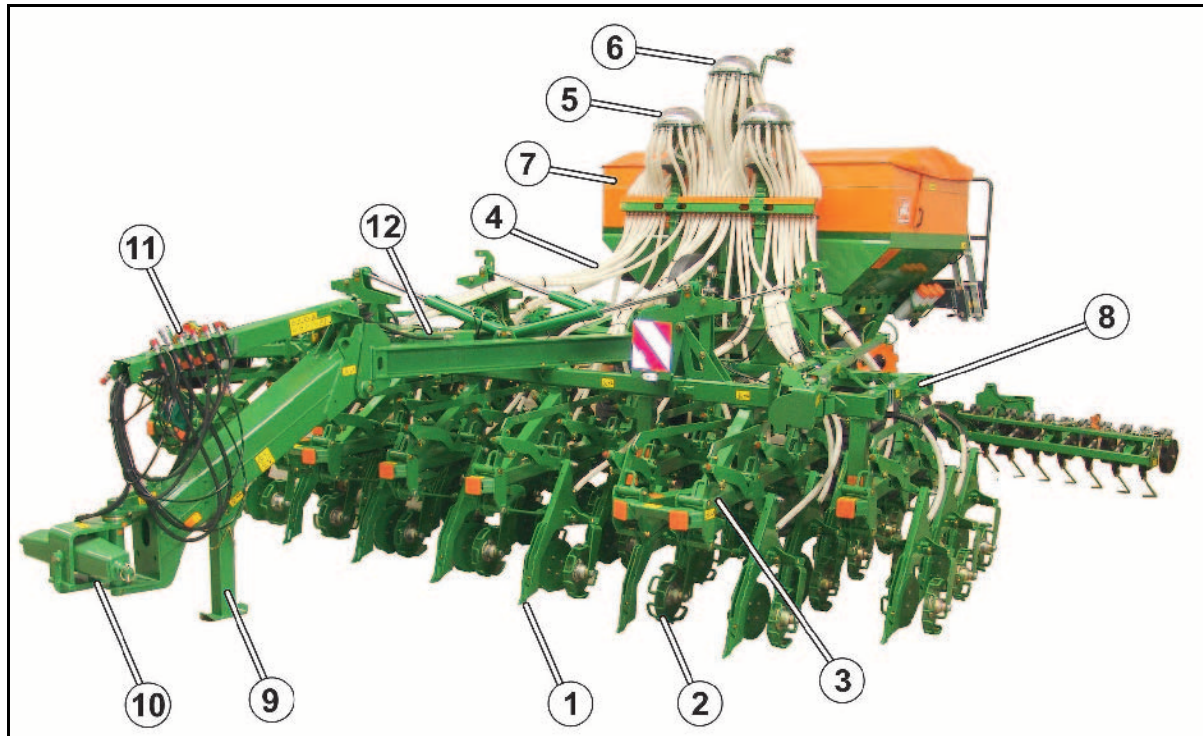


Fig. 4

Machine in working position.

- | | |
|--|---|
| (1) Chisel | (8) Foldable boom |
| (2) Supporting rolls | (9) Jack |
| (3) Coulter frame | (10) Drawbar with coupling device |
| (4) Seed hoses | (11) Hose cabinet |
| (5) Seed distributor | (12) Hydraulic fluid tank with filter and pressure relief valve |
| (6) Fertiliser distributor (optional) | |
| (7) Seed hopper and fertiliser hopper (optional) | |

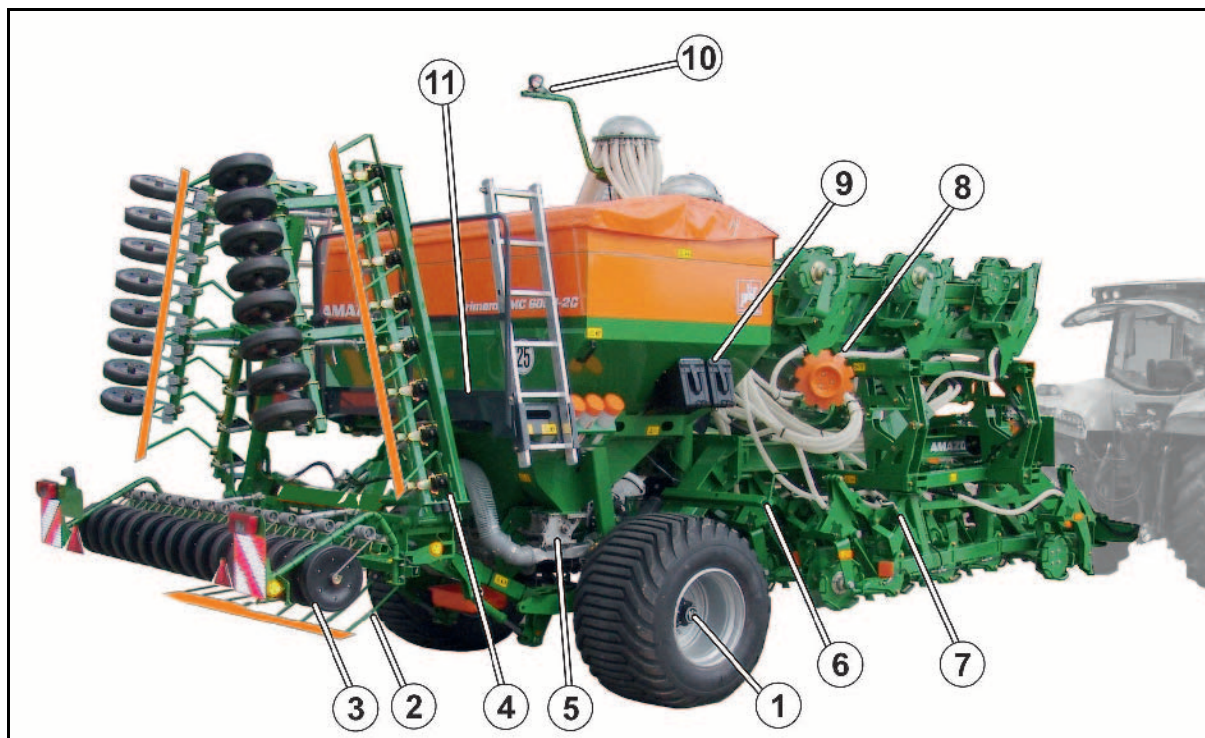


Fig. 5 Machine in transport position

- | | |
|---|---|
| (1) Running gear with tyres | (6) Parking brake |
| (2) Foldable exact harrow | (7) Depth adjustment of the coulter gangs |
| (3) Roller harrow (optional) | (8) Markers |
| (4) Dosing unit for seed with injector and Vario gearbox | (9) Wheel chocks |
| (5) Dosing unit for fertiliser with injector and Vario gearbox (optional) | (10) Working lights |
| | (11) Maintenance platform with ladder |

4.2 Safety and protection equipment

- (1) Rails on maintenance platform
- (2) Road safety bar on the exact following harrow for road transport
- (3) Road safety bars on exact harrow for road transport

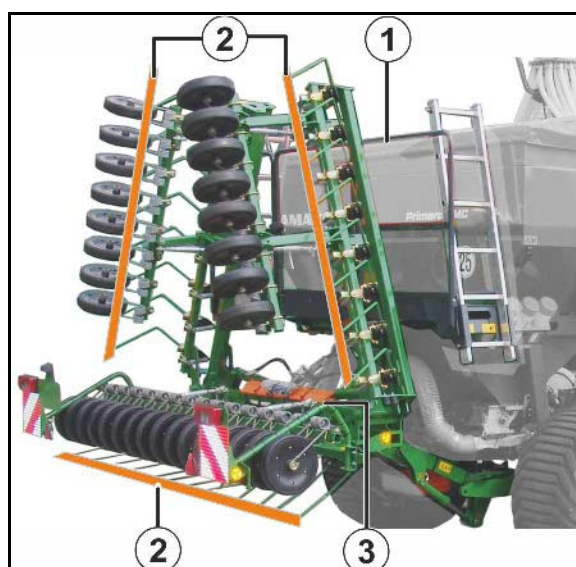


Fig. 6

4.3 Overview – Supply lines between the tractor and the machine

Fig. 7, supply hoses in parking position:

- Hydraulic hose lines
- Electric cable for lighting
- Machine cable with machine connector for connection to on-board computer.
- Connection to hydraulic brake
- Pneumatic brake system
 - Brake line with coupling head (yellow)
 - Supply line with coupling head (red)

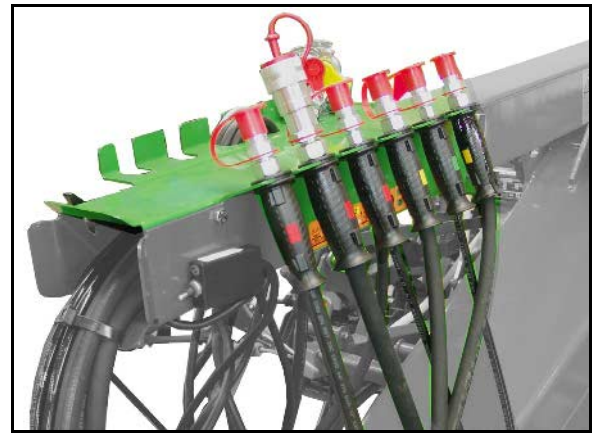


Fig. 7

4.4 Transportation equipment

- (1) 2 rear lights, 2 brake lights, 2 turn indicators
- (2) 2 warning signs (square)
- (3) Reflectors, yellow (at side with max. 3 m spacing)
- (4) registration plate holder with lighting
- (5) 2 red reflectors (triangular)

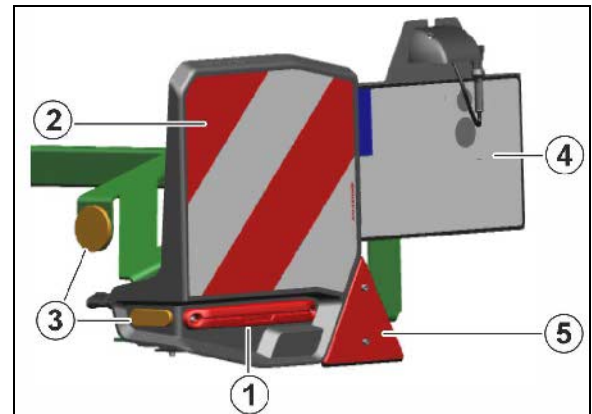


Fig. 8

- (1) 2 warning signs (square)
- (2) 2 limiting lights

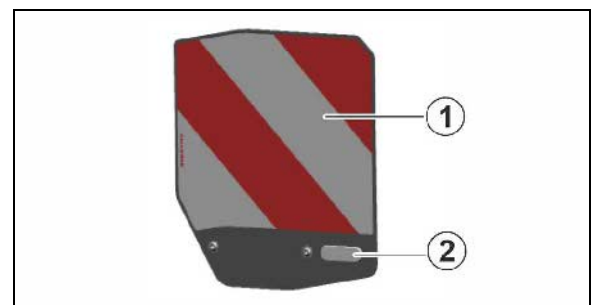


Fig. 9

4.5 Intended use

The Primera DMC

- is designed for the metering and spreading of
 - commercially-available seed,
 - commercially-available granular fertiliser (optional).
- is operated by an operator.
- depending on the equipment, it is coupled to
 - the tractor lower link
 - the drawbar eye
 - the ball coupling

Slopes can be travelled

- Along the contours
 - Direction of travel to left 20 %
 - Direction of travel to right 20 %
- Along the gradient
 - Up the slope 20 %
 - Down the slope 20 %

Intended use also comprises:

- Compliance with all the instructions in this operating manual.
- Execution of inspection and maintenance work.
- Exclusive use of genuine 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 area and hazard points

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

- By work movements made by the machine and its tools
- By materials or foreign bodies thrown out of the machine
- By tools rising or falling unintentionally
- By unintentional rolling away of the tractor and the machine

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

No-one may stand in the machine danger area:

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

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

The following danger areas exist:

- Between the tractor and machine, especially when coupling and uncoupling.
- Where there are moving components.
- On the machine while it is moving.
- Within the pivot range of the boom.
- Within the pivot range of the track marker.
- Under raised, unsecured machines or machine parts.
- When unfolding/folding the boom in the area of overhead cables.

4.7 Rating plate

Machine rating plate

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



AMAZONE
AMAZONEN-WERKE H. DREYER SE & Co. KG
Am Amazonenwerk 9-13 D-49205 Hasbergen

Maschinen-Nr. **1** 

Fahrzeug-Ident-Nr. **2**

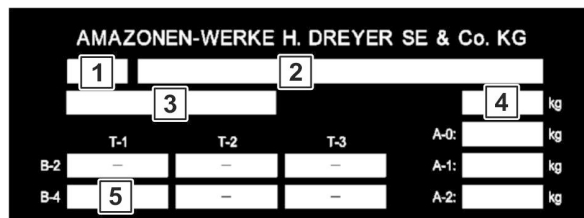
Produkt **3**

zul. techn. Maschinengewicht kg **4** Leergewicht kg **5** Modelljahr **6**

CE UK CA Baujahr
année de fabrication
year of construction
Год изготовления **7** 

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



AMAZONEN-WERKE H. DREYER SE & Co. KG

1 **2**

3 **4** kg

	T-1	T-2	T-3	A-0:
B-2	—	—	—	kg
B-4	5	—	—	kg
				A-1: kg
				A-2: kg

4.8 Technical data

	DMC 6000-2 / 6000-2C	
Working width	6 m	
Transport width	3,225 m / 3 m Only with conversion kit	
Fill level	2,65 m / 2, 85 m (Extension 800 l) / 3,05 m (Extension 1600 l)	
Track width	2,3 m	
Total length	8,76 m to 10,5 m	
Overall height	3,7 m	
Working speed	10 to 18 km/h	
Area efficiency	to 10 ha/h	
Coupling point category	Kat. 3 / 4 / 5	
Hopper volume	4200 l	
$\frac{3}{4}$ seed	3150 l	
$\frac{1}{4}$ fertiliser	1050 l	
Hopper volume with hopper extension 800 l	5000 l	
$\frac{3}{4}$ seed	3750 l	
$\frac{1}{4}$ fertiliser	1250 l	
Hopper volume with hopper extension 1600 l	5800 l	
$\frac{3}{4}$ seed	4350 l	
$\frac{1}{4}$ fertiliser	1450 l	
Hopper width	2,9 m	
Row spacing	18,75 cm	25 cm
Number of sowing coulters	32	24

4.8.1 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
Risk of accident!

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



4.9 Necessary tractor equipment

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

Tractor engine power

DMC 6000-2 2C from 133 kW (180 bhp) upwards

Electrical system

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

Hydraulic system

- | | |
|-----------------------------|--|
| Maximum operating pressure: | • 210 bar |
| Tractor pump capacity: | • At least 80 l/min at 170 bar for the fan drive
• At least 50 l/min at 170 bar for the on-board hydraulic system |
| Machine hydraulic fluid: | • HLP68 DIN 51524

The machine hydraulic fluid is suitable for the combined hydraulic fluid circuits of all standard makes of tractor. |
| Tractor control units | • see page 46
• For folding sections, a lockable tractor control unit is required as a tractor-side protective device. |

Universal joint shaft

- | | |
|------------------------|--|
| Required speed: | • 1000 rpm |
| Direction of rotation: | • Clockwise, viewed from the rear towards the tractor. |

Operational brake system

- | | |
|------------------------------------|--|
| Dual circuit service brake system: | • 1 hose coupling (red) for the supply line
• 1 hose coupling (yellow) for the brake line |
| Hydraulic brake system: | • 1 hydraulic coupling, conforms to ISO 5676 |

4.10 Noise production data

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

Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5 Structure and function

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

5.1 Mode of operation



Fig. 10

The DMC facilitates direct sowing via the chisels without prior processing of the soil.

At the same time, fertilisation can be carried out (optional)

The seed is carried in the seed hopper. For simultaneous fertilisation, the hopper is split.

From the dosing unit, which is driven by the drive wheel, the set seed volume / fertiliser volume enters the air flow created by the blower fan.

The air flow delivers the seed / fertiliser to the distributor head, which distributes the seed / fertiliser evenly onto the chisel.

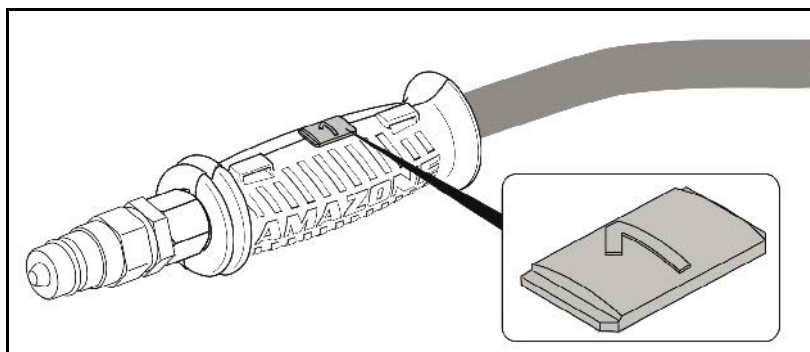
The seed is covered by the exact harrow.

The field connection run is marked in the centre of the tractor by the track markers.

5.2 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	

Folding using tractor control units		Function			Hose identification	
yellow	1	Pre-selection via switch tap	Folding	Folding out	Double acting	
	2			Folding away		
yellow	1	Pre-selection via switch tap	Working position	Lower / working position	Double acting	
	2			raise		
beige	1		Filling auger		Single-acting	
green	1		Track marker	Folding out	Double acting	
	2			Folding away		

Implement without on-board hydraulic system:

Folding using tractor control units		Function		Hose identification	
red			Blower	Double acting	
		Pressure-free return flow			


WARNING
Risk of infection from hydraulic fluid escaping at high pressure.

When coupling/uncoupling the hydraulic hose line, ensure that the hydraulic system is not under pressure on the tractor or machine side.

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


Maximum permissible pressure in oil return: 10 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.

5.2.1 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 bar.
- Only couple clean hydraulic connectors.
- Plug the hydraulic plug(s) into the hydraulic sockets until you can feel the hydraulic plug(s) locking.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Place the tractor control unit in float position (neutral).
2. Clean the hydraulic plugs of the hydraulic hose lines before coupling up.
3. Couple the hydraulic hose line(s) with the tractor control unit(s).

5.2.2 Uncoupling the hydraulic hose lines

1. Place the tractor control unit in float position (neutral).
2. Release the hydraulic plugs from the hydraulic sockets.
3. Fasten the hydraulic plugs in the empty coupling points.

5.3 On-board hydraulic system (optional)

The on-board hydraulic system is driven by the hydraulic slide-on pump and is responsible for driving the fan.

Hydraulic slide-on pump

Connect the hydraulic slide-on pump (1):

1. Clean and grease the universal joint shaft stub of the tractor.
2. Insert the hydraulic slide-on pump on the universal joint shaft stub and, depending on the design, either secure with pins or screw down.
3. Secure the hydraulic slide-on pump against movement by attaching the chain (2).
4. Check the course of the hydraulic lines. Ensure that the hydraulic lines are long enough in all operating positions, do not chafe against other parts and do not become caught or kinked in any area.

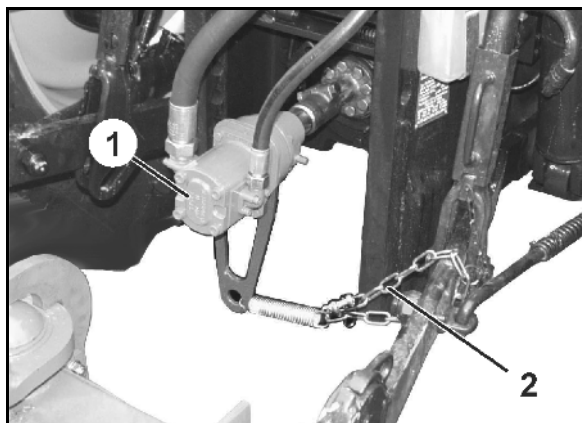


Fig. 11



WARNING

Observe maximum permissible universal joint shaft speed of 1000 rpm.

**WARNING**

To avoid damage, only engage the universal joint shaft slowly at low tractor engine speed.

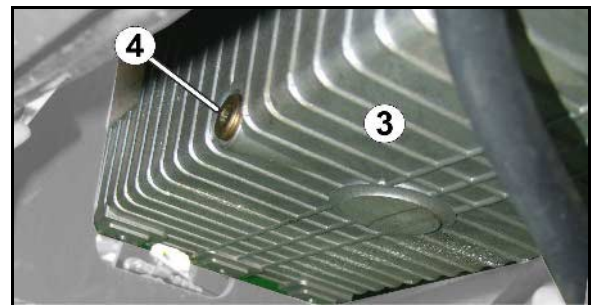
Oil tank

- (1) Suction hose to the pump
- (2) Oil filter with contamination level indicator

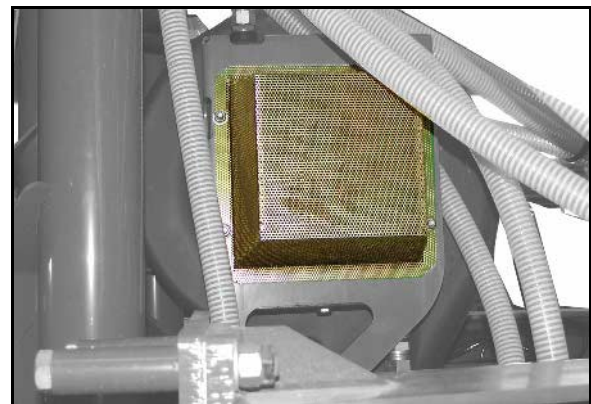


Fill the suction line of the pump with oil before initial operation!

- (3) Oil tank
- (4) Drain plug

**Fig. 12****Fig. 13****Oil cooler**

There is an oil cooler on the fan to cool the implement's own oil supply to the fan.

**Fig. 14**

5.4 Dual-circuit service brake system



Compliance with the maintenance intervals is essential for the correct function of the two-line operating brake system.

- (1) Trailer brake valve
- (2) Release valve with actuation button (3)
- (3) Actuation button;
 - Push in up to the stop and release the service brake system, e.g. to manoeuvre the uncoupled implement.
 - Pull out up to the stop and the implement is braked again by the supply pressure coming from the air reservoir.
- (4) Hand lever for manual adjustment of the braking force.



○ ○ Filled implement



○ ○ Empty implement

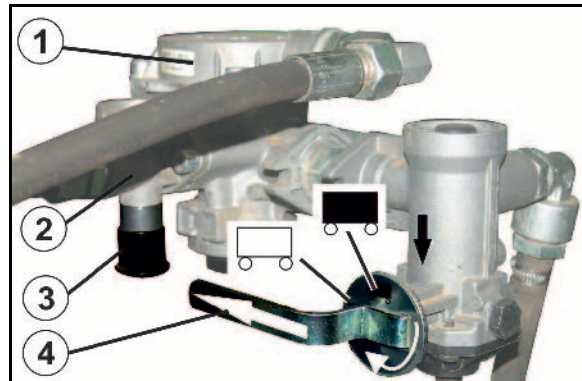


Fig. 15

- (1) Compressed air tank
- (2) Test connection for pressure gauge
- (3) Drain valve

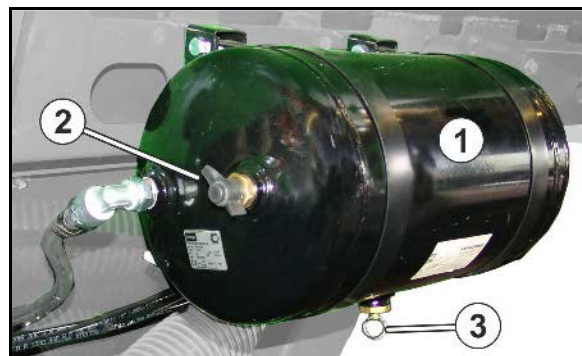


Fig. 16

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

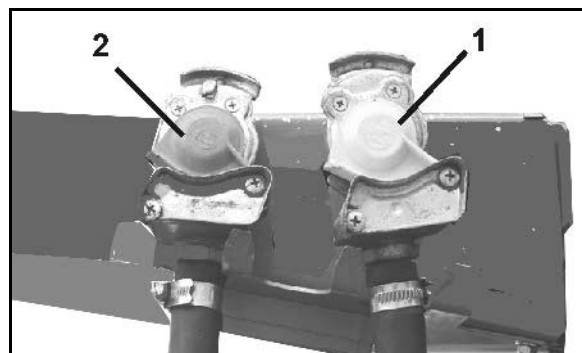


Fig. 17

Line filter in the coupling head with sealing surfaces, O-ring and filter.



Fig. 18

Brake axles

- (1) Membrane brake cylinder.
- (2) Brake linkage.
- (3) Linkage adjuster for brake camshaft.
- (4) Brake camshaft.
- (5) Connecting linkage for parking brake.

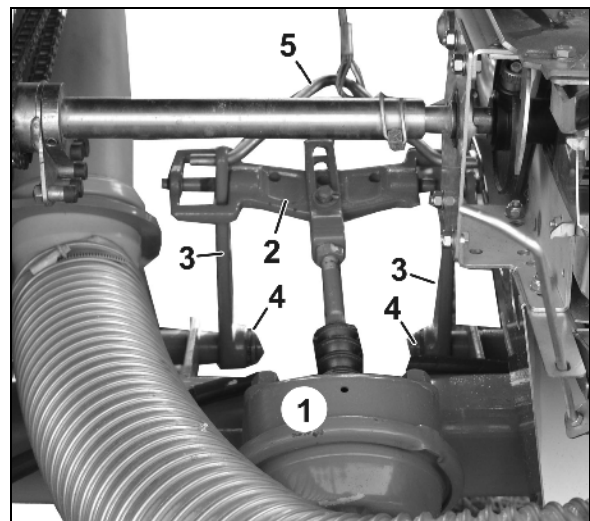


Fig. 19

5.4.1 Coupling the brake and supply lines



WARNING

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

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



WARNING

Risk of being crushed, cut, caught or struck by the machine unintentionally rolling away when the operating brake is released.

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

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

1. Open the tractor coupling head caps.
2. Remove brake line coupling head (yellow) from the dummy coupling.
3. Check coupling head seals for damage and cleanness.
4. Clean dirty seals, replace damaged seals.
5. Fasten the brake line coupling head (yellow) as directed in the tractor coupling with the yellow marking.
6. Remove the supply line coupling head (red) from the dummy coupling.
7. Check coupling head seals for damage and cleanness.
8. Clean dirty seals, replace damaged seals.
9. Fasten the supply line coupling head (red) as directed in the tractor coupling with the red marking.
- On coupling the supply line (red), the supply pressure coming from the tractor automatically pushes out the button for the release valve on the trailer brake valve.
10. Release the parking brake and/or remove the wheel chocks.

5.4.2 Uncoupling the brake and supply lines

**WARNING**

Risk of being crushed, cut, caught or struck by the machine unintentionally rolling away when the operating brake is released.

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

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

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



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

1. Secure the machine against unintentionally rolling away. To do so use the parking brake and/or wheel chocks.
2. Release supply line coupling head (red).
3. Release brake line coupling head (yellow).
4. Fasten coupling heads in the dummy coupling points.
5. Close tractor coupling head caps.

5.4.3 Parking brake

When the parking brake is on, it secures the uncoupled machine against unintentionally rolling away. The parking brake is operated by turning the crank via a spindle and bowden cable.

- (1) Crank
- (2) Direction of rotation for applying brake
- (3) Direction of rotation for releasing brake
- (4) Bowden cable

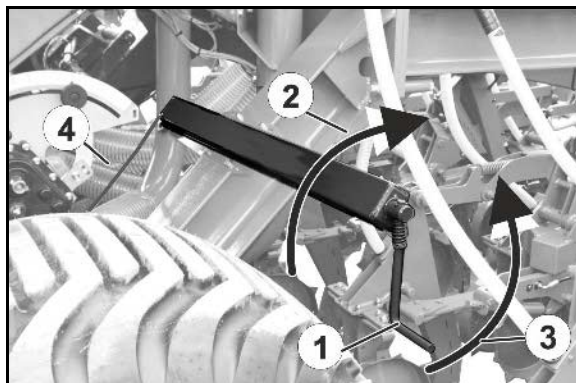


Fig. 20

Releasing the parking brake



Ensure that the bowden cable is not lying on or rubbing against other vehicle parts.

When the parking brake is off, the bowden cable must hang slightly slack.

Rotate the crank anticlockwise until the bowden cable becomes slack.

→ The parking brake is off.

Applying the parking brake



Correct the adjustment of the parking brake if the spindle's tensioning travel is no longer sufficient.

Rotate the crank clockwise and apply the parking brake using the bowden cable (the application force of the parking brake is around 40 kg manual force).

5.5 Hydraulic operating brake system

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

5.5.1 Coupling the hydraulic operating 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.

5.5.2 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.

5.5.3 Emergency brake

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

- (1) Pulling cable
- (2) Brake valve with pressure accumulator
- (3) Hand pump to relieve the brake
- (A) Brake released
- (B) Brake applied



DANGER

Before travel, set the brake to the application position.

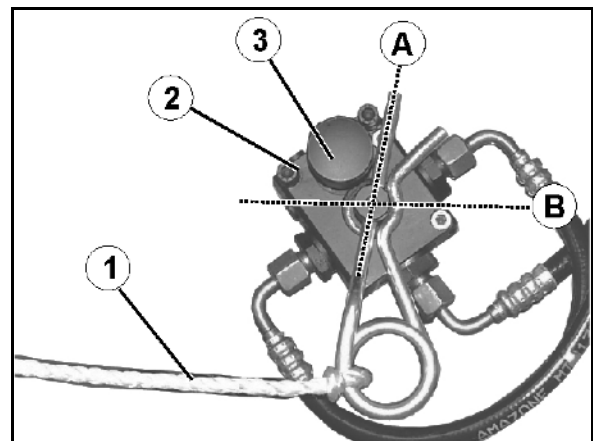


Fig. 21

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 (Fig. 21). 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.

5.6 Safety chain for implements without brake system

Implements without a brake system or with a single-line brake system must be equipped with a safety chain in compliance with local country regulations.

The safety chain must be correctly fixed to a suitable position on the tractor before transporting.

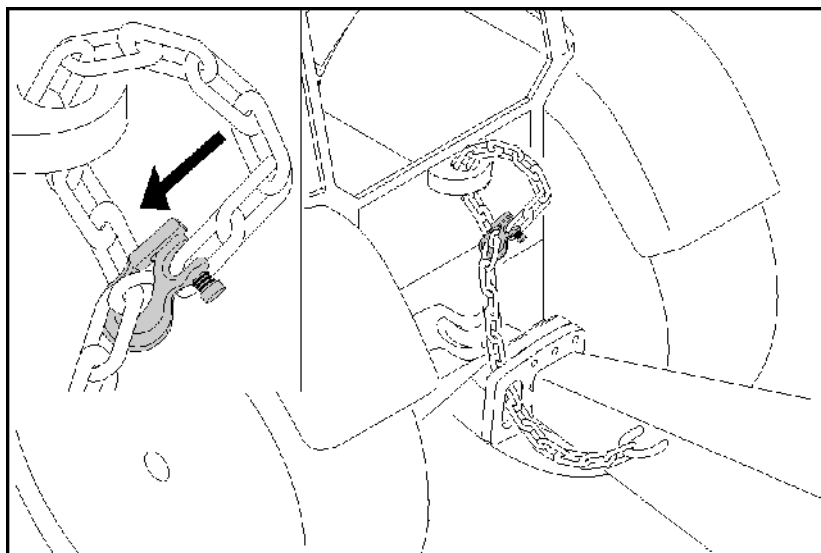


Fig. 22

5.7 Safety device against unauthorised use

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

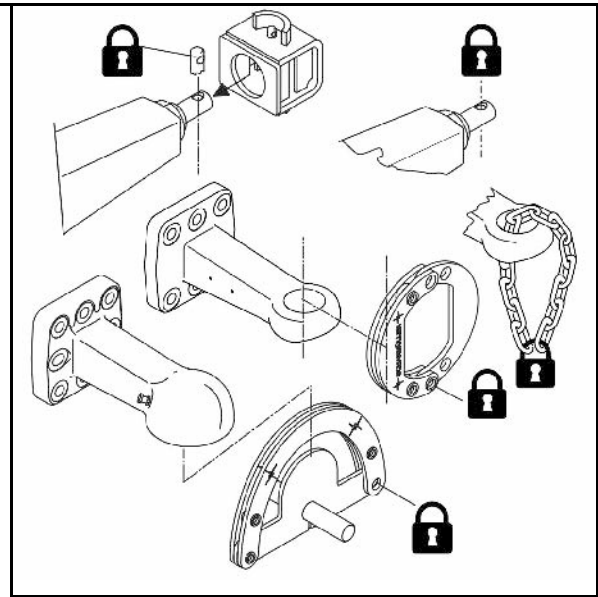


Fig. 23

5.8 Vario gearbox

- (1) Vario gearbox
- (2) Adjustment scale
- (3) Adjusting lever with pointer
- (4) Locking button
- (5) Oil level inspection glass

To adjust the spread rate, adjust the setting lever.

The higher the scale value, the greater the spread rate.

The spread rate is infinitely adjustable and is adjusted using the calibration test.

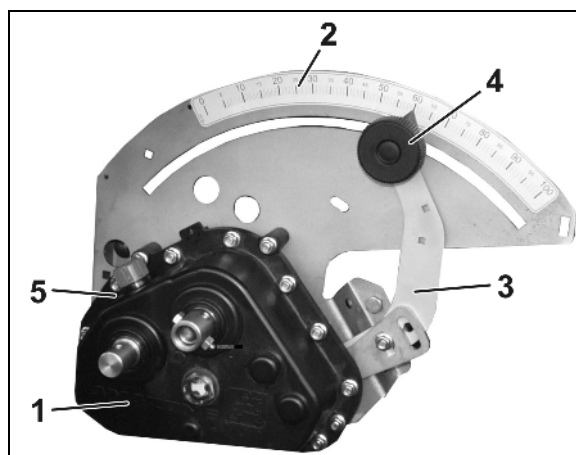


Fig. 24

5.9 Dosing unit

The dosing units dose the volume set at the Vario gearbox into the injector.

The machine has:

- (1) Two seed dosing units
- (2) A fertiliser dosing unit, optional

Each dosing unit is fitted with a shutter slide in order to

- empty the dosing unit
- and replace the dosing rollers when the hopper is full.

The metering roller ground wheel is being driven.

The seed falls into the injector sluice and is directed by the air flow to the distributor head and then to the coulters.

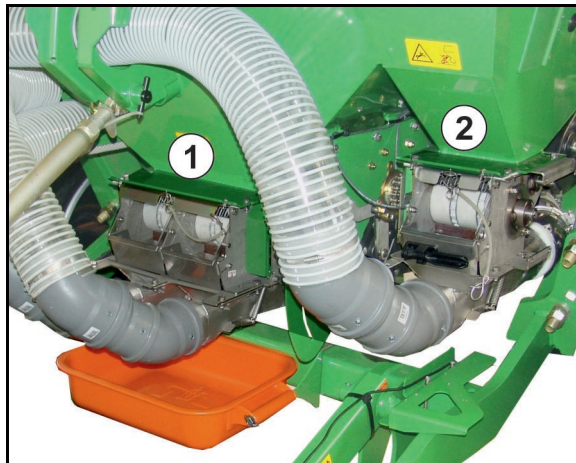


Fig. 25









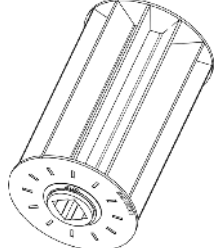
5.9.1 Metering rollers





The seed metering unit is equipped with an exchangeable metering roller.

The metering roller selection is dependent on

- the seed type
- the spread rate.

Dosing roller diagram table

Single metering rollers			
[cm ³]	7,5	20	40
			
[cm ³]	120	210	350
			
[cm ³]	600	660	880
			

Double metering rollers				
[cm ³]	40	240	420	1200
				



Dosing rollers with different capacities are available.

Select the metering roller required depending on the seed or the fertiliser and the spread rate according to the following tables.

If the seed is not listed, select the dosing roller of a seed that has a similar grain size.

Metering wheel without chambers



The volume of some of the metering rollers can be changed by repositioning/removing the existing wheels and inserting metering wheels without chambers.



Fig. 26

Parking position of the metering rollers

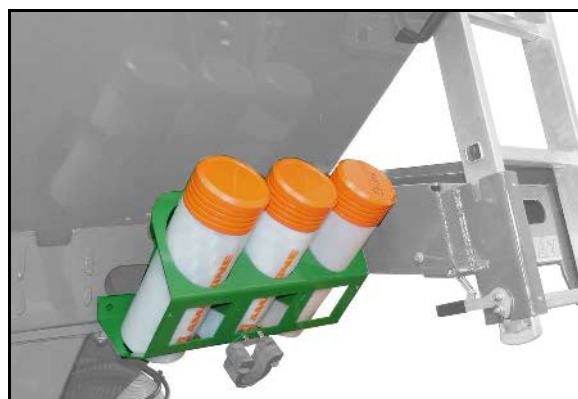


Fig. 27

5.10 Drive wheel

The drive wheel (1) drives the dosing rollers in the dosing unit via the Vario gearbox.

For calibration tests, the drive wheel is rotated manually in the direction of the arrows using the crank (2).

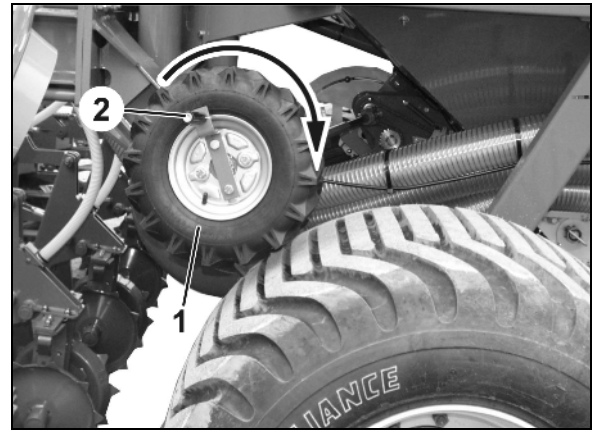


Fig. 28

Lift the drive wheel from the rotor:

- for transport,
- for calibration.

1. Move the stop tap to position B.
2. Actuate tractor control unit *yellow*.

→ Lift the coulter / exact harrow / drive wheel.

3. Swivel the safety lever as shown in Fig. 29.



Fig. 29

Place drive wheel on rotor:

- for use on the field.

1. Move the stop tap (1) to position B.
2. Actuate tractor control unit *yellow*.

→ Lift the coulter / exact harrow / drive wheel.

3. Swivel the safety lever as shown in Fig. 30.

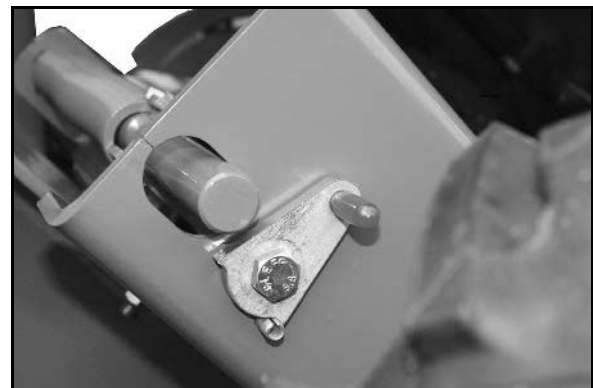


Fig. 30



Fig. 31

5.11 Calibration trough

The calibration quantity drops into the calibration trays in the calibration test (Fig. 32/1).

Use the calibration trough to calibrate seed and fertiliser.

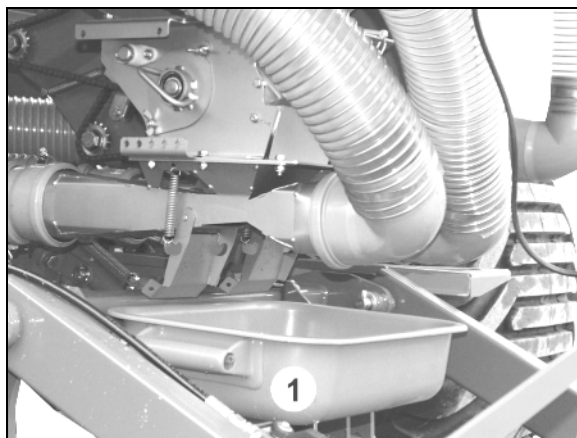


Fig. 32

5.12 Spreading fertiliser (option)

With the DMC, it is possible to spread fertiliser and seed at the same time.

For this purpose, fertiliser is spread together with the seed through every coulter.


( seed /  fertiliser)

Hopper for seed and fertiliser

- (1) Use the larger part of the hopper for the seed.
- (2) Use the smaller part of the hopper for the spreading of fertiliser.

Metering unit

- (3) Equip the metering unit with a metering roller for fertiliser.
- (4) Equip the metering unit for fertiliser with a metering roller for fertiliser.

 Metering roller selection, see pages 59 and 103:

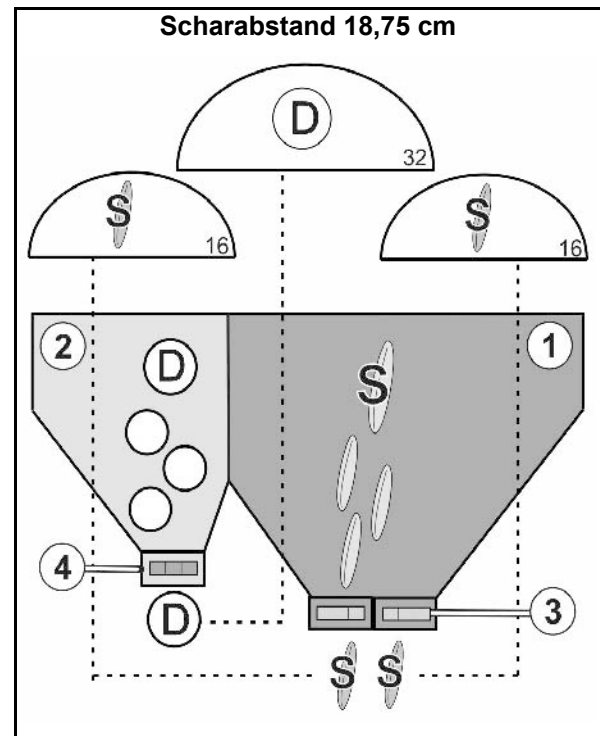


Fig. 33

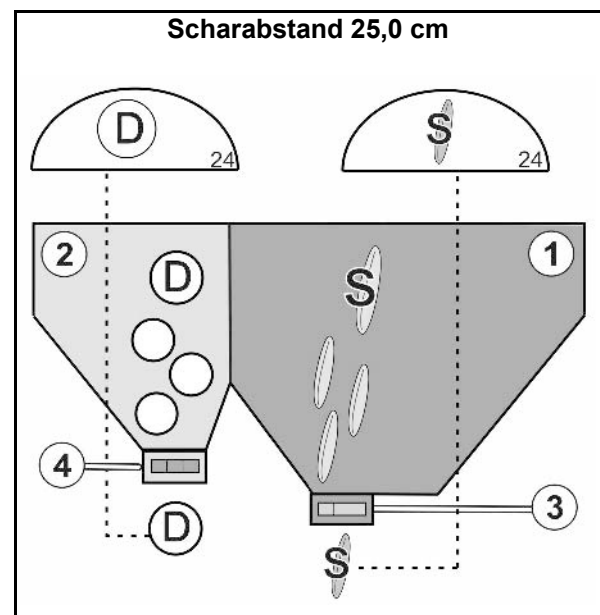
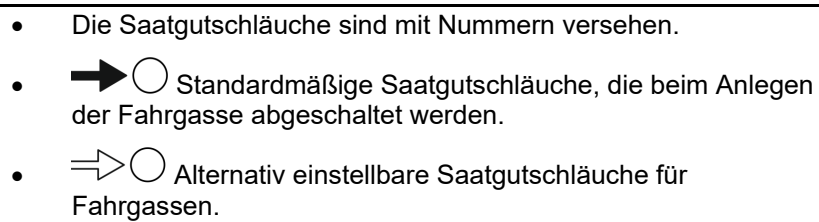


Fig. 34

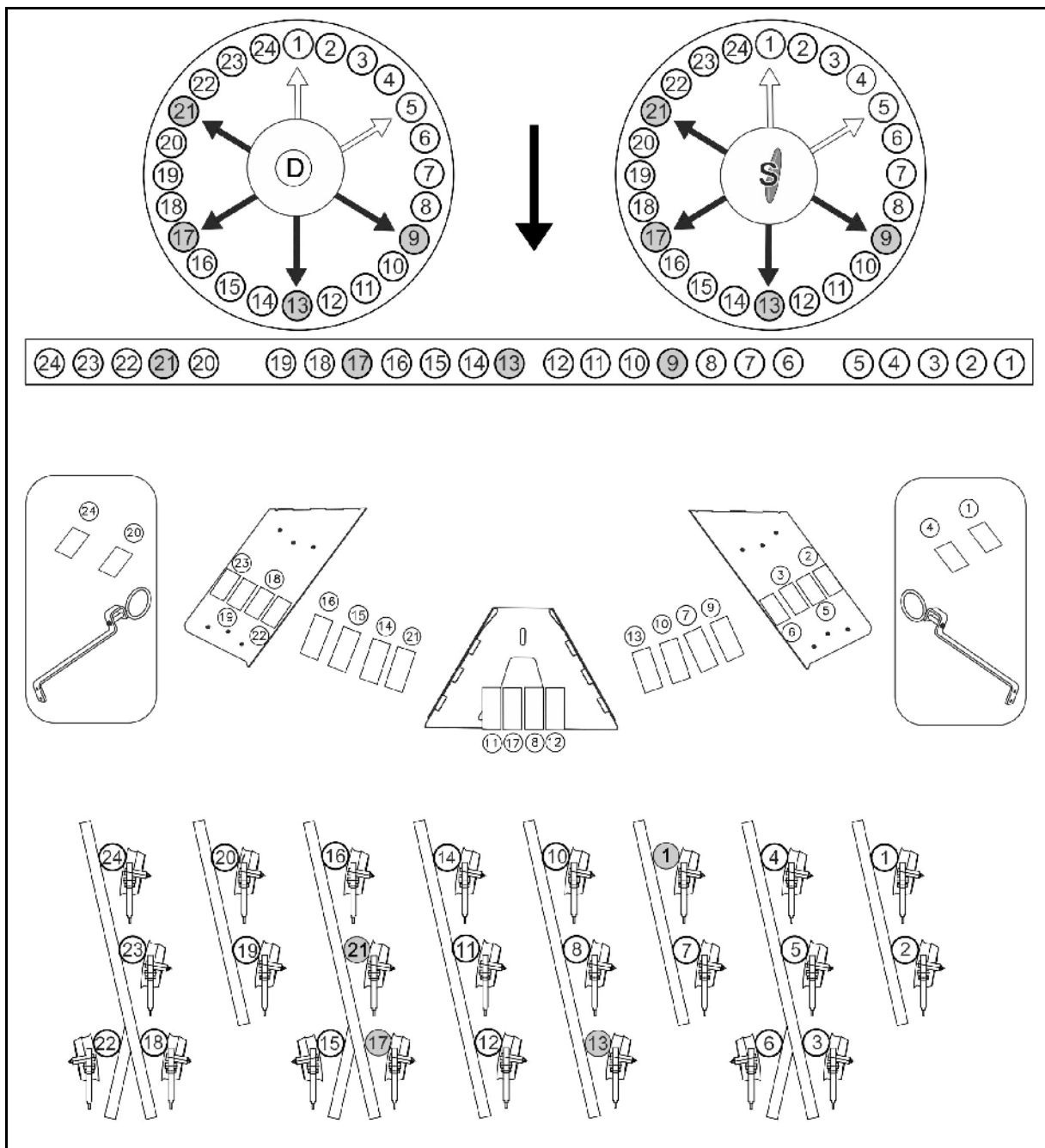
Saatgutverlauf – Düngerverlauf



Row spacing 18,75 cm:



Row spacing 25 cm:



5.13 Spreading different media on different row widths



To be able to spread different media on different row widths, an accessories kit must be installed.

For more information, refer to the installation instructions included with the accessories.

Standard row width:	18.75 cm
Possible row widths:	18.75 cm, 37.5 cm and 75 cm

Standard row width:	25 cm
Possible row widths:	25 cm, 50 cm and 75 cm

1. Select 1 hopper for one medium.
2. Select 2 hopper for one medium.
3. Select the metering roller for the medium and install it in the metering unit of the hopper.
4. Depending on the desired row spacing, several outlets on the distributors must be closed.

→ Insert the locking plate,
or

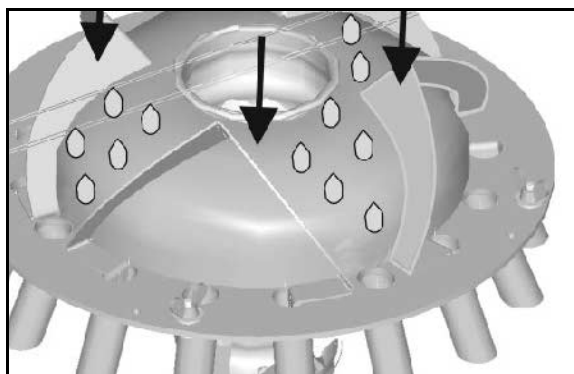


Fig. 35

→ Insert the sealing plug

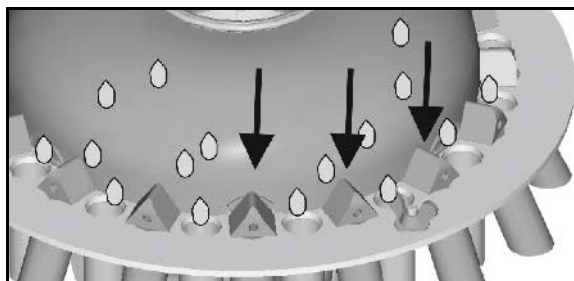
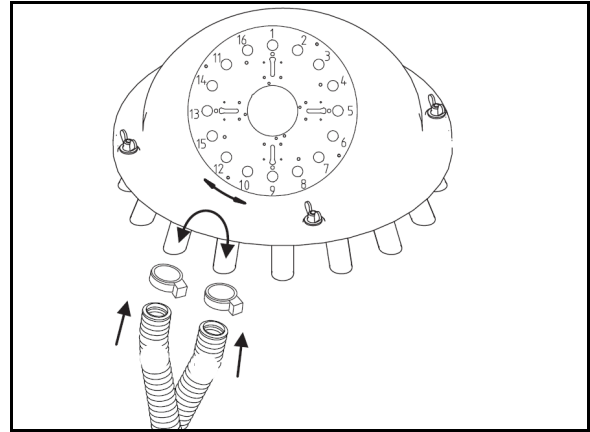
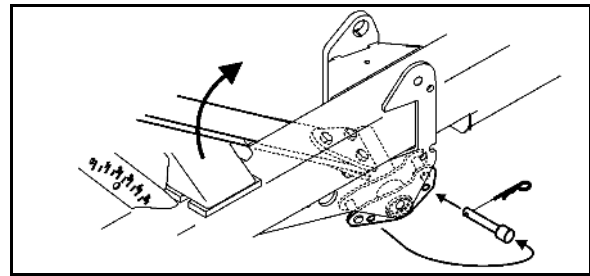


Fig. 36

5. Several hoses on the distributors must be replaced.

**Fig. 37**

6. Seeding coulters that are not used will be lifted.
7. Switch off the creation of tramlines on the on-board computer.

**Fig. 38**

5.14 Blower

- (1) Blower fan
- (2) Hydraulic motor
- (3) Pressure control valve
- (4) Oil filter
- (5) Pressure gauge for displaying the pressure in the return line of the hydraulic line

The hydraulic motor drives the blower and generates an air current. The air current conveys the seeds from the injector sluice to the coulter.

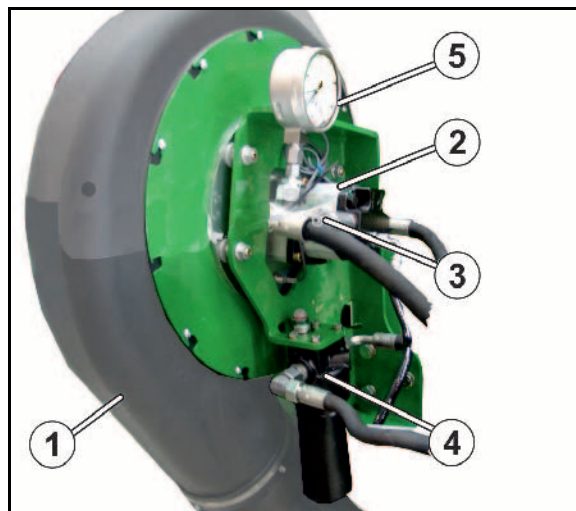


Fig. 39

Adjusting the fan speed

- | | |
|----------------------------|--|
| Fan drive: | Actuate the <i>red</i> tractor control unit |
| On-board hydraulic system: | Adjust the PTO shaft speed
(if necessary, the fan speed can be reduced using the pressure relief valve) |

5.15 Chisels

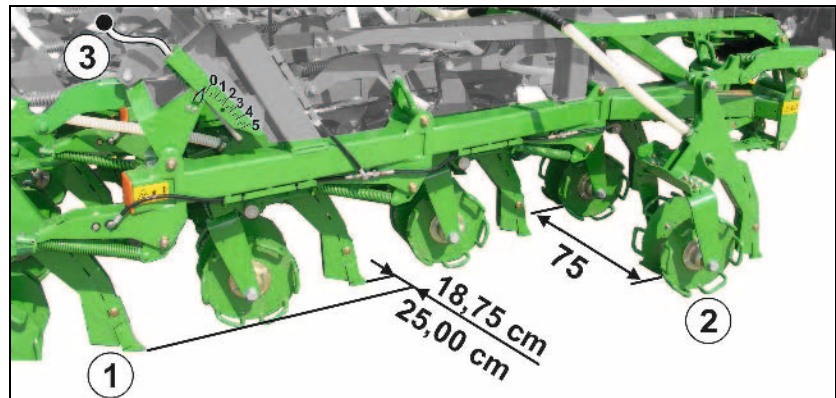


Fig. 40

The chisel coulters (Fig. 46/1) are arranged in 3 or 4 rows that are offset to each other. The row spacing is 18.75 cm or 25 cm.

The double rollers installed behind the chisel coulters regulate the depth of the chisel coulters (Fig. 46/2).

The double rollers are also responsible for closing the seeding furrow.

The placement depth is adjusted using the crank (Fig. 46/3).

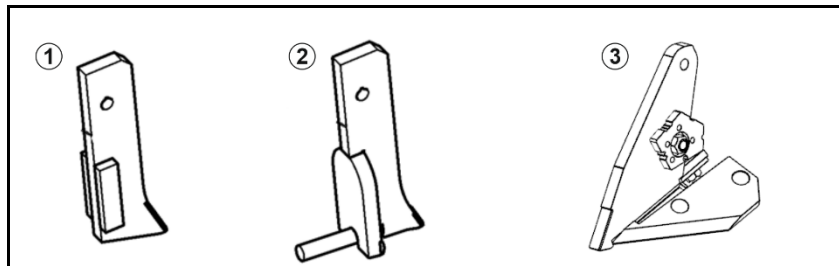


Fig. 41

- (1) Standard bit for direct seeding: the seed is laid in a row.
- (2) Band bit for mulch seeding: the seed is laid in a broader band.
- (3) Duckfoot chisel for mulch seeding: For smaller placement depth with two blades and two adjustment plates to adjust the set placement depth.

5.16 Stone release

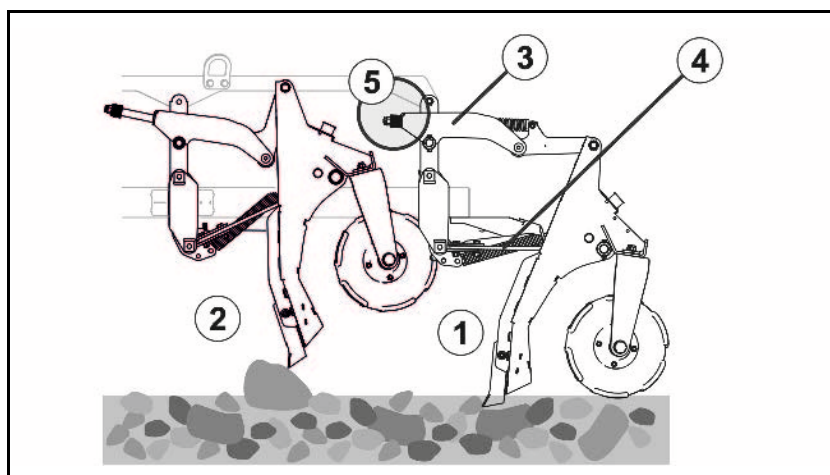


Fig. 42

- (1) Chisel coulter in working position
- (2) Chisel coulter lifted by stone release

The chisel coulters are individually suspended in parallelogram-shaped brackets. These brackets each have a top and lower link, and act as a stone release at the same time. If the respective chisel coulter hits an obstacle in the soil, there is

- a vertical deflection possibility through the top link bending against the spring force (3).
- a horizontal deflection possibility through the spring steel lower link (4).

As a result, the chisel coulter can deflect and is protected from damage. After passing the obstacle or at the latest when lifting the seeding coulters, the chisel coulter is automatically moved back to its working position.



The spring preload (5) for the stone release must not be adjusted.



WARNING

Excessive wear of the coulter suspension when the stone release is under constant strain can lead to failure of the implement!

- The stone release may only react to occasionally occurring obstacles on individual coulters.
- If the stone release is constantly reacting on all coulters:
 - Reduce the speed,
 - Reduce the placement depth,
 - Before seeding, ensure sufficient soil tillage depth.



Thanks to the coulter deflection possibilities, obstacles with a height of up to 300 mm can be passed without damage.

5.17 Exact harrow

The exact harrow covers the seeds deposited in the sowing furrows with loose earth and smoothes the ground.

The exact following harrow is hydraulically lowered or lifted with the seeding coulters.

The exact following harrow is folded together with the seeding coulters into transport and working position

- (1) Exact harrow
- (2) Road safety bars in transport position during road transport

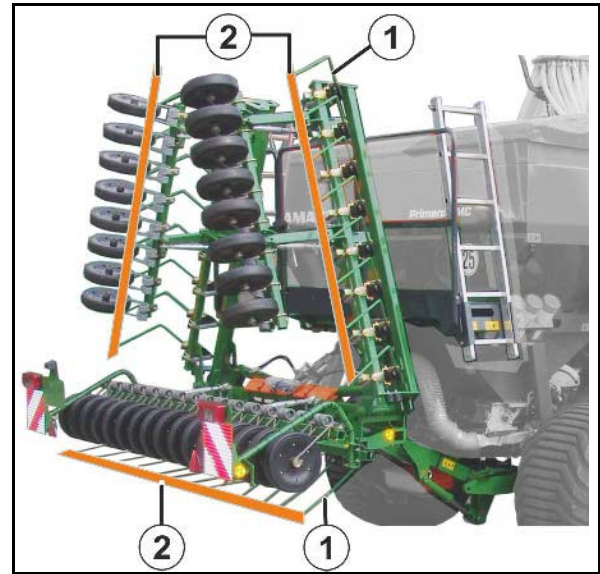


Fig. 43

- (1) Road safety bars during use
- (2) Stop tap for securing the raised transport position
- (3) Stop tap for securing the folded transport position

The road safety bars are fastened onto the exact following harrow with elastic straps.

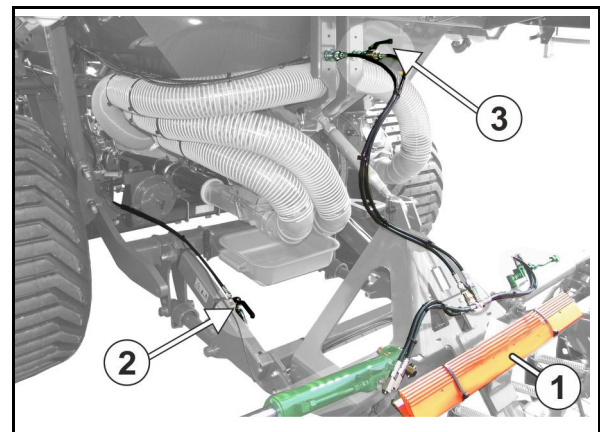


Fig. 44

5.17.1 Roller harrow (optional)

The roller harrow is mounted behind the exact following harrow and is lifted and folded together with the exact following harrow.

The roller harrow is usually used where the ground conditions are dry.

- (1) Position of the positioning pin for the roller harrow in working position
- (2) Position of the positioning pin when the roller harrow is lifted and locked

Roller harrow locked in transport position and when put out of operation

Always secure the positioning pin with a linch pin.

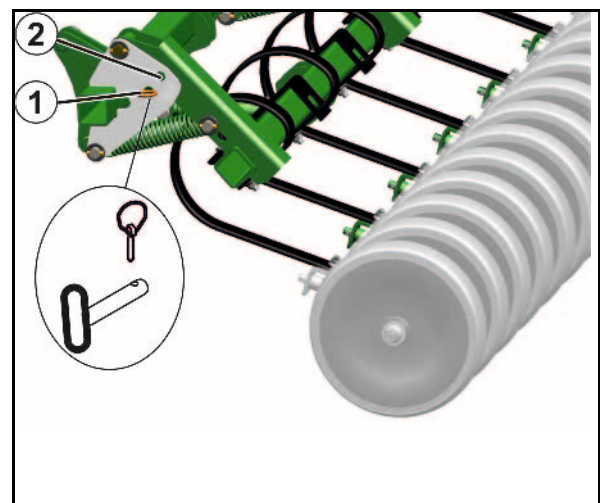


Fig. 45

5.18 Stony ground rollers (optional)

Stony ground rollers are particularly suitable for stony ground.



Fig. 46

5.19 Track markers

The hydraulically-actuated track markers dig into the ground alternately on the left and the right of the machine. In so doing, the active track marker creates a mark. This mark serves as an orientation aid for the next run after turning. After turning, the tractor driver drives over the centre of the mark.

It is possible to set:

- The length of the track marker
- The working intensity of the track marker, depending on the type of soil.

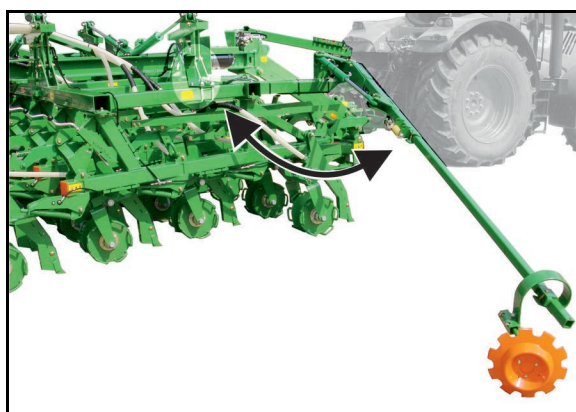


Fig. 47



Lift both track markers

- before turning at the end of the field
- before obstacles on the field
- before transportation.



WARNING

It is prohibited to stand in the swivelling area of the track marker booms.

- Direct people out of the danger area.
- Risk of injury from moving parts.

5.20 AMALOG⁺

The on-board computer AMALOG⁺

- controls the tramline control.
- monitors the fill level in the hopper.
- is used as a hectare counter.
- monitors the dosing shaft drive.
- monitors the blower fan speed.
- determines the current forward speed



See also AMALOG⁺ operating manual.

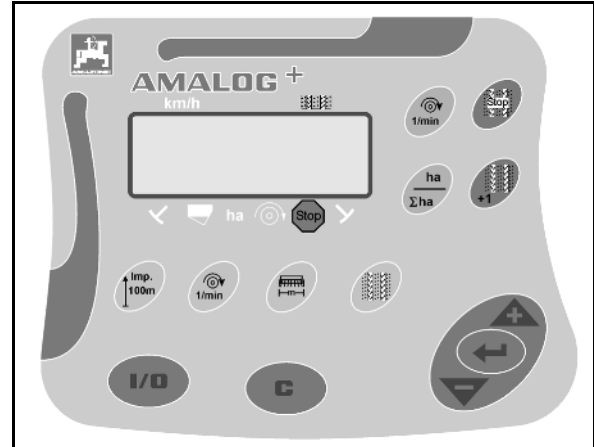


Fig. 48

5.21 Distributor head and tramline circuit

In the distributor head (Fig. 55/1) the seed or fertiliser is distributed uniformly over all the sowing coulters. The number of distributor heads depends on the machine working width. A dosing unit always supplies one distributor head.

The tramline circuit in the distributor head allows the creation of tramlines at presettable distances on the field. To set the different tramline distances, appropriate tramline rhythms have to be entered into the on-board computer.

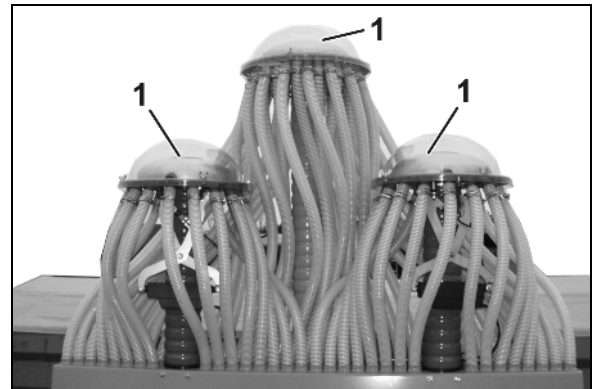


Fig. 49

When creating the tramlines:

- the tramline control system on the distributor head uses sliders (Fig. 56/1) to block the seed feeding lines to the seed lines (Fig. 56/2) of the tramline coulters
- The tramline coulters do not deposit any seeds on the ground.

The seed supply to the tramline coulters is interrupted as soon as the electric motor (Fig. 56/3) closes the appropriate seed tubes (Fig. 56/2) in the distributor head.

Upon creating a tramline the tramline counter indicates the number "0" on the on-board computer. The seed volume, which is reduced when creating a tramline, can be set.

A sensor (Fig. 56/4) checks whether the sliders (Fig. 56/1), which open and close the seed line tubes (Fig. 56/2), are working properly.

If the setting is wrong, the on-board computer emits an alarm.

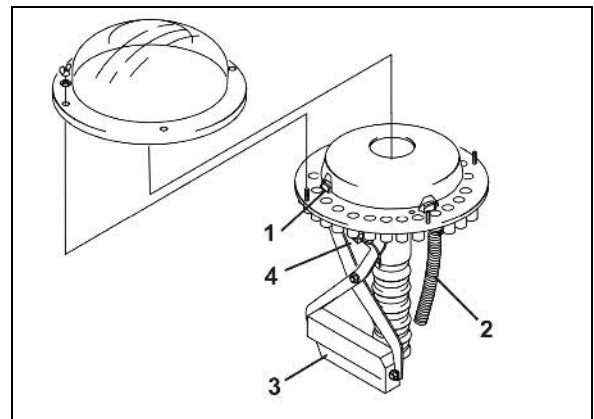


Fig. 50

5.21.1 Tramline rhythm

Tramlines can be created on the field. Tramlines are seed-free tracks (Fig. 57/A) for fertilising and plant care machines used later.

The tramline spacing (Fig. 57/b) corresponds to the working width of the care machines (Fig. 57/B), e.g. fertiliser spreader and/or sprayer, which are used on sown fields.

To set the different tramline spacings (Fig. 57/b), appropriate tramline rhythms must be entered on the on-board computer.

The required tramline rhythm (see table Fig. 58) is derived from the required tramline spacing and the working width of the seed drill.

The table () does not contain all the settable tramline rhythms. A list of all the settable tramline rhythms can be found in the on-board computer operating manual.

The track width (Fig. 57/a) of the tramline corresponds to that of the care tractor and is adjustable.

The track of the tramline increases if the number of tramline coulters arranged next to each other increases.

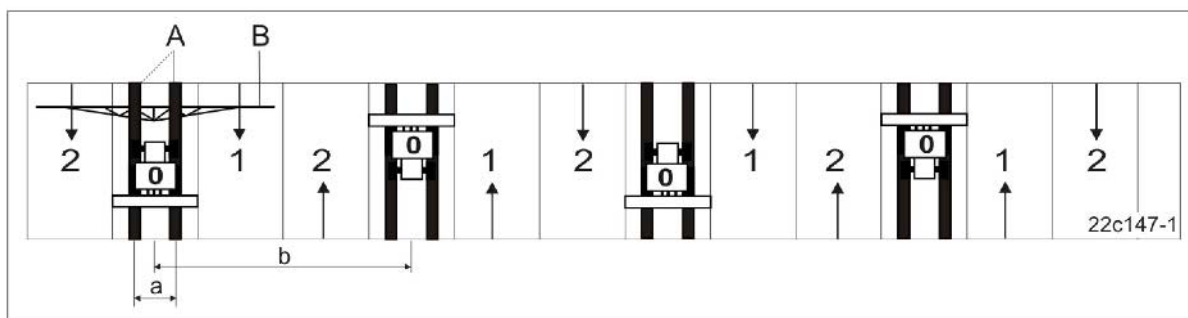


Fig. 51

Tramline rhythm	Seed drill working width
	6,0 m
	Tramline spacing (working width of the fertiliser spreader and field sprayer)
1	12 m
3	18 m
4	24 m
5	30 m
6	36 m
7	42 m
2	24 m
6 plus	36 m

Fig. 52

5.21.1.1 Examples for creating tramlines

The creation of tramlines is shown in Figure (Fig. 59) using various examples:

- A = Working width of the seed drill
- B = Tramline spacing (= working width of fertiliser spreader / field sprayer)
- C = Tramline rhythm (input in the on-board computer)
- D = Tramline counter (during work, the field runs are numbered consecutively and displayed on the on-board computer).

Perform any inputs and outputs with the aid of the on-board computer operating manual.

Example:

Working width, seed drill: 6m

Working width, fertiliser spreader/field sprayer: 18m = 18m tramline spacing

1. Look for the following in the adjacent table (Fig. 59):
 - in column A, the seed drills working width (6 m) and
 - in column B, the tramline spacing (18 m).
2. On the same line in column "C", take the reading for the tramline rhythm (tramline rhythm 3) and set this in the on-board computer.
3. On the same line in column "D" under the inscription "START" take the reading of the tramline counter for the first field run (tramline counter 2) and enter this figure on the on-board computer. Input this value directly before commencing the first field trip.

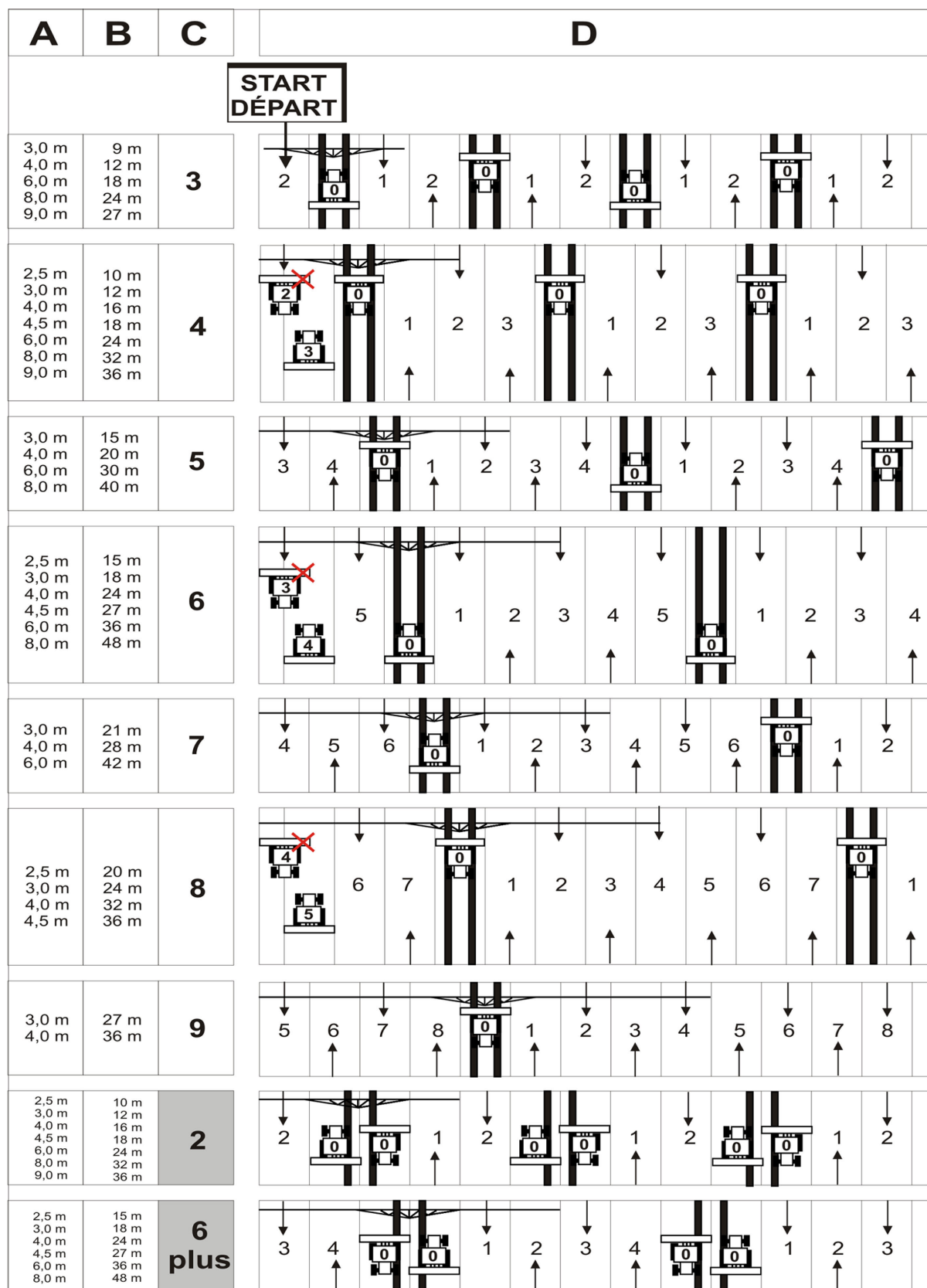


Fig. 53

5.21.1.2 Tramline rhythm 4, 6 and 8

Figure (Fig. 59) shows examples for creating tramlines with tramline rhythms 4, 6 and 8.

It shows work with the seed drill at half width (partial width) during the first field trip.

During work with partial width switched off, the drive of the appropriate dosing roller is interrupted. For an exact description, see the on-board computer operating manual.

Another option for creating tramlines with the tramline rhythm 4, 6 and 8 is to begin with the full working width and the creation of a tramline (see Fig. 60).

In this case, the care machine works at half working width during the first field run.

After the first field run, reset the full machine working width.

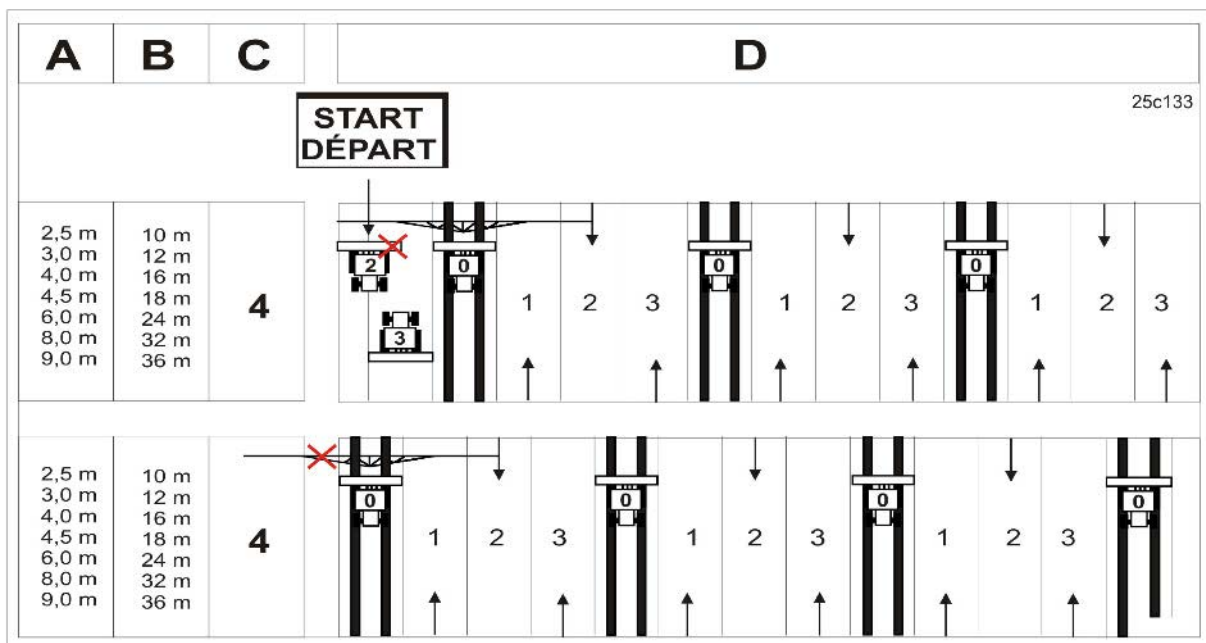


Fig. 54

5.21.1.3 Tramline rhythm 2 and 6plus

Figure (Fig. 59) shows examples of tramline creation with tramline rhythms 2 and 6plus.

When tramlines are created with the tramline rhythm 2 and 6plus (Fig. 61), tramlines are created during the trips forward and backward over the field.

On machines with

- tramline rhythm 2, the seed feed to the tramline coulters may only be interrupted on the right side and
- tramline rhythm 6plus, the seed feed to the tramline coulters may only be interrupted on the left side.

the seed feed to the tramline coulters is interrupted.

Work always starts on the right hand edge of the field.

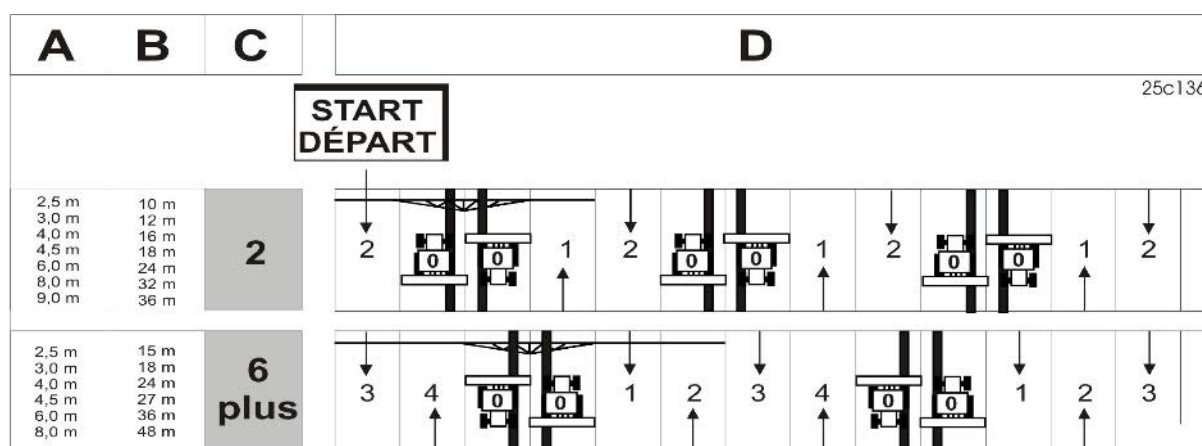


Fig. 55

5.22 Jack

- Jack raised during operation or transport.
- Jack lowered when implement is uncoupled.

Raising/lowering the jack:

1. Pull out the pin.
2. Remove the pin (Fig. 63/1).
3. Raise / lower the jack.
4. Fix the position of the jack with the pin and secure using the linch pin.

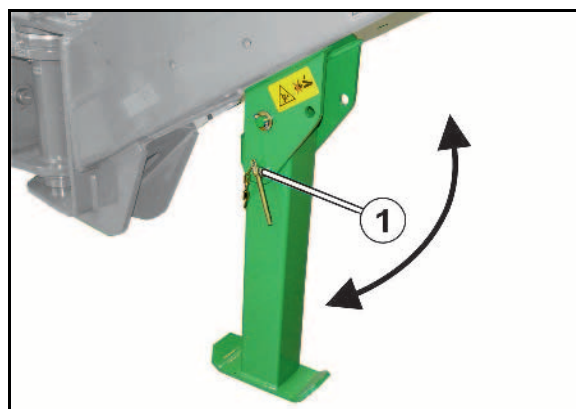



Fig. 56



WARNING
Risk of crushing fingers when operating the stand.

5.23 Jack for the drawbar eye / ball coupling

Lifting the jack after coupling

Raise the jack (Att. 64/1) using the hand crank (Att. 64/2) up to the stop.

Lowering the jack before uncoupling

Lower the jack (Att. 64/1) using the hand crank (Att. 64/2) up to the stop until the trailer coupling is relieved.

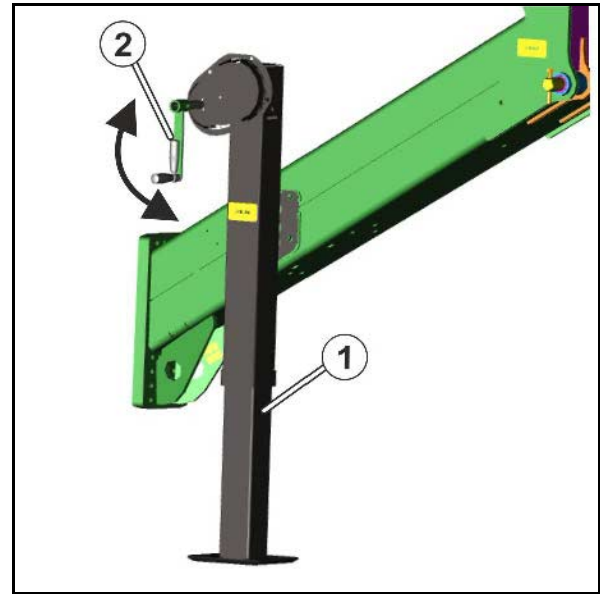


Fig. 57



The jack crank has a slow and a fast gear (Att. 65).

- Unloaded: use the fast gear!
- Loaded: use the slow gear;
- Pull out the hand crank – Fast gear for the jack.
- Push in the hand crank – Slow gear for the jack (high loads).

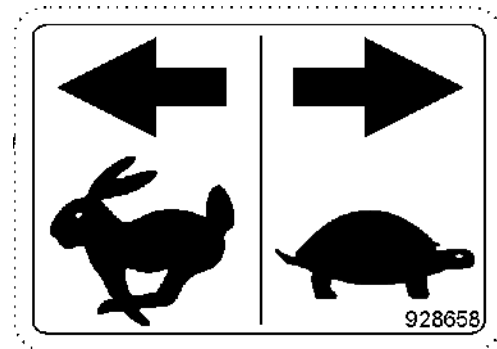


Fig. 58



After actuating the crank, swivel up the hand lever as shown in Att. 66!

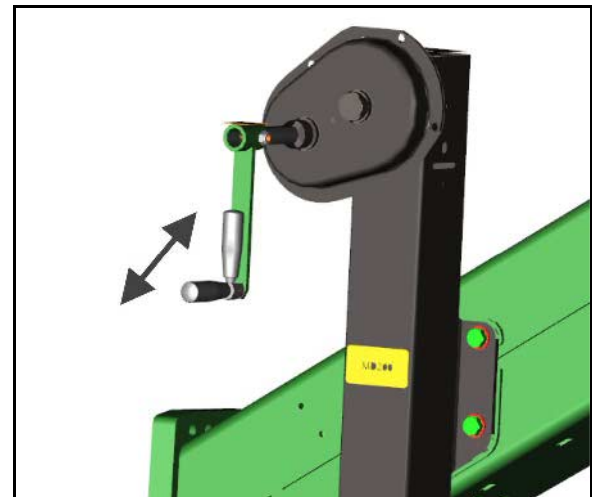


Fig. 59

5.24 Hopper with swivelable cover

- (1) Hopper with 4200 litre total capacity.
 - o Content of seed hopper: 3150 l
 - o Content of fertiliser hopper (optional): 1050 l
- (2) Swivel cover with activation lever to open and close the swivel cover.

Hopper extension (optional)

There is also a hopper extension with a capacity of 800 l / 1600 l.

Sieve for protection against foreign bodies:

Folding sieve in the seed hopper with sieve lock. The sieve can be unlocked and folded using the unlocking tool.

- (1) Handle with sieve locking mechanism
- (2) Unlocking tool



Fig. 60

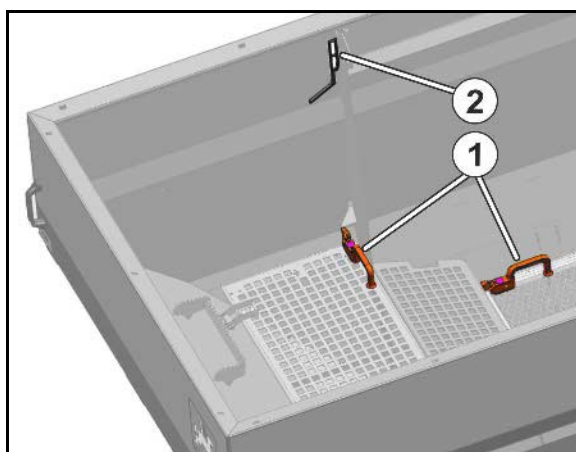


Fig. 61

Open the guard screen:

1. Insert the unlocking tool into the handle.
 2. Hold the handle and turn the unlocking tool to the handle.
- Guard screen locking mechanism unlocked.
3. Raise the guard screen until it catches onto the edge of the tank.
 4. Secure the unlocking tool in the parking position.



Fig. 62

5.25 Working platform

Working platform with swivelable ladder.



WARNING

Riding on the machine as a passenger creates a risk of falling.

Riding on the machine as a passenger is prohibited.



Always secure the ladder in the transport position.

- (1) Folded up ladder one or two) secured in the transport position.
- (2) Working lights
- (3) Swivelling railing (useful when filling with a filling auger)

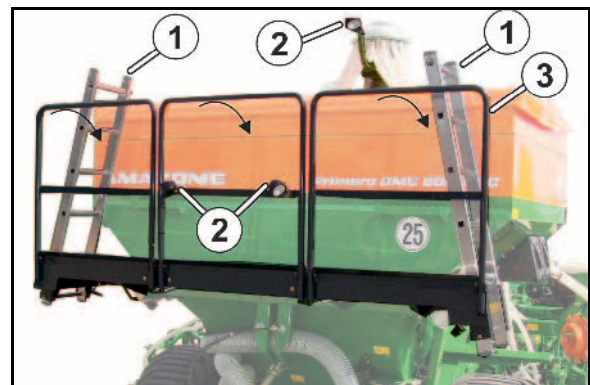


Fig. 63

- (1) Holding point
- (2) Unlock the locking mechanism with the hand lever before lowering the ladder

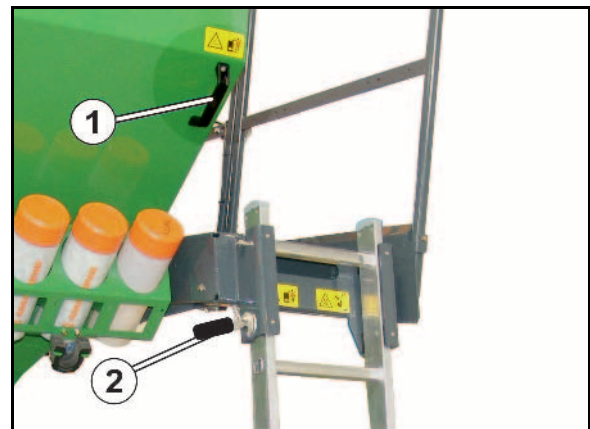


Fig. 64

5.26 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

- (1) Camera system on working platform for safe manoeuvring.

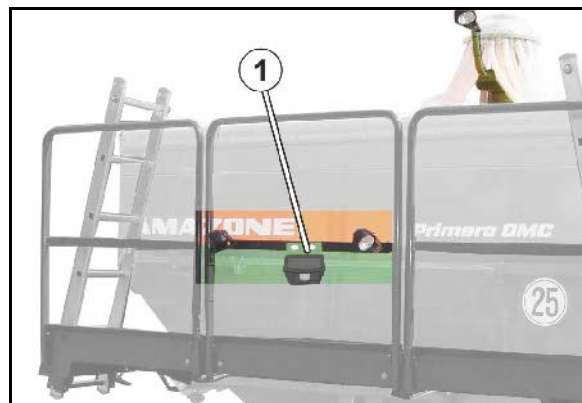


Fig. 65

5.27 Work lights



2 variants:

- Separate power supply from the tractor is required, operation via the control box.
- Power supply and operation via ISOBUS, if available.

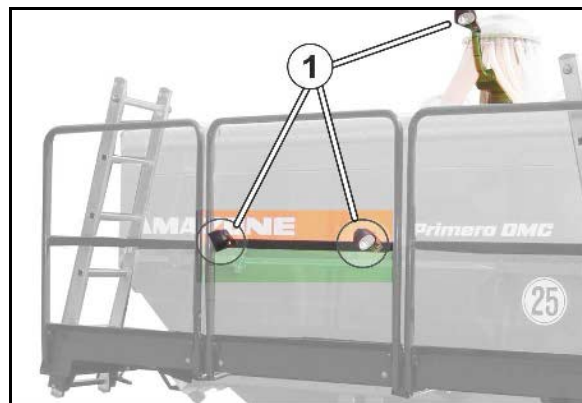


Fig. 66

5.28 Level sensor

The level sensor monitors the seed level in the seed hopper. If the seed level reaches the level sensor, an alarm sounds. This alarm signal is intended to remind the tractor driver to fill up the seeds again.

The height of the level sensor can be adjusted (Fig. 73/1) in the seed hopper. The residual seed volume can be set, at which the warning message and the alarm signal is to be emitted.

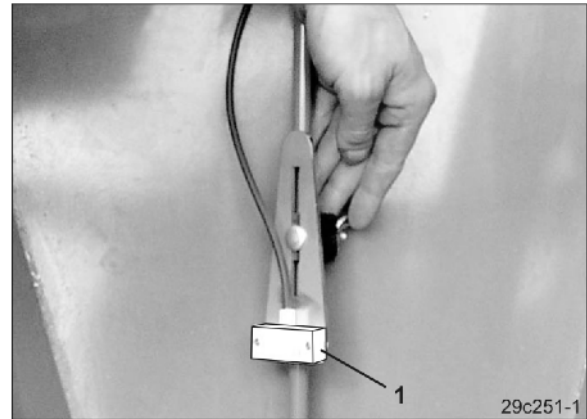


Fig. 67

5.29 Filling auger (optional)

As an option, the machine can be fitted with a filling auger.

Fill the filling auger with seed or fertiliser from the transport vehicle via a chute and supply it into the hopper of the DMC.



Fig. 68

Folded-in condition of the filling auger for transport and use.



Fig. 69



The collection bucket is used to collect any residual amounts.

After folding into the transport position, empty the collection bucket.

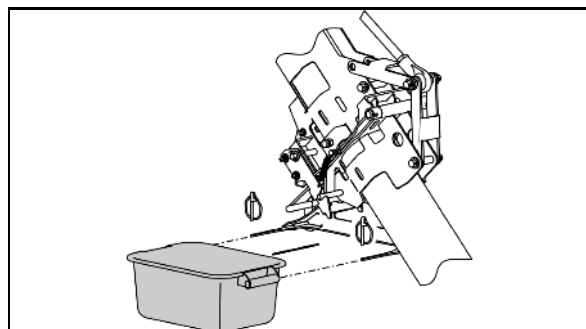


Fig. 70

Fig. 77/...

- (1) Turn on the filling auger
- (2) Swivel the discharge
- (3) Folding in and out

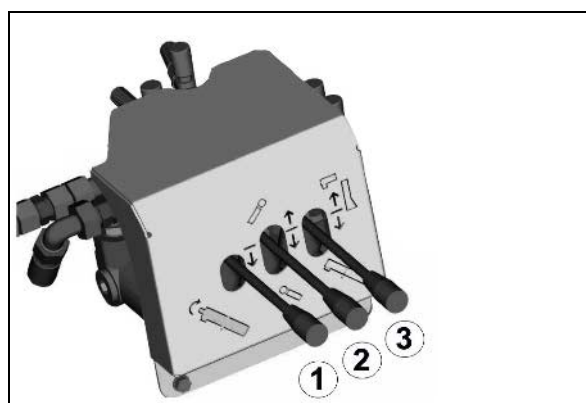


Fig. 71

5.30 Tramline marker (optional)

When tramlines are being created, the track discs lower automatically and mark the tramline that has just been created. This makes the tramlines visible before the seed has germinated.

The track discs are raised hydraulically if no tramline is being created.

- The track discs can be moved to adapt to the track width.
- The intensity of the track discs can be adjusted by turning.

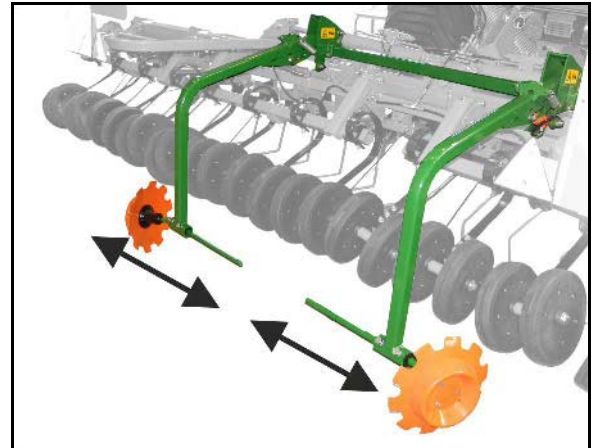


Fig. 72

Tramline marker stop tap

- Position 0: transport position, decommissioning (the lifted tramline marker must be locked)
- Position 1: working position

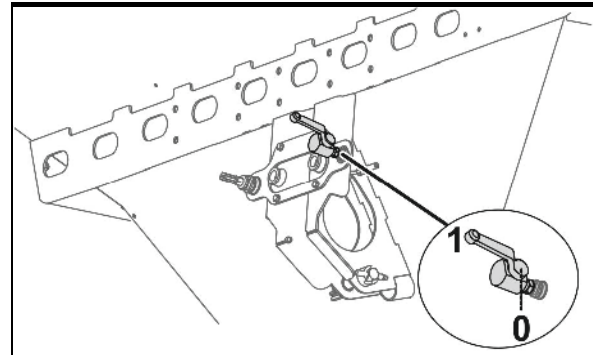


Fig. 73

5.31 GreenDrill

The GreenDrill seeds fine seed and catch crops.

Fill the GreenDrill hopper via the maintenance platform.

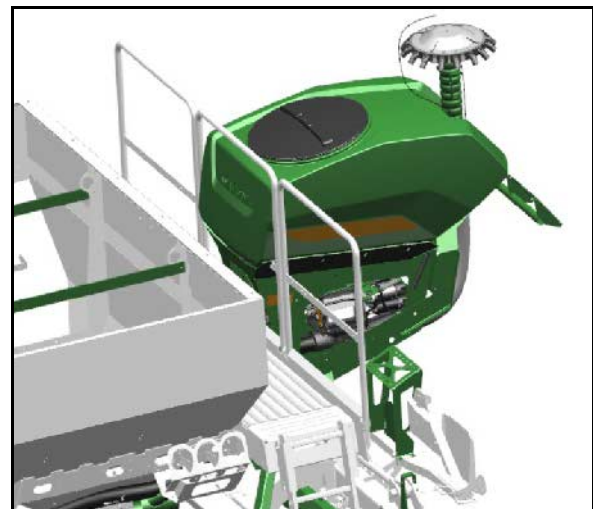


Fig. 74

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 section "Safety information for the user", starting on page 25 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 user shall be responsible for compliance with the statutory road traffic regulations.



WARNING

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

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

- are continuous or
- are automatically locked or
- are designed to require a floating position or pressure position



Fill the pump intake line with oil before commissioning.

To do so, proceed as follows:

1. Release the clip on the suction hose (Fig. 75/1) and remove the suction hose.
2. Fill the suction hose with hydraulic fluid HLP22.
3. Resecure the suction hose on the suction port with the clip.



Fig. 75

(1) Ventilation valve

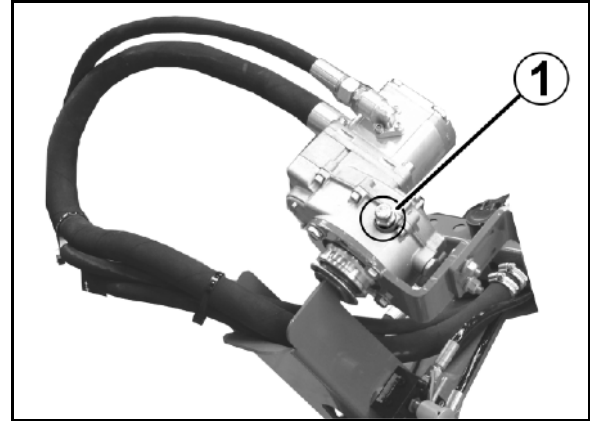


Fig. 76

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

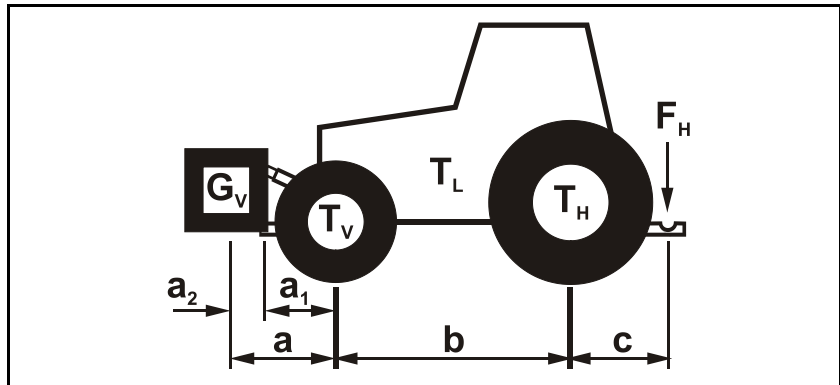


Fig. 77

T_L	[kg]	Tractor empty weight	See tractor operating manual or vehicle documentation
T_V	[kg]	Front axle load of the unladen tractor	
T_H	[kg]	Rear axle load of the unladen 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-mounted machine or front ballast (centre of gravity distance)	See technical data of front machine mounting or front weight or measurement
b	[m]	Tractor wheel base	See tractor operating manual or vehicle documents or measurement
c	[m]	Distance between the centre of the rear axle and the centre of the lower link connection	See tractor operating manual or vehicle documents or measurement

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

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

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	<div style="border: 1px solid black; padding: 5px; display: inline-block;">/ kg</div>	--	--
Total weight	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	--
Front axle load	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>
Rear axle load	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>



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


WARNING

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

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

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



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

6.1.2 Requirements for tractor operation with attached machines

**WARNING**

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

- Ensure:
 - that the connection 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 weight does not exceed the permissible rear axle weight.
 - that the permissible total weight of the tractor is observed
 - that the approved load capacities of the tractor tyres are not exceeded.

6.1.2.1 Combination options of coupling devices

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

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

6.1.2.2 Compare the permissible D_C value with actual D_C value



WARNING

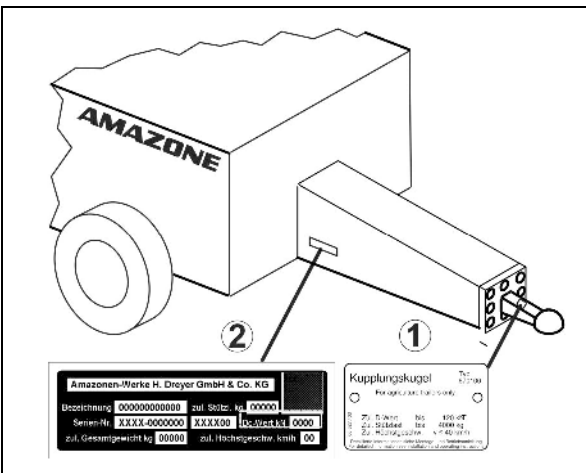
Danger from breaking the coupling devices between the tractor and the implement when the tractor is not used for its intended purpose!

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

The actual D_C value calculated for the combination must be less than or equal (\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

<div style="border: 1px solid black; width: 100%; height: 100%;"></div>	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:

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

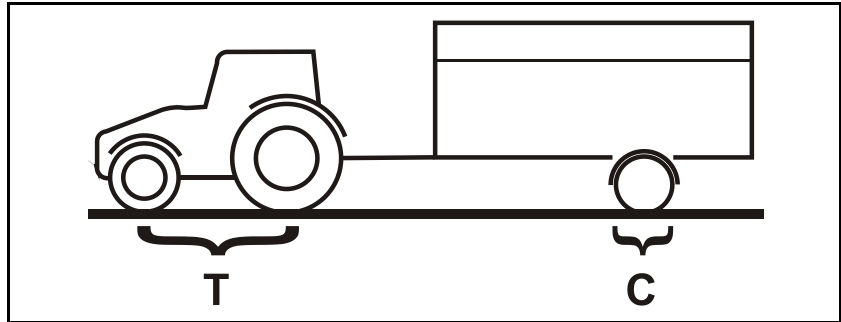


Fig. 78

- T:** permissible total weight of your tractor in [t] (See tractor operating manual or vehicle documentation)
- C:** axle load of the implement [t] loaded with the permissible mass without drawbar load (working load).
- g:** Gravity (9.81 m/s²)

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



WARNING

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

- **Unintentional lowering of the unsecured machine when raised using the tractor's three-point linkage.**
- **Unintentional lowering 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 being driven
 - for as long as the tractor engine is running with the PTO shaft / hydraulic system connected.
 - when the ignition key is left inserted in the tractor and the tractor engine can be started unintentionally with the PTO shaft / hydraulic system connected.
 - when the tractor and machine are not secured against unintentional rolling using their parking brakes and/or wheel chocks.
 - if moving parts are not blocked against unintentional movement.

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

1. Lower the raised/unsecured machine or machine parts.
- This is how to prevent unintentional falling:
2. Turn off the tractor engine.
 3. Remove the ignition key.
 4. Apply the tractor's parking brake.
 5. Secure the machine against unintentionally rolling away (only if the machine is hitched) as follows:
 - On flat ground using the parking brake (if present) or wheel chocks.
 - On uneven ground or on slopes using the parking brake and wheel chocks.

6.3 Initial operation following longer standing times outdoors

After longer standing times outdoors, check whether water has accumulated underneath the metering unit in the hoses and injector.

To do so, open the calibration flap, pull off the hoses and allow the water to drain out.

7 Coupling and uncoupling the machine



When coupling and decoupling machines, take note with the section "Safety information for the user", page 25.



WARNING

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

When coupling or decoupling the machine, secure the tractor and machine against unintentional start-up and rolling away before entering the danger area between the tractor and machine. Refer to page 96.



WARNING

Danger from crushing and impacts between the rear of the tractor and the machine during coupling/uncoupling.

- It is prohibited to operate the tractor's 3-point hydraulic system while persons are present between the rear of the tractor and the machine.
- Only actuate the operator controls for the tractor's three-point hydraulic system
 - from the intended workstation beside the tractor.
 - if you are outside of the danger area between the tractor and the machine.



WARNING

Danger of being crushed, cut, caught, drawn in or struck through insufficient stability and possible tilting of the uncoupled implement!

Park the empty implement on a level parking surface with solid ground.



WARNING

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

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

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



WARNING

Risk of contusions, cutting, catching, drawing in and knocks when the machine unexpectedly releases from the tractor.

- Use the intended equipment to connect the tractor and the machine in the proper way.
- When coupling the machine to the tractor's three-point hydraulic system, ensure that the attachment categories of the tractor and the machine are the same.
Be sure to upgrade the machine's category. II upper and lower link pins to category. III if your tractor has a category III three-point linkage.
- Only use the upper and lower link pins provided to couple up the machine.
- Check the upper and lower link pins for visible defects whenever the machine is coupled. Replace the upper and lower link pins in the event of clearly visible wear.
- Secure the upper link pin and lower link pin in the connecting points of the three-point attachment frame against unintentional detachment using a linchpin.
- Perform a visual inspection to ensure that the upper and lower link hooks are correctly locked before driving off.



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 87.



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.



Uncoupling the tractor lower link:

Risk of crushing while uncoupling!

Before uncoupling the implement, relieve the lower links and unlock and uncouple the lower link hooks from the tractor seat!



When uncoupling the implement, there must always be enough free space in front of the implement that the tractor can be aligned with the implement again during recoupling.

7.1 Coupling the tensioned crosspiece

Coupling the tensioned crosspiece

1. Fasten the ball sleeves on the lower link pins of the implement.
2. Secure the lower link pins with linch pins to ensure that they do not accidentally become loose.
3. Direct people out of the danger area between the tractor and implement before you approach the implement with the tractor.
4. Drive the tractor in reverse towards the implement so that the lower link hooks of the tractor pick up the lower ball sleeves of the lower pivot point of the implement.
- The lower link hooks lock automatically.
5. Secure the tractor against unintentional start-up and unintentional rolling.
6. Perform a visual check to ensure proper locking of the lower link hooks.
7. Couple the supply lines with the tractor.
8. Raise the jack and secure with a linch pin.
9. Disengage parking brake.
10. Remove wheel chocks.

Uncoupling the tensioned crosspiece

1. Secure the tractor against unintentional rolling away.
2. Lower the jack and secure with a linch pin.
3. Apply the parking brake.
4. Apply wheel chocks.
5. Disconnect the supply lines.
6. Release the lower links.
7. Unlock and uncouple the lower link hooks from the tractor cab.

7.2 Coupling the towing eye / ball coupling

Coupling the towing eye / ball coupling

1. Direct people out of the danger area between the tractor and implement before you approach the implement with the tractor.
2. Drive tractor up to the implement such that a free space (approx. 25 cm) remains between tractor and implement.
3. Secure the tractor against unintentional start-up and unintentional rolling.
4. Align the tractor drawbar and the implement coupling device with each other so that the implement can be coupled and stands level by adjusting the height using the crank on the jack.
5. Open or remove the coupling elements.
6. Now drive the tractor in reverse up to the implement so that the coupling can be locked automatically or manually.
7. Secure the tractor against unintentional start-up and unintentional rolling.
8. Locking mechanism:
 - 8.1 Automatic: visual check of the locking mechanism.
 - 8.2 Manual: locking of the coupling devices

When using a ball coupling, only apply the locking mechanism after the drawbar has been lowered onto the ball coupling.
9. Couple the supply lines with the tractor.
10. Raise the jack and secure in parking position with a linch pin.
11. Disengage parking brake.
12. Remove wheel chocks.

Uncoupling the towing eye / ball coupling

1. Secure the tractor against unintentional rolling.
2. Lower the jack and secure with a linch pin.
3. Apply the parking brake.
4. Apply wheel chocks.
5. Unlock and relieve the coupling device or lift the implement with the ball coupling.
6. Disconnect the supply lines.

7.2.1 Manoeuvring the uncoupled machine



CAUTION

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

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

The vehicle must be braked as it manoeuvres.

Dual circuit air brake system



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 several times or if there are leaks in the brake system).

Release the service brake as follows:

- Fill the air reservoir.
- Completely bleed the brake system using the drain valve on the air reservoir.

1. Connect the machine to the manoeuvring vehicle.
 2. Actuate the brakes on the manoeuvring vehicle.
 3. Remove the wheel chocks and release the parking brake.
 4. Set the hand lever on the braking force regulator to manoeuvring.
- The service brake system is released and the machine can be manoeuvred.
5. Once the manoeuvre is completed, set the hand lever on the braking force regulator to full load.
- The system pressure from the air reservoir brakes the machine again.
6. Actuate the brakes on the manoeuvring vehicle.
 7. Tighten the parking brake again and secure the machine against rolling away with wheel chocks.
 8. Uncouple the machine from the manoeuvring vehicle.

Hydraulic brake system

1. Connect the machine to the manoeuvring vehicle.
2. Actuate the brakes on the manoeuvring vehicle.
3. Remove the wheel chocks and release the parking brake.
4. Actuate the brakes on the manoeuvring vehicle again once manoeuvring is complete.
5. Uncouple the machine from the manoeuvring vehicle.

8 Settings



WARNING

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

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

Secure the tractor and the machine against unintentional start-up and rolling before making adjustments to the machine. See Page 96.

8.1 Selecting the dosing roller

The requisite dosing roller is dependent on the seed type and spread rate and can be found from Table 1.

For seed not listed in Table 1, select the dosing roller of one of the seed types listed in the table of a similar grain size.

8.1.1 Table - metering rollers, seed

Seed	Dosing rollers [cm³]							
	7,5 / 15	20 / 40	120 / 240	210 / 420	350	600 / 1200	660 / 1300	880
Beans					X		X	X
Spelt wheat					X	X	X	X
Peas					X		X	X
Flax (dressed)		X	X	X				
Barley				X		X		
Grass seed				X		X		
Oats						X		
Millet			X	X				
Lupins			X	X	X	X	X	X
Alfalfa		X	X	X				
Maize			X					
Poppy seed	X							
Linseed (for oil) (moist dressing)		X						
Fodder radish		X	X	X				
Phacelia		X	X					
Rapeseed		X						
Rye				X		X		
Red clover		X	X					
Mustard		X	X	X				
Soya						X	X	
Sunflowers			X	X				
Turnips		X						
Wheat				X		X		
Vetches				X				
Fertiliser (granular)						X	X	

Table 1

8.1.2 Replacing the dosing roller

Replacing dosing roller in the dosing unit:

1. Remove the folding plug (2) (only necessary to close the filled seed hopper with the slider) (1).



The dosing rollers can be replaced more easily, if the seed hopper is empty.



Open all the sliders and secure them with folding plugs.

2. Push the slider (Fig. 85/1) into the dosing unit up to the stop.

3. Slacken but do not unscrew the two winged nuts (Fig. 86/1).
4. Turn the bearing and pull it off.

5. Pull the dosing roller out of the dosing unit.
6. Refer to Table 1 for the requisite dosing roller and install in the reverse order.
7. Equip all the dosing units with the same dosing roller.

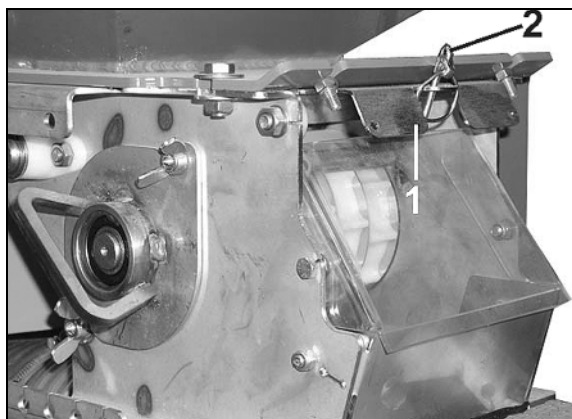


Fig. 79



Fig. 80

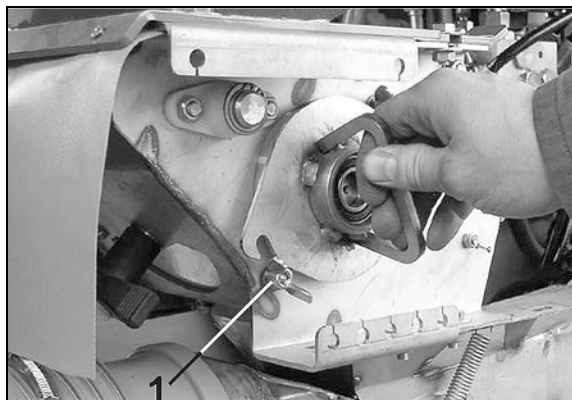


Fig. 81

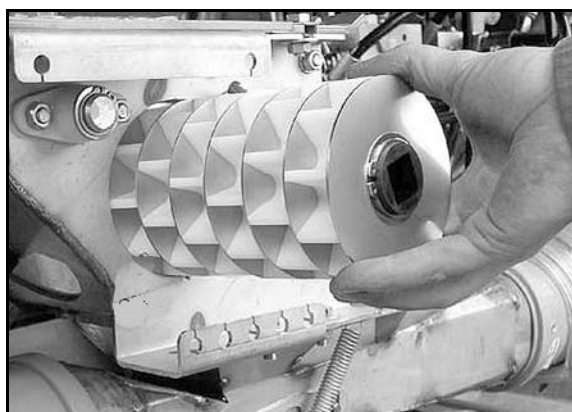


Fig. 82

8.2 Setting the level sensor



The fill level sensor is accessible via the maintenance flap on the hopper.



Fig. 83

You can only adjust the height of the level sensor when the seed hopper is empty:

1. Apply the handbrake, switch the tractor engine off and remove the ignition key.
2. Undo the butterfly nut (Fig. 89/2).
3. Adjust the height of the level sensor (Fig. 89/1) to the required seed volume.
4. Tighten the butterfly nut (Fig. 89/2).



Only assemble the level sensor as shown in figure (Fig. 89).

The level sensor must not, as shown in figure (Fig. 90), rest against the hopper housing.

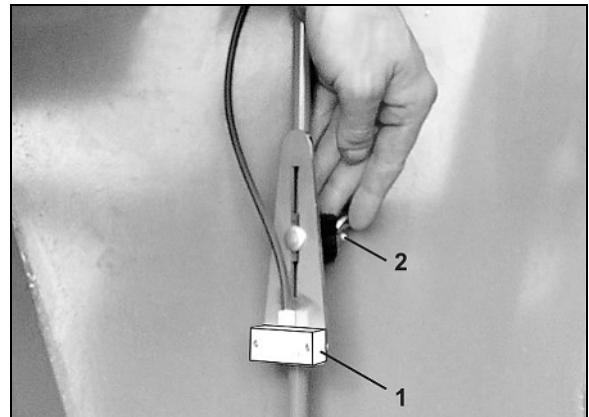


Fig. 84



Increase the residual seed volume which triggers the alarm:

- the coarser the seeds
- the greater the spread rate
- the greater the working width.

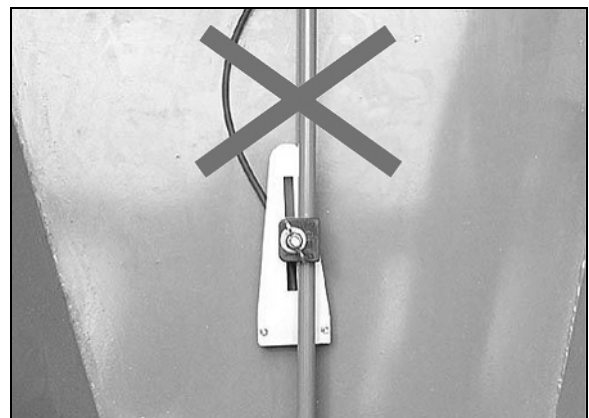


Fig. 85

8.3 Adjusting the spread rate on the gearbox

The desired spread rate is to be adjusted on the gearbox (Fig. 91).

The spread rate must be adjusted for

- Seed
- Fertiliser (optional)



Before setting the desired spread rate, carry out a calibration test.

1. Carry out calibration test for seed.
2. Carry out calibration test for fertiliser

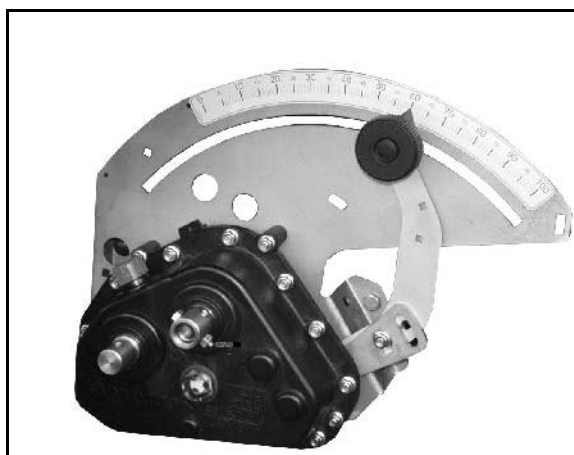


Fig. 86



When spreading seed and fertiliser at the same time, the spread rate is limited.

15 km/h:

Maximum seeding rate: 250 kg/ha

Minimum seeding rate: 2 kg/ha (1 dosing unit)

Maximum fertiliser rate: 80 kg/ha

8.3.1 Calibration test

The calibration test checks whether the preset spread rate matches the actual spread rate.

Always carry out a calibration test:

- when changing the seed type/fertiliser
- if the seed type is identical, but size grain, grain shape, specific weight and dressing are different
- after exchanging the dosing rollers



WARNING

Never step between the machine and the exact harrow before the stop tap is closed which blocks the hydraulics of the exact harrow.



When spreading the seed and fertiliser at the same time, carry out one calibration test each for the seed and fertiliser separately.

→ **Gears not used for the calibration test should be set to position 0.**



Whenever possible calibrate and set the seed rate after the journey to the field with the filled seed hopper.

This ensures a more accurate seed rate.

1. Fill the seed hopper with at least 1/3 of the hopper volume (in the case of fine seeds correspondingly less).
2. Remove the calibration trough from the bracket
3. Calibrate the seed: Rotate the calibration trough and push back onto the bracket (Fig. 92).

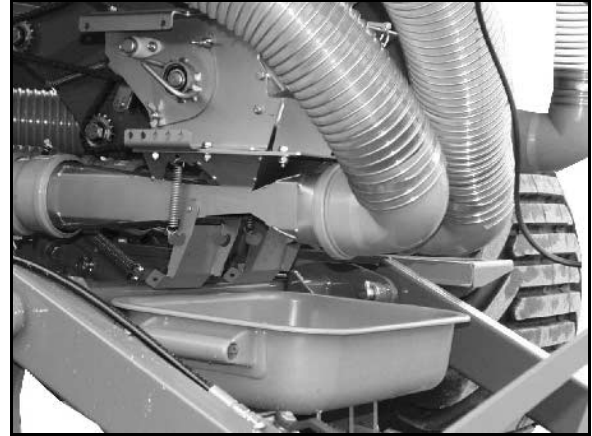


Fig. 87

4. Calibrate the fertiliser: Place the calibration trough under the fertiliser dosing unit (Fig. 93).

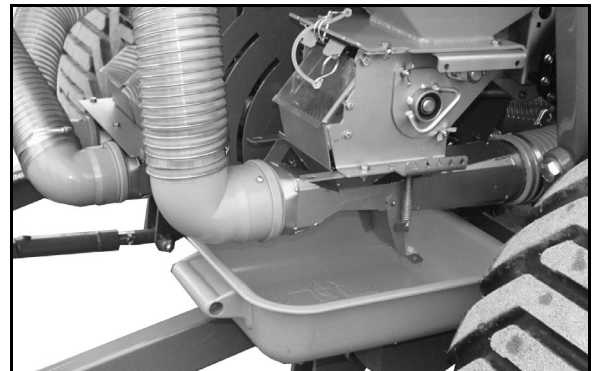





Fig. 88

5. Loosen the locking button (Fig. 94/1) of the gearbox setting lever.
6. Move the pointer of the gearbox setting lever (Fig. 94/2) to one of the following gearbox positions:

Gearbox setting value for the first calibration test	50	50	15
Metering roller			
Volume [cm³]	20	210	600

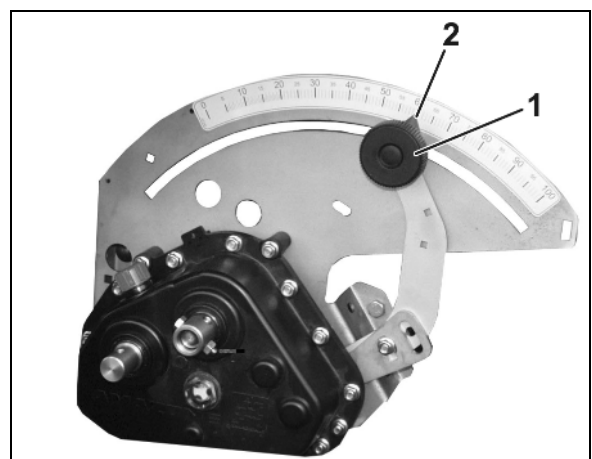


Fig. 89

7. Tighten the locking button (Fig. 94/1).

8. Open the injector sluice flap (Fig. 95/1).
- Open both seed dosing units to calibrate the seed.
- Open the fertiliser dosing unit to calibrate the fertiliser.



WARNING

Risk of contusions on opening and closing the injector sluice flap (Fig. 95/1).

Hold the injector sluice flap only by the lug (Fig. 95/2), otherwise there is a danger of injury if the spring-loaded injector sluice flap (Fig. 95/1) snaps shut.

Never insert your hand between the injector sluice flap (Fig. 95/1) and the injector sluice.

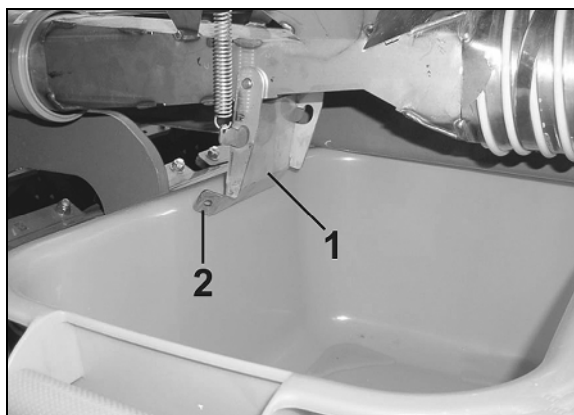


Fig. 90

9. Turn the drive wheel with the calibration crank handle (Fig. 96/1) in the direction of the arrow until all chambers of the dosing rollers are filled with seed and a uniform seed stream flows into the calibration troughs.



During the calibration test, the drive wheel must be raised from the rotor.

10. Close the injector sluice flap (Fig. 95/1) with special care (risk of crushing).
11. Empty the calibration trough and push it back under the dosing units.
12. Open the injector sluice flap (Fig. 95/1).
13. Turn the drive wheel in the direction of the arrow using the calibration crank (Fig. 96/1).



Fig. 91

Required crank turns to calibrate the sowing volume

Crank turns	
136	34
1/10	1/40
Area [ha]	

- A crank turn for 1/40 ha is usual. In the case of very small spread rates, e.g. when sowing rapeseed, we recommend that the crank turn for 1/10 ha should be performed.

14. Weigh the seed collected in the collection bucket taking into account the bucket weight and multiply
- by a factor of 40 (for 1/40 ha) or
 - by a factor of 10 (for 1/10 ha).

Calibrating on 1/40 ha:

Spread rate [kg/ha] =
calibrated quantity [kg/ha] x 40

Calibrating on 1/10 ha:

Spread rate [kg/ha] =
calibrated quantity [kg/ha] x 10

Example: Calibrate for 1/40 ha, calibrated quantity 3.2 kg.

Spread rate [kg/ha] =
 $3.2 \text{ [kg]} \times 40 \text{ [1/ha]} = 125 \text{ [kg/ha]}$



After the calibration test, close the rotary shutters of all the injector sluices!



For maize, the calibration test should be related to an area of 1/10 ha.

8.3.2 Determining the gearbox setting using the calculating disc rule

The desired spread rate is not generally achieved in the first calibration test. With the first gearbox setting and the calculated spread rate, it is possible to determine the correct gearbox setting using the calculating disc rule.

The calculating disc rule consists of three scales: an outer white scale (Fig. 97/1) for all spread rates over 30 kg/ha and an inner white scale (Fig. 97/2) for all spread rates under 30 kg/ha. In the central, coloured scale (Fig. 97/3) the gearbox settings 1 to 100 are specified.

Example:

A spread rate of
175 kg/ha is desired

1. Before the calibration test, the gearbox setting **50** is set. According to the calibration test, a corresponding spread rate of **125 kg/ha** is determined.
2. On the calculating disc rule, set the spread rate **125 kg/ha** (Fig. 97/A) and the gearbox setting **50** (Fig. 97/B) above each other.
3. On the calculating disc rule, now read the gearbox setting for the desired spread rate of **175 kg/ha** (Fig. 97/C). In our example, this is gearbox setting **70** (Fig. 97/D).
4. Use a calibration test to check the gearbox setting that you have determined with the calculating disc rule.

After the calibration test:

1. Close the injector sluice flap with special care (risk of crushing).
2. Fasten the calibration trough to the transport mounting and secure with a linchpin.



The desired spread rate is not generally achieved in the first calibration test.

With the determined gearbox setting, carry out a further calibration test and determine a more accurate value with the calculating disc rule.

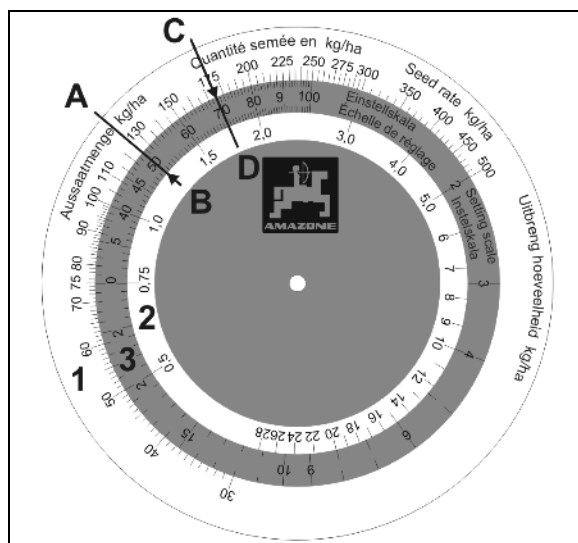


Fig. 92

8.4 Adjusting blower fan speed

The blower speed determines the air volume of the air current.

The higher the fan speed, the greater is the air volume generated.

The on-board computer monitors that the fan speed is maintained.

8.4.1 Blower speed table

The fan speed (rpm) is dependent on

- The machine working width (Fig. 98/1)
- The seed
 - Fine seed types, e.g. rape (Fig. 98/2)
 - Grain and pulses (Fig. 98/3).



WARNING

Do not exceed the maximum fan speed of 4000 rpm.

Adjusting the fan speed

Fan drive: Actuate the *red* tractor control unit

On-board hydraulic system: Adjust the PTO shaft speed (if necessary, the fan speed can be reduced using the pressure relief valve)

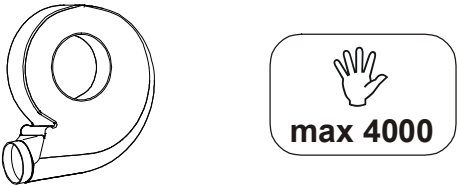

		
		
3.0	2800	3500
4.5	3100	3900
6.0 / 8.0 / 9.0	3200	3900
Working width	Blower fan speed (rpm)	
	Fine seeds (rapeseed)	Legumes (grain)

Fig. 93

8.4.2 Adjusting the blower speed on the machine pressure limiting valve

- Pressure relief valve (Fig. 99/1)
 1. Remove the protective cover (Fig. 99/1)
 2. Release the lock nut.
 3. Set the speed using the screwdriver on the valve by
 - Turning to the right = increase blower fan speed
 - Turning to the left = reduce blower fan speed.
 4. After making the setting, secure the valve position with a lock nut and replace the protective cover (Fig. 99/1).

The blower fan speed is displayed on the on-board computer.

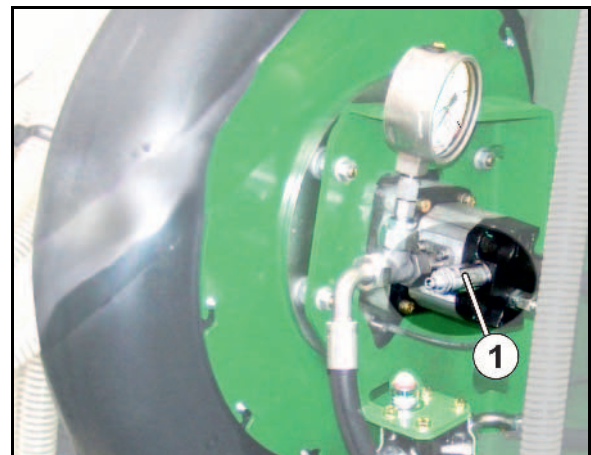


Fig. 94

8.5 Adjusting the placement depth of the seed

The placement depth can be set centrally for each coulter group via the crank (Fig. 100/1). The setting scale (Fig. 100/2) makes it possible to evenly adjust all coulter groups to each other. The arrow (Fig. 100/3) indicates the read-off edge.

Values from 0 to 5 can be set.

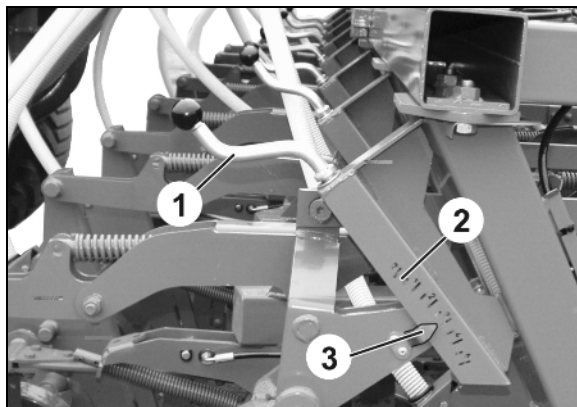


Fig. 95

8.6 Adjusting the duckfoot chisel to the placement depth

Adjust the pressure angle of the duckfoot chisels to the set placement depth.

1. Adjust the placement depth to a value greater than 0 cm of the seed using the crank.
2. Lower the coulters.
3. Loosen the bolts for the adjustment plate.
4. Turn the adjustment plates on both sides so that the desired surface is resting on the coulter body.
5. Tighten the bolts for the adjustment plate.
6. Perform the adjustment on all coulters.

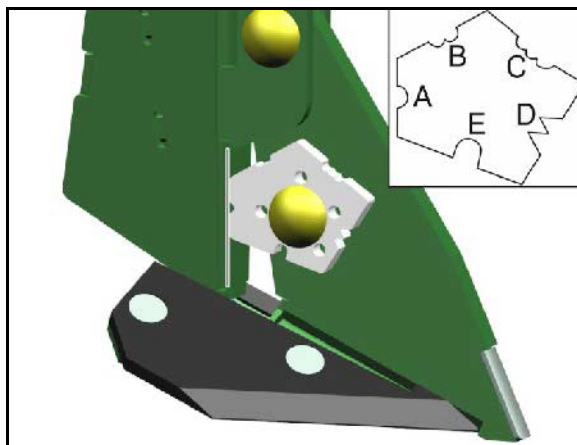


Fig. 96

Contact surface of the adjustment plate	Placement depth
A	As of 2.5 cm
B	1.5 - 2 cm
C	1 cm
D	0 - 1 cm
E	Do not select

8.7 Adjusting the double rollers

In addition to controlling the depth of the chisels, double rollers are also responsible for closing the sowing slot.

Double rollers can be adapted to the ground conditions by adjusting the setting angle between 0° and 32° .

- Set a larger angle for direct sowing.
- Set a smaller angle for mulch sowing.

Adjusting the double rollers

1. Undo both screw unions (Fig. 101/1) on a roller.
2. Swivel the roller to the desired angle.
3. Retighten both screw unions.
4. Repeat the operation on the second roller.

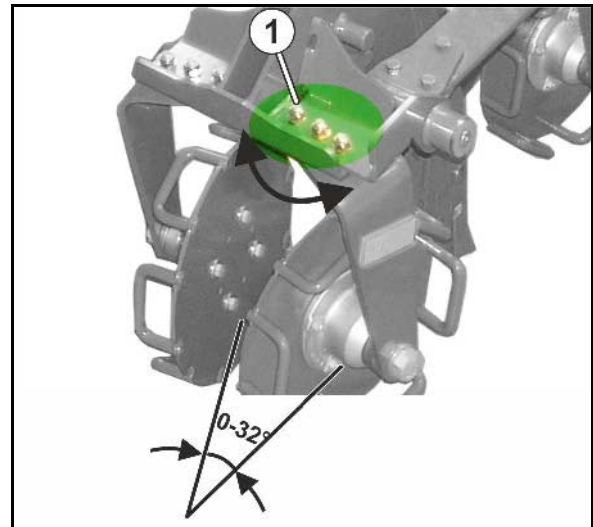


Fig. 97

8.8 Adjusting the track marker



WARNING

It is prohibited to stand in the swivelling area of the track marker boom.

8.8.1 Setting the track marker length (on the field)

1. Fold out the track marker on the field and drive for a few metres.
2. Secure the tractor / machine against unintentional start-up and rolling away
3. Undo the screws 1).
4. Set the track marker length to distance "A".
5. Tighten the screws.
6. Repeat the operation on the second track marker.



Set the track marker discs so that they are roughly parallel to the direction of travel on light soils and are in a more forward position on heavy soils.

The track markers mark a track in the centre of the tractor.

Distance A is measured

- from the centre of the machine
- up to the contact surface of the track marker disc.

Set both track markers to the same length.

Distance A: 6,0m

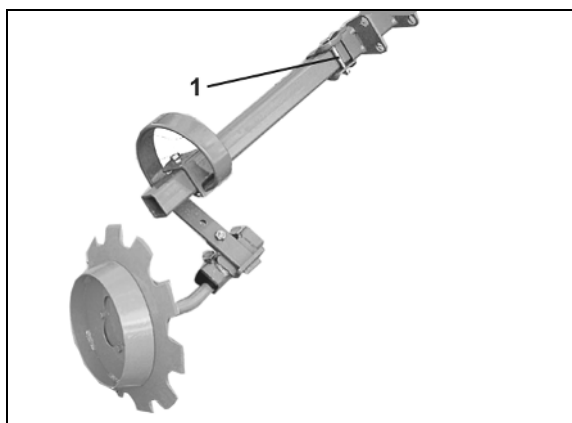


Fig. 98

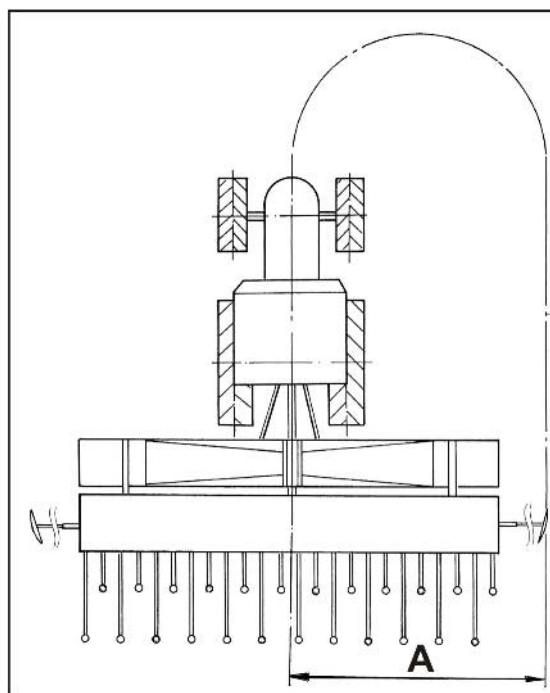


Fig. 99

8.8.2 Adjusting the working intensity of the track markers (DMC 602)

Adjusting the working intensity of the track markers:

1. Loosen both screws (1).
2. Turn the track marker discs to adjust the working intensity of the track markers so that they run roughly parallel to the direction of travel on light soils and are in a more forward position on heavy soils.
3. Tighten the screws.
4. Repeat the operation on the second track marker.

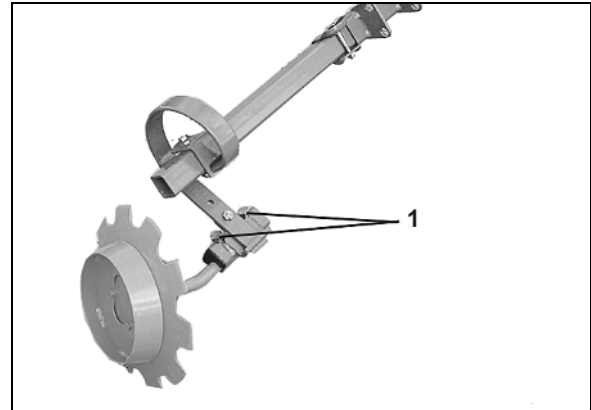


Fig. 100

8.8.3 Adjusting the working depth of the track markers

- Setting a greater working depth of the track markers: **Unscrew** the bolt (1) further and secure with nut.
- Setting a smaller working depth of the track markers: **Screw in** the bolt (1) further and secure with nut.

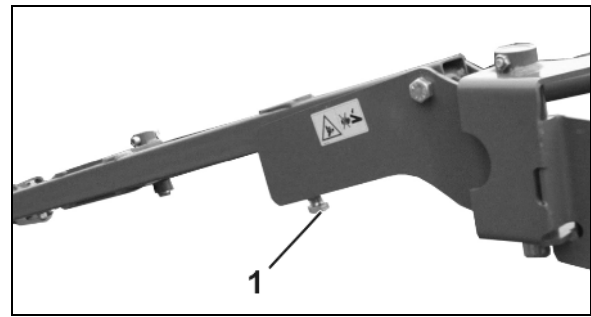


Fig. 101

8.9 Adjusting the exact harrow

- (1) Turnbuckle for tilt adjustment
- (2) Spacer elements for depth adjustment (optional)

Tilt adjustment:

1. Move the implement on the field into working position.
2. Apply the parking brake, switch the tractor engine off and remove the ignition key.
3. Loosen the lock nut.
4. Adjust the length by turning the turnbuckle.
5. Tighten the lock nuts when the adjustment is complete.

Depth adjustment:

1. Activate tractor control unit *yellow*.
- Move the implement into headland setting.
2. Use 0 -5 spacer elements on both sides, as necessary.

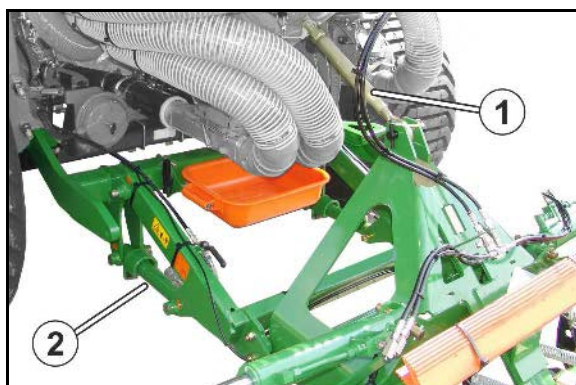


Fig. 102



Fig. 103

- (1) Parking position for spacer elements



Fig. 104

9 Transportation



- During transportation, follow the instructions given in the section "Safety instructions for the operator", page 27.
- Before moving off, check:
 - that the supply lines are connected correctly.
 - the lighting system for damage, proper operation and cleanness,
 - the braking and hydraulic systems for obvious defects.
 - that the parking brake is completely released
 - the function of the brake system.



WARNING

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

Carry out a visual check that the upper and lower link pins are firmly fixed with the linchpin against unintentional release.



WARNING

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

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



WARNING

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

- Drive in such a way that you always have full control over the tractor with the attached machine.
In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.
- Before transportation, fasten the side locking of the tractor lower link, so that the connected or coupled machine cannot swing back and forth.



WARNING

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

These risks pose serious injuries or death.

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



WARNING

Risk of falling from the machine if riding against regulations.

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

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



WARNING

Risk of stabbing other road users through machine parts extending out into the road area.

Cover any protruding parts on machines.

You must make protruding clearly visible if you cannot cover them easily.



WARNING

Risk of stabbing other road users during transportation from uncovered, sharp spring tines of the exact harrow on the central part of the machine pointing backwards.

Transportation without a correctly fitted transport guard rail is forbidden.



WARNING

Risk of accident when the brake power of the pneumatic brake system is not adjusted.

Adjust the brake force to the load state of the implement by adjusting the brake valve.



Switch the work lights (optional) off during transport to avoid blinding other motorists.

9.1 Placing the machine in the transport position



CAUTION

Before retracting the machine, fold the track marker into the transport position.

Switch the machine from the working position to the transport position (Fig. 109):

1. Actuate *green* tractor control unit.
- Fold the track marker into the transport position.
2. Move the stop tap to position **B**.
3. Actuate *yellow* tractor control unit.
- The coulter, exact harrow and drive wheel are raised.
4. Cover the exact harrow with road safety bars.
5. Secure the drive wheel in the transport position, see Seite 61.
- The exact harrow is secured in the transport position.
6. Move the ball valve to position **A**
7. Activate *yellow* tractor control unit.
- The booms are folded in.
8. Both stop taps: close the harrow folding.



Fig. 105

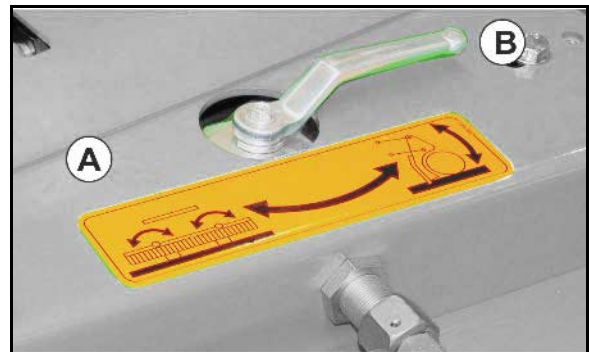


Fig. 106

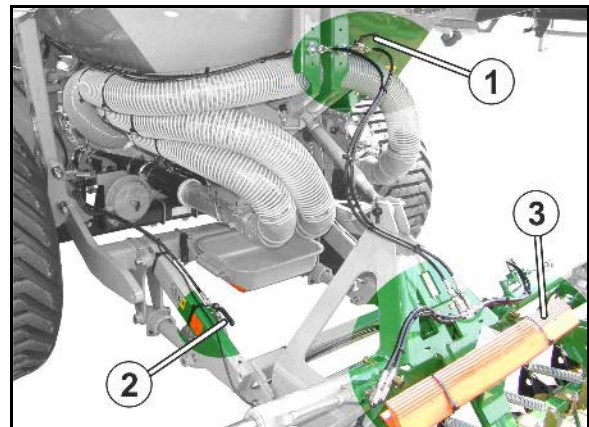


Fig. 107

10 Use of the machine



When using the machine, observe the information in the sections

- "Warning symbols and other labels on the machine" starting on page 16 and
- "Safety information for the user", starting on page 25 ff.

Observing this information is important for your safety.



WARNING

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

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



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 mounted or attached machine.



WARNING

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

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

Secure the tractor and the machine against unintentional start-up and rolling away before eliminating faults on the machine. See page 96.

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



WARNING

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

Every time before using the machine, carry out a visual check that the upper and lower link pins are firmly fixed with the linchpin against unintentional release.

**WARNING**

Risk of being crushed, caught or struck by damaged components or foreign objects ejected from the machine.

Observe the permissible machine drive speed before switching on the tractor universal joint shaft.

**WARNING**

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

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

**WARNING**

Risk of crushing, being caught or struck by objects ejected from the machine when it is being driven.

Instruct people to leave the danger area of the machine before switching on the universal joint shaft.

10.1 Filling the seed hopper

**WARNING**

Secure the tractor / machine against unintentional start-up and rolling away.

1. Couple the machine to the tractor.
2. Climb on the loading plate via the ladder.
3. Open the swivel cover.
4. If necessary, remove foreign bodies in the seed hopper.
5. Fill the seed hopper, e.g.
 - o with a filling auger from a supply vehicle
 - o from Big-Bags.
6. Close the swivel cover.

**DANGER**

Never move between the supply vehicle and the machine.

Never stand under suspended loads.

Observe the approved filling levels and total weights.



After use or before transport, move the ladder to the transport position and secure.



Filling with filling auger:

Before switching off the filling auger must run completely empty.

A start with a full auger could cause the whole system to fail.

10.2 Placing the machine in the working position

Change the machine from the transport position to the working position:



Fig. 108

1. Move the stop tap (1, 2) to position **A**
 2. The exact harrow is unlocked..
 3. Activate *yellow* tractor control unit.
- The booms and exact harrow are folded out.
4. Remove the road safety bars (Fig. 114/3).
 5. Move the stop tap to position **B**.
 6. Briefly activate *yellow* tractor control unit to relieve the drive wheel clamp.
 7. Unlock the drive wheel from the transport position, see Seite 61.
 8. Actuate *yellow* tractor control unit.
- Lower the coulters, exact harrow and drive wheel.
9. Actuate *green* tractor control unit.
- Fold out the desired track marker.

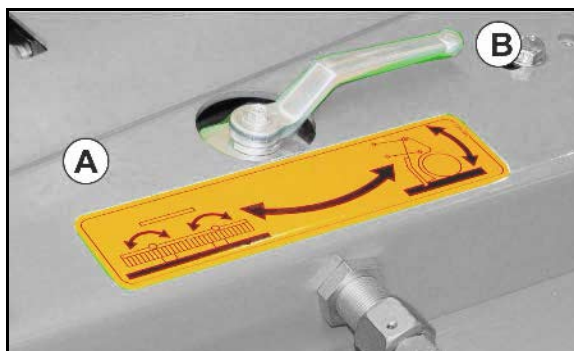


Fig. 109

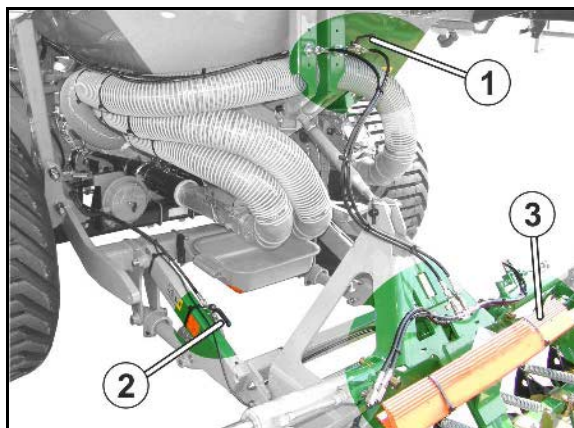


Fig. 110

10.3 Sowing operation



See the operating manual for the on-board computer.

Align the implement horizontally:

- Using the tractor lower link.
- If necessary, adjust the height of the coupling device.

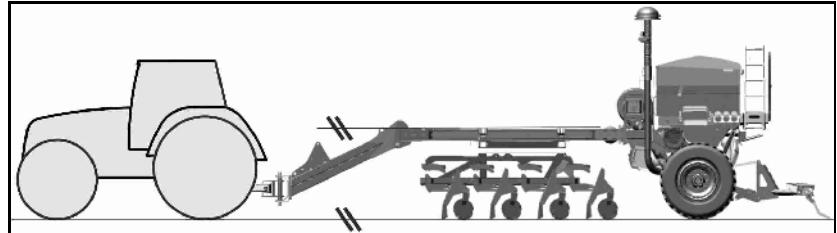


Fig. 111



WARNING

Excessive wear of the coulter suspension when the stone release is under constant strain can lead to failure of the implement!

- The stone release may only react to occasionally occurring obstacles on individual coulters.
- If the stone release is constantly reacting on all coulters:
 - Reduce the speed,
 - Reduce the placement depth,
 - Before seeding: Till the soil to a sufficient depth.



During seeding

- Keep the stop tap (Fig. 115) in Position **B**,
- Put the *yellow* tractor control unit into float position!
 - The coulters can deflect on obstacles in the soil.
 - The exact following harrow can adapt to the soil conditions.
 - The coulters and exact following harrow can be lifted at the headlands using the *yellow* control unit.



- Check if all components are in the working position.
- Check the seed and fertiliser lines.



If the lowered track marker is on the wrong side, fold the track marker in and out again.

→ Track marker position changes.

If the tramline counter is prevented from indexing during track marker actuation, press the STOP button (see on-board computer operating manual).



Before starting work, check that the correct tramline counter is displayed for the first field trip.

Dressed seed is extremely poisonous to birds.

The seed must be worked in fully and covered with earth.

When lifting out the coulters, ensure that the seed does not trickle out.

Remove spilt seed immediately.



CAUTION

On-board hydraulic system:

- Observe the maximum permissible PTO shaft speed of 1000 rpm!
- To avoid damage, only engage the PTO shaft slowly at low tractor engine speed!



Only actuate the tractor control units from the tractor cabin.



Check the distributor heads from the tractor seat from time to time for dirt deposits.

Deposits of dirt and seed remains can block up the distributor heads and have to be removed immediately.



Normally the metering drive moves easy. However, when water enters below the metering wheels compact, sticky mass of seed can develop which strongly brakes the movement of the metering wheels and by this brings excessive strain to the gear box or causes slippage at the crank wheel.

Therefore: From time to time (in moist weather conditions), turn crank wheel by hand and test it's free movement. If necessary open flap below metering wheels and remove moist mass of seed from below the metering wheels.

10.4 Headland

Before turning on headlands:

1. Actuate the *yellow* tractor control unit.
- Raise the track marker
2. Actuate the *yellow* tractor control unit.
- Raise the coulters, exact harrows, dosing is interrupted.

After turning:

1. Actuate the *yellow* tractor control unit.
- Sowing now continues.
2. Actuate the *green* tractor control unit.
- Lower the track marker

10.5 Emptying the dosing unit or hopper and dosing unit



Empty and carefully clean the fertiliser hopper daily after work! Remaining fertiliser can damage the metering unit.

Seed residues left in the metering unit can swell or germinate if the metering unit is not completely emptied!

This can cause blocking to the rotation of the metering wheels and damage to the drive!

Emptying the dosing unit or hopper and dosing unit:

1. Fasten the calibration trough(s) under the dosing unit(s).
 - o Calibration trough under the seed dosing unit..
 - o Calibration trough under the fertiliser dosing unit.

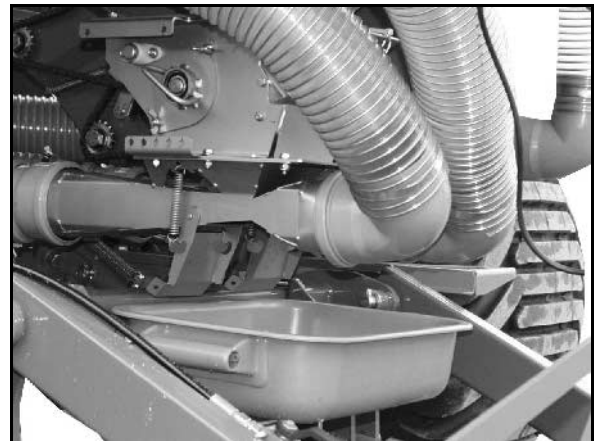


Fig. 112

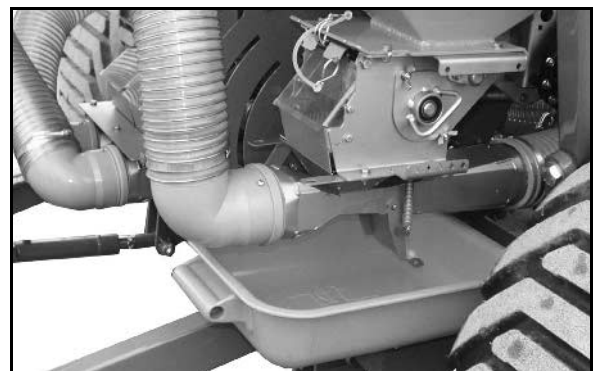


Fig. 113

Use of the machine

2. Close the slide (Fig. 118/1), if only the dosing unit and not the hopper is to be emptied (see Seite 104).

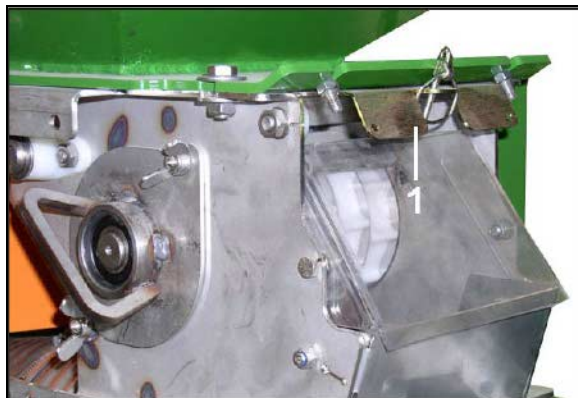


Fig. 114

3. Open the injector sluice flap (1) so that the seed/fertiliser can flow into the calibration trough.



CAUTION

Risk of contusions on opening and closing the injector sluice flap (1). Hold the injector sluice flap only by the lug (2), otherwise there is a danger of injury when the spring-loaded flap snaps shut.

Never insert your hand between the injector sluice flap and the injector sluice.

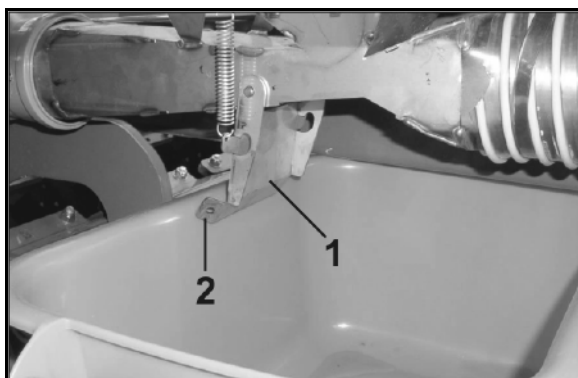


Fig. 115

4. Turn the drive wheel (1), as in the calibration test with the calibration crank, in the direction of the arrow until the dosing wheels and dosing unit are completely emptied.

For complete cleaning when there is a seed change, dismantle the dosing rollers (see Seite 104) and clean them together with the dosing unit.

1. Remove the metering roller (see page 104).
 2. Close the housing cover.
 3. Open the seed hopper opening by slowly pulling out the shutter on the metering unit.
- The seed drops into the calibration trough.
- For larger quantities, remove the calibration trough and allow the residues to trickle onto an underlay.
4. Reassembly occurs in the reverse sequence.

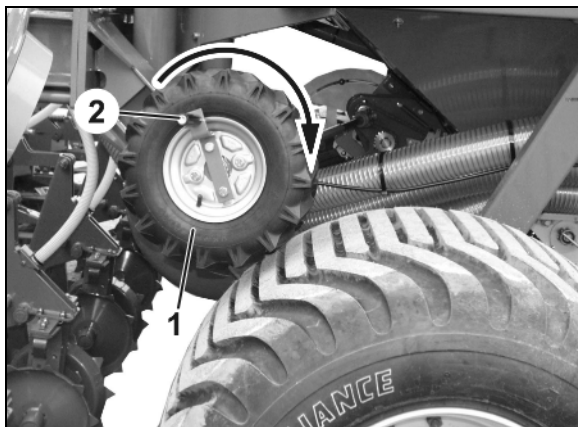


Fig. 116

The maintenance flap is used for checking and for removing residues in the hopper.

- (1) Maintenance flap
- (2) Thumb nut

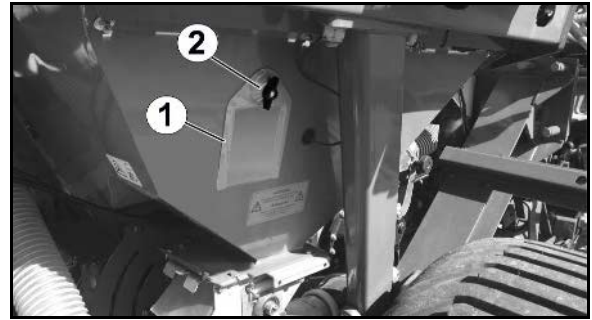


Fig. 117

11 Faults



WARNING

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

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

Secure the tractor and the machine against unintentional start-up and rolling away before eliminating faults on the machine. See page 96.

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

11.1 Errors in the dosing system

If the dosing roller is blocked by foreign bodies in the dosing unit, a plastic screw (Fig. 122/1) is sheared and the drive mechanism is interrupted to avoid causing damage.

→ The on-board computer reports the fault.

Eliminate the fault:

1. Bring the machine to a stop.
2. Remove the cause of the fault.
3. Remove the replacement screw (Fig. 122/2) from the bracket.
4. Restore drive mechanism with replacement screw.

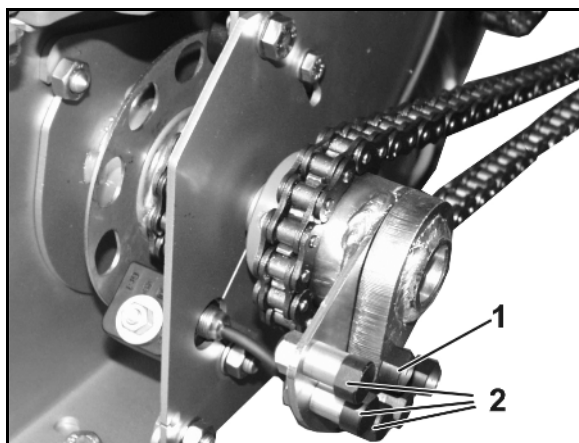


Fig. 118



For problem-free operation, only use genuine AMAZONE M8 plastic screws.

12 Cleaning, maintenance and repairs



WARNING

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

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

Secure the tractor and machine against unintentional start-up and rolling away before carrying out cleaning, maintenance or repair work on the machine; see page 96.



WARNING

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

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



DANGER

- Please note the safety instructions when carrying out maintenance and repair work, page 33.
- 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 your machine in good condition for a long time, and will prevent premature wear. Regular and proper maintenance is a requirement of our warranty conditions.
- Use only genuine AMAZONE spare parts (see "Spare and wear parts and aids" section, page 15).
- Use only genuine AMAZONE replacement hoses, and hose clamps made of V2A for assembly.
- Specialist knowledge is required for carrying out testing and maintenance operations. This specialist knowledge is not imparted here 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. Parts that come into contact with these lubricants are also affected by these legal requirements.
- Do not exceed a greasing pressure of 400 bar when greasing with high pressure grease guns.
- The following are absolutely prohibited:
 - drilling the chassis.
 - enlarging pre-existing drilled holes on the transport frame.
 - welding on load-bearing components.
- Protective measures are necessary, such as covering or removing lines in particularly critical locations
 - during welding, drilling and grinding work.
 - when working with cut-off wheels near plastic wires and electric wires.
- 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 work on the machine.

12.1 Cleaning



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

Cleaning with a pressure washer / steam jet



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

12.1.1 Cleaning the distributor head (workshop)



Clean distributor heads which have been soiled by residual seed immediately. Deposits of dirt on the distributor heads could influence the sowing rate.

Clean the distributor head:

1. Bring the machine to a stop.
2. Fold out the machine (see Seite 122).
3. Apply the handbrake, switch the tractor engine off and remove the ignition key.



WARNING

The distributor head is located at the centre of the machine.

Apply the handbrake, switch the tractor engine off and remove the ignition key.

Before approaching, clean the path to the distributor head and the area of the distributor head (danger of slippage).

There is the risk of an accident on the path to the distributor head and in the area of the distributor head.

4. Slacken the winged nuts (1) and remove the clean plastic flap (2) from the distributor head.
5. Remove any impurities with a brush, and wipe out the distributor head and plastic cap with a dry cloth.
6. Install the plastic cap (2).
7. Fix the plastic cap with winged nuts (1).

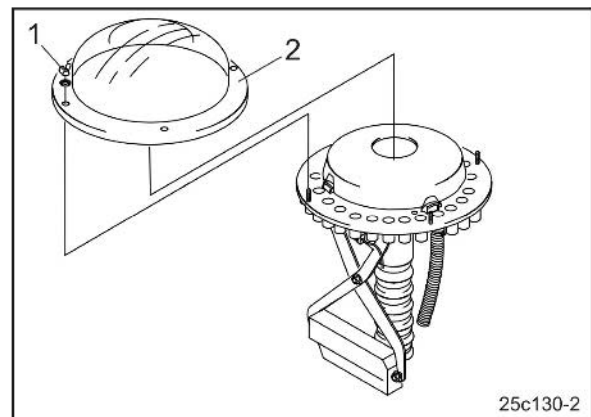


Fig. 119

12.1.2 Interior tank cleaning

For cleaning the tank interior using water, proceed as follows:

1. Open calibration flap.
2. Clean the tank.
3. Close the calibration flap.
4. Operate the fan and blow out water that has accumulated.

12.2 Lubrication specifications (workshop work)



Lubricate all grease nipples (keep gaskets clean).

Lubricate / grease the machine at the specified intervals.

Lubrication points on the machine are indicated with the foil sticker (Fig. 124).

Carefully clean the lubrication points and grease gun before lubrication so that no dirt is pressed into the bearings.

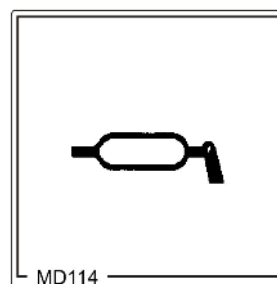


Fig. 120

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

12.2.1 Lubrication point overview

Fig. 125	Lubrication point	Interval		Quantity
		1x in the season	every 100 h	
(1)	Hydraulic cylinder for folding the sections	X		8
(2)	Drawbar	X		4
(3)	Markers	X		4
(4)	Coulter	X	X	5 / Coulter
(5)	Hydraulic cylinder for harrow sections			6
(6)	Brake shaft bearing	X		2
(7)	Renew wheel hub bearing grease, check taper roller bearings for wear	X		2

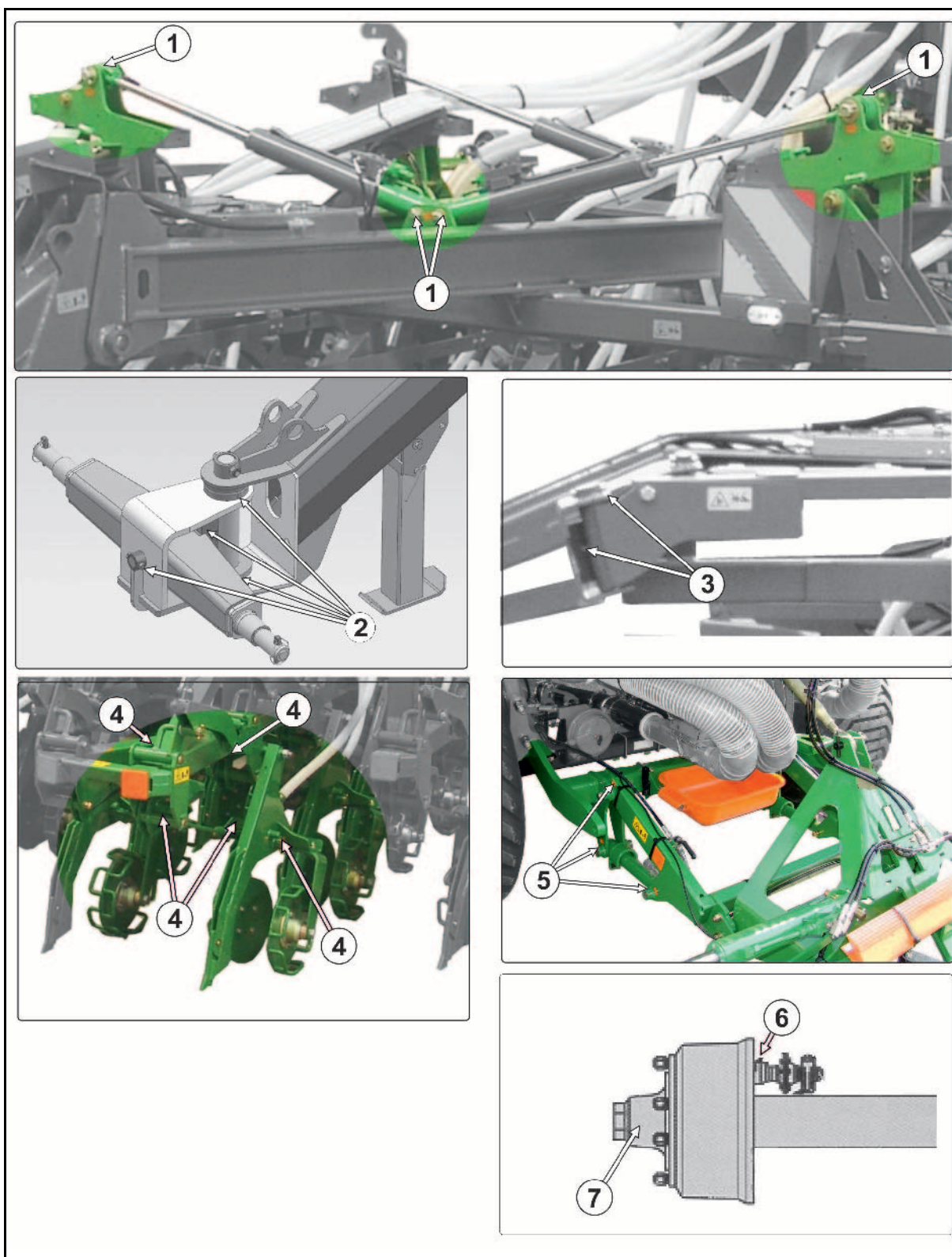


Fig. 121

12.2.2 Lubricating axles

Brake shaft bearing, outer and inner

**CAUTION**

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

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 proper operation and replace worn parts.
The interior of the brake must be kept free from lubricants and dirt deposits.
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 seats and then refit all parts in the reverse order. Carefully fit interference fit parts using tubular bushings without twisting or damaging them.
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.

12.3 Service plan – overview



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

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.

After the first working run

Component	Maintenance work	see page	Specialist workshop
Wheels	• Wheel nut check	146	X
	• Check for play in the wheel hub bearing	139	
Hydraulic system	• Check for defects	136	
	• Check for leak tightness		

On a daily basis

Component	Maintenance work	see page	Specialist workshop
Whole implement	• Check for visible defects		
Air reservoir	• Drain	141	

Weekly / every 50 working hours

Component	Maintenance work	see page	Specialist workshop
Hydraulic system	• Check for defects	136	X
	• Visual check of the oil filter for blockage		
Wheels	• Check the air pressure.	146	
Coupling device	• Check for damage, deformation and cracks	145	

Every three months / 200 operating hours

Component	Maintenance work	see page	Specialist workshop
Parking brake	<ul style="list-style-type: none"> Check the braking effect with the brake applied 	144	
Dual-circuit service brake system	<ul style="list-style-type: none"> Inspection according to check instructions Joints on brake valves, brake cylinders and brake linkages Brake settings on the linkage adjuster Brake pad check 	143 140	X
Wheels	<ul style="list-style-type: none"> Check play on wheel hub bearings 	139	X
Coupling device	<ul style="list-style-type: none"> Check the fastening bolts for wear and tight fit 	145	

Annually / 1,000 operating hours

Component	Maintenance work	see page	Specialist workshop
Brake drum	<ul style="list-style-type: none"> Check for dirt 	139	X
Brake	Automatic slack adjuster: <ul style="list-style-type: none"> Functional check Brake settings 	141	X

Every 2 years / 2000 operating hours

Component	Maintenance work	see page	Specialist workshop
On-board hydraulics	<ul style="list-style-type: none"> Changing the oil 	150	X

12.4 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 adjustment or repair work on the braking system

General visual inspection



WARNING

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

- Pipe lines, hose lines and coupler heads must not be externally damaged or 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 (Fig. 126/1) 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 shoes (Fig. 126/2) thereby appreciably reducing braking performance.

Risk of accident.

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

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

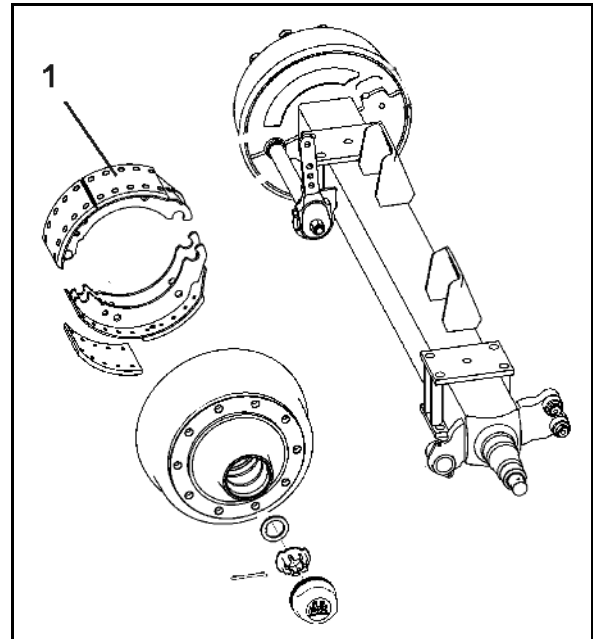


Fig. 122

Check wheel hubs bearing play

To check the play on wheel hub bearings, raise the axle until the wheels turn freely. Release the brake. 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 lynch pin from the axle nut.
3. Tighten the wheel nut while turning the wheel at the same time until the wheel hub is lightly braked as it turns.
4. Turn axle nut back to the next available lynch pin hole. To the next matching hole (max. 30°).
5. Fit the lynch pin and bend slightly open.
6. Reload dust cap with high melting point grease and drive it into, or screw it onto the wheel hub.

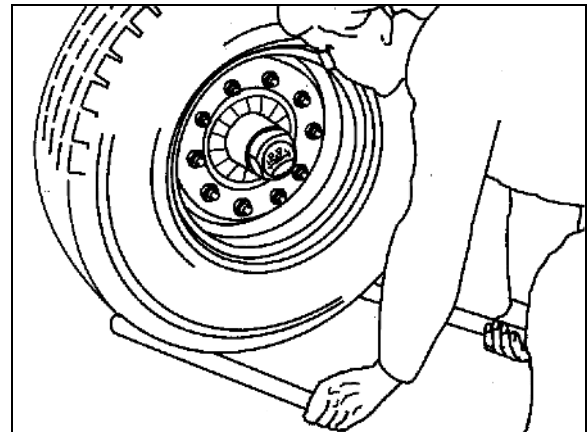


Fig. 123

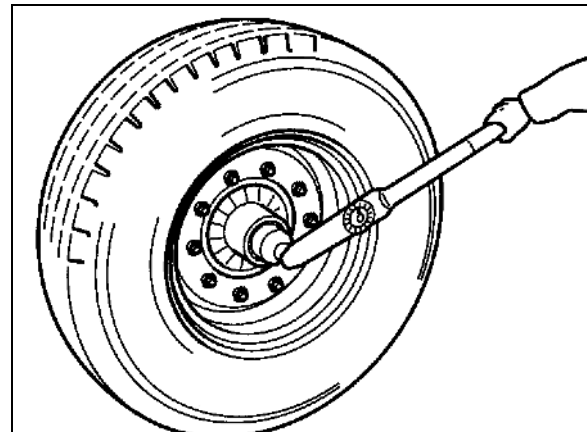


Fig. 124

Brakepad 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.

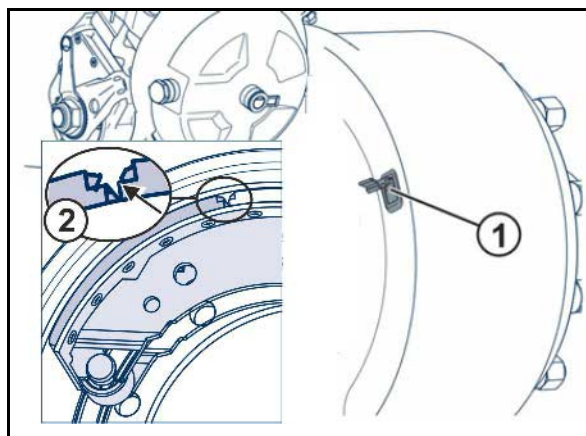


Fig. 125

Adjustment on the slack adjuster (workshop work)

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

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

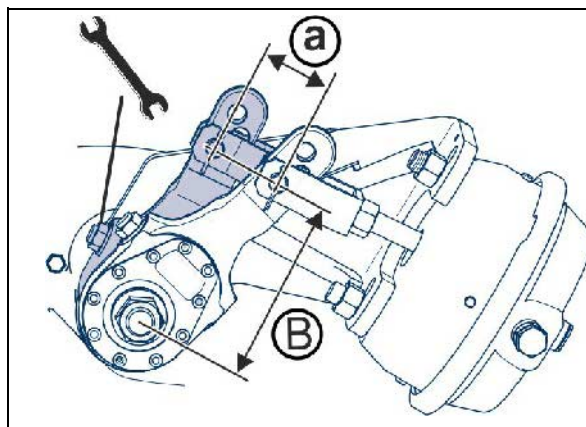


Fig. 126

Adjustment on the automatic slack adjuster

The basic setting is carried out in the same way as for the standard slack adjuster. Readjustments are made automatically at a cam rotation of approx. 15°.

The ideal lever position (which cannot be altered due to the attachment of the cylinder) is approx. 15° before perpendicularity, and the same in the actuation direction.

Checking the function of the automatic slack adjuster

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

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

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

→ Workshop work

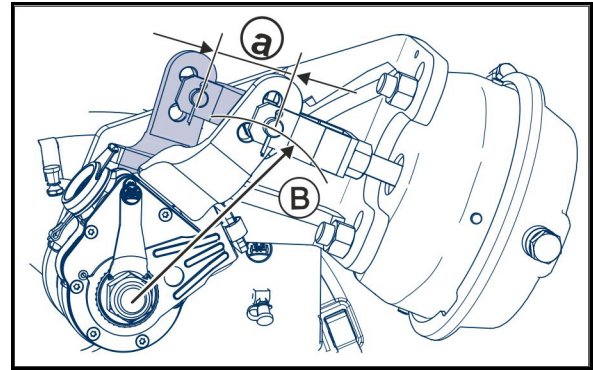


Fig. 127

Air reservoir

1. Pull the drain valve (Fig. 132/1) in a side-ways 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 deposits.

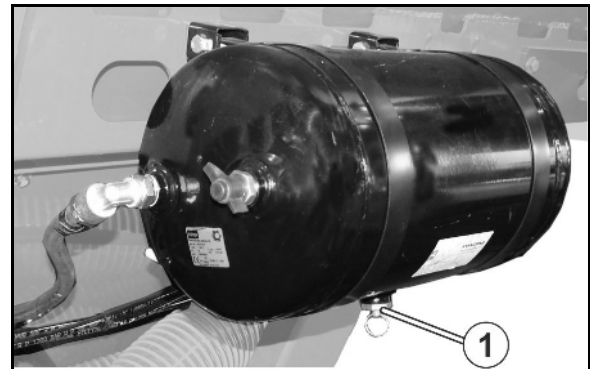


Fig. 128

Cleaning the line filter



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

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



The unit is under spring tension.

4. Remove the rubber seal.

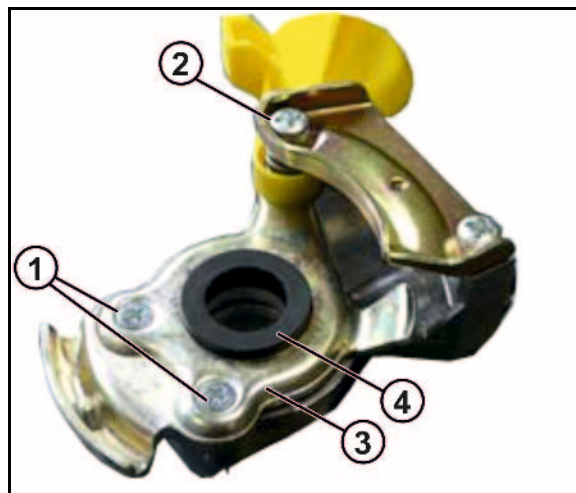


Fig. 129

5. Clean and grease the sealing surfaces, O-ring and filter.
- Replace the rubber seal if necessary.

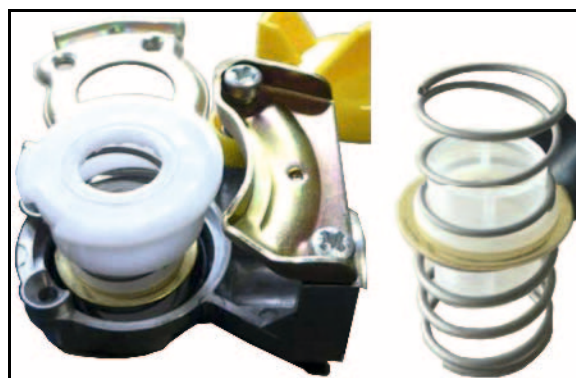


Fig. 130



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

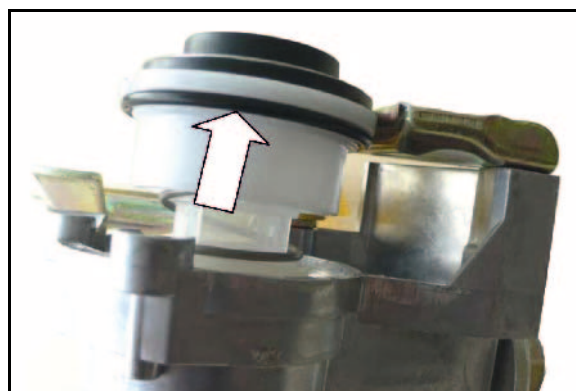


Fig. 131

12.4.1 Inspection instructions for the dual circuit service brake system

1. Leak tightness check

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

2. Checking the pressure in the air reservoir

1. Connect a pressure gauge to the test connection on the air reservoir.
Set value 6.0 to 8.1 + 0.2 bar

3. Checking the brake cylinder pressure

1. Connect a pressure gauge to the test connection on the brake cylinder.
Set value: with brake not applied 0.0 bar

4. Visual inspection of 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.

12.5 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.

Adjusting the parking brake



When the parking brake is off, the brake cable must hang slightly slack. However, the brake cable must not rest on or chafe against other parts of the vehicle.

1. Release the cable clamps.
2. Shorten the brake cable as appropriate and retighten the cable clamps.
3. Check for the correct braking effect from the parking brake when applied.

12.6 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)	36.5 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)	51.5 mm	M16 12.9	4	340 Nm
D50 (LI010)	51.5 mm	M16 10.9	8	300 Nm
D50 (LI012)	51.5 mm	M20 10.9	4	540 Nm
D50 (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
D50 (LI030)	52.5 mm	M20 8.8	8	395 Nm
D51 (LI039)	53 mm	M20 10.9	12	600 Nm
D51 (LI069)	53 mm	M16 10.9	6	290 Nm
D58 (LI031)	60 mm	M20 10.9	12	550 Nm
D62 (LI007)	63.5 mm	M20 10.9	8	590 Nm
D79 (LI021)	81 mm	M20 10.9	12	550 Nm

12.7 Tyres / wheels



- Required tightening torque for wheel nuts or bolts:
450 Nm



- Regularly check
 - wheel nuts for firm seating.
 - tyre pressures.
- Only use the tyres and wheels which we have specified (see page 41).
- Repair work on tyres must only be carried out by specialists using suitable assembly tools.
- Tyre fitting requires sufficient skills and proper assembly tools.
- Use the jack only at the jacking points indicated.

12.7.1 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.
- 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.

12.7.2 Fitting tyres



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

12.8 Hydraulic system



WARNING

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

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

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

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



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

12.8.1 Labelling hydraulic hose lines

The assembly labelling provides the following information:

Fig. 136/...

- (1) Manufacturer's marking on the hydraulic hose line (A1HF)
- (2) Date of manufacture of hydraulic hose line (04 / 02 = year / month = February 2004)
- (3) Maximum approved operating pressure (210 BAR).

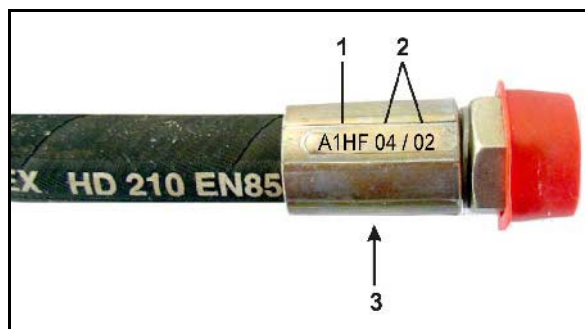


Fig. 132

12.8.2 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.

12.8.3 Inspection criteria for hydraulic hose lines



For your own safety, comply with 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).
- Untight 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 fitting 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

12.8.4 Installation and removal of hydraulic hose lines



Use

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



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

- Ensure cleanliness.
- You must always install the hydraulic lines so that, in all states of operation:
 - There is no tension, apart from the hose's own weight.
 - There is no possibility of jolting on short lengths.
 - Outer mechanical influences on the hydraulic hose lines are avoided.
Use appropriate arrangements and fixing to prevent any scouring of the hoses on components or on each other. If necessary, secure hydraulic hose lines using protective covers. Cover sharp-edged components.
 - The approved bending radii may not be exceeded.
- When connecting a hydraulic hose line to moving parts, the hose length must be appropriate so that the smallest approved bending radius is not undershot over the whole area of movement and/or the hydraulic hose line is not overtensioned.
- Fix the hydraulic hose lines to the intended fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- It is forbidden to paint over hydraulic hose lines.

12.9 On-board hydraulics

- Change the oil of the on-board hydraulics. (Required oil volume: 32 – 35 litres.) Pay attention to the mark on the oil dipstick (A / B).
- Replace the oil filter set.
 1. Place a suitable container under the drain valve (Fig. 137/1) (capacity of at least 35 litres).
 2. Release and remove the oil dipstick (1).
 3. Undo the drain plug.
 - Old oil flows out of the oil tank.
 4. Check the seal on the drain plug and replace if necessary.
 5. Retighten the drain plug.
 6. Loosen the 3 screws on the oil filter (1), replace the oil filter insert.
 7. Fill the oil via the opening for the oil dipstick.
 8. Screw the oil dipstick and seal back in and check the oil level.

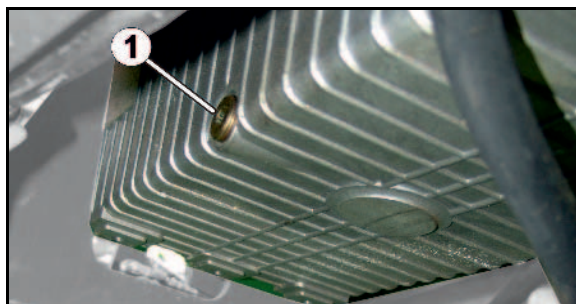


Fig. 133

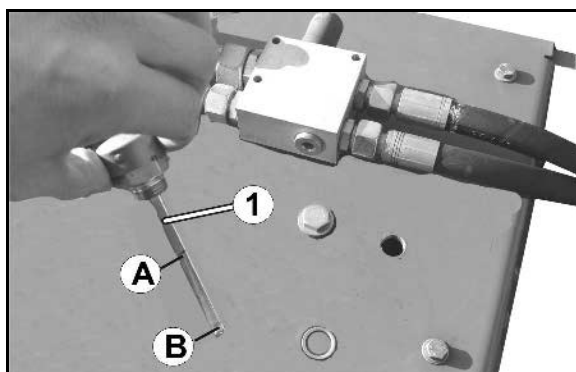


Fig. 134

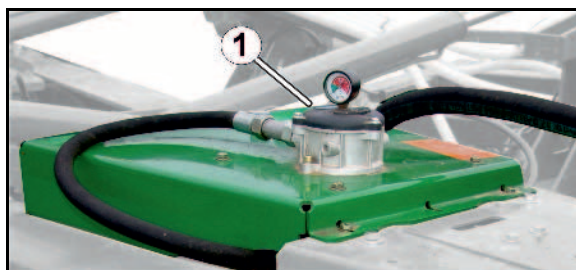


Fig. 135



CAUTION

After use, the oil can become very hot. Danger of burning.



Only use HLP22 hydraulic fluid.

12.9.1 Checking the hydraulic fluid filter

The oil filter can only be checked during oil circulation.

- Green Filter fully functional
- Red Replace filter

Hydraulic fluid filter (1) with contamination indicator(2).

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

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

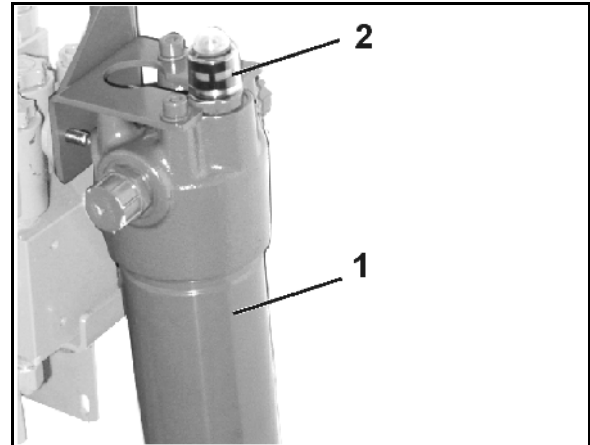
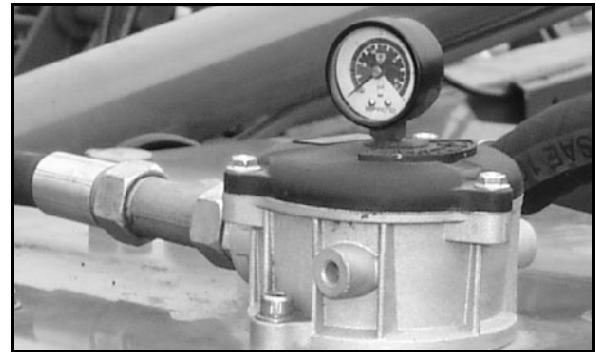


Fig. 136

On-board hydraulic system oil filter with contamination level indicator.



12.10 Upper and lower link pins



WARNING

Risk of contusions, catching, and knocks when the machine unexpectedly releases from the tractor.

Check the upper and lower link pins for visible damage each time you couple the machine. Replace the upper and lower link pins in the event of clearly visible wear.

12.11 Checking the oil level in the Vario gearbox

There is no need to change the oil.

Checking the oil level in the Vario gearbox:

1. Position the machine on a horizontal surface.
2. The oil level must be visible in the oil sight glass (1).
3. Check the gearbox for leak points.
4. If there are any leak points, have the Vario gearbox repaired in a specialist workshop.
5. Refer to the table for the requisite type of transmission oil.
6. Fill the Vario gearbox through the oil filler neck (2) up to the oil sight glass with transmission oil.
7. After filling, close the oil filler neck with the cap.

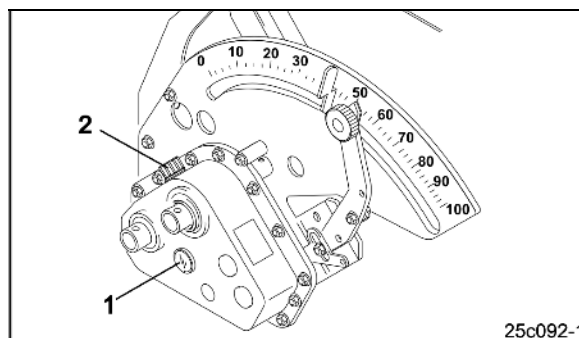


Fig. 137

Hydraulic fluid grades and fill level of the Vario gearbox	
Total filling level:	0.9 litres
Transmission fluid (alternatives):	Wintershall Wintal UG22 WTL-HM (ex-works)
	Fuchs Renolin MR5 VG22

12.12 Setting the tramline to the tractor's track spacing (specialist workshop)

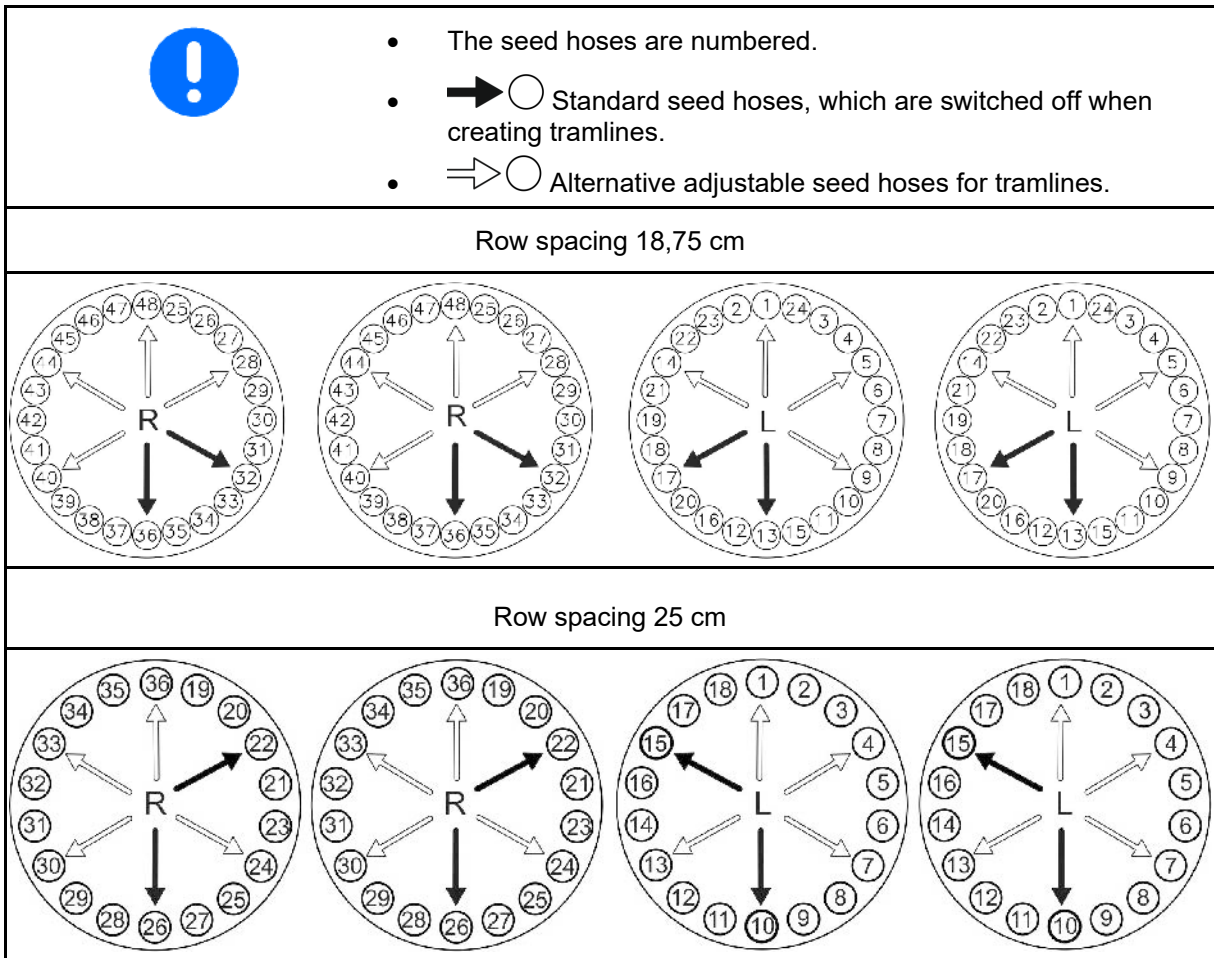


Fig. 138

When the implement is delivered or when buying a new cultivating tractor, check that the tramline set in the distributor head is adjusted for the track width of the tractor.

Standard setting for seed hoses 1, 9, 24, 32 that can be closed when creating tramlines

Check whether the tramline control is properly set for the track width of the cultivating tractor:

- The seed line tubes (1) of the tramline coulters must be attached to the distributor head openings, which can be closed by the shutters (2).
If necessary, interchange the seed line tubes.
- The wheelmark width changes with the number of coulters that do not spread seed when the tramlines are created.
To create two tracks, it is possible to close the following in the distributor head (2) for each track.
 - up to 6 openings
- Deactivate shutters (2) that are not required.

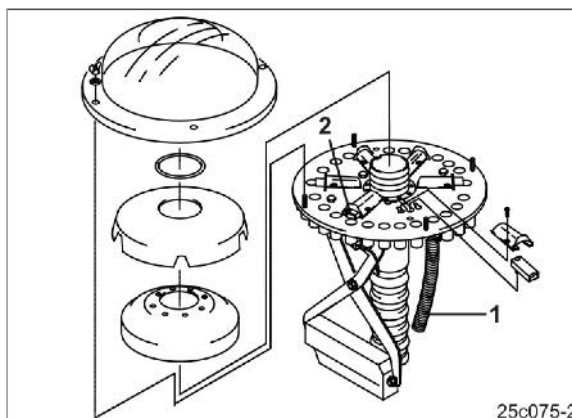


Fig. 139

12.12.1 Adjusting the track (activate or deactivate the sliders)

The track of the tramline increases if the number of tramline coulters arranged next to each other increases.

Six tramline coulters can be connected to one distributor head.

The sliders close the feed lines to the tramline coulters.

Deactivate the sliders (Fig. 145/2) when they are not used. Deactivated sliders do not close the feed lines to the tramline coulters.

Always activate or deactivate pairs of sliders positioned opposite each other on the base plate.



WARNING

The distributor head is located at the centre of the machine.

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

Before approaching, clean the path to the distributor head and the area of the distributor head (danger of slippage).

There is the risk of an accident on the path to the distributor head and in the area of the distributor head.

Activating or deactivating sliders:

1. Remove the outer distributor cover (1).
2. Remove the ring (2).
3. Remove the inner distributor cover (3).
4. Remove the foam insert (4).

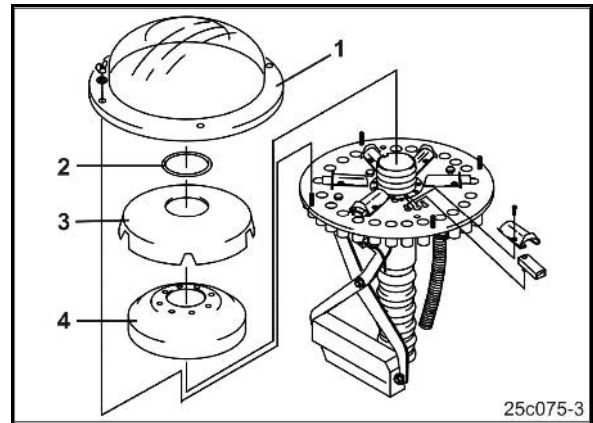


Fig. 140

5. Slacken the screws (1).
6. Remove the slider tunnel (2).

Activating the sliders:

7. The slider (3) is in the guide, as shown in the diagram.

Deactivating the sliders:

8. Turn the sliders around (3) and push them into the drill hole (4).
9. Screw the slider tunnel (2) onto the base plate.

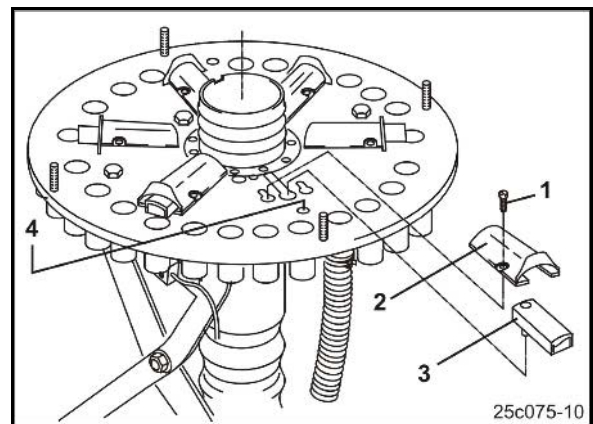


Fig. 141

10. Install the foam insert (1).
11. Install the inner distributor cover (2).
12. Install the ring (3).
13. Install the outer distributor cover (4).
14. Check the function of the tramline circuit.

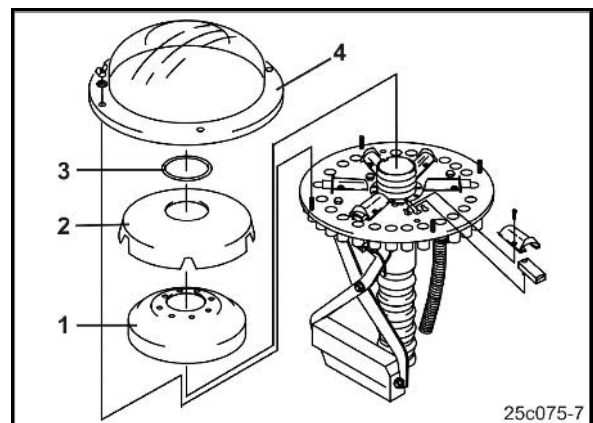
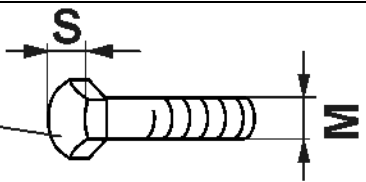

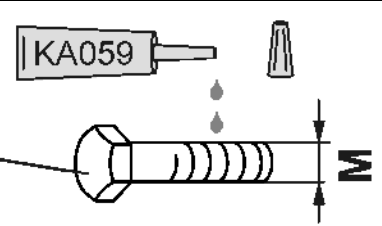



Fig. 142

12.13 Bolt tightening torques

<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> 8.8 10.9 12.9 </div>  </div>				
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

<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> A2-70 A4-70 </div>  </div>												
M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
 Nm	2,3	4,6	7,9	19,3	39	66	106	162	232	326	247	314



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