

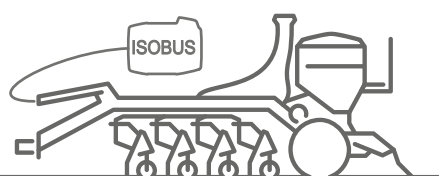


Translation of the original operating instructions

Trailed seed drill

Primera DMC 3000

Primera DMC 4500



SmartLearning



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

Maschinen-Nr.

Fahrzeug-Ident-Nr.

Produkt

zul. technisches Maschinengewicht kg Modelljahr

Please enter the identification data of the implement. The identification data can be found on the rating plate.



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About this operating manual

1

CMS-T-00000081-I.1

1.1 Copyright

CMS-T-00012308-A.1

Reprinting, translation and reproduction in any form, including excerpts, require the written approval of AMAZONEN-WERKE.

1.2 Diagrams

CMS-T-005676-F.1

1.2.1 Warnings and signal words

CMS-T-00002415-A.1

Warnings are marked with a vertical bar with a triangular safety symbol and the signal word. The signal words "*DANGER*", "*WARNING*" or "*CAUTION*" describe the severity of the potential danger and have the following meanings:



DANGER

- Indicates a direct threat with high risk for severe physical injury, such as loss of limbs or death.



WARNING

- Indicates a possible threat with moderate risk for severe physical injury or death.



CAUTION

- Indicates a threat with low risk for light or moderately severe physical injuries.

1.2.2 Further instructions

CMS-T-00002416-A.1



IMPORTANT

- Indicates a risk for damage to the implement.



ENVIRONMENTAL INFORMATION

- Indicates a risk for environmental damage.



NOTE

Indicates application tips and instructions for optimal use.

1.2.3 Instructions

CMS-T-00000473-D.1

1.2.3.1 Numbered instructions

CMS-T-005217-B.1

Actions that have to be performed in a specific sequence are represented as numbered instructions. The specified sequence of the actions must be observed.

Example:

1. Instruction 1
2. Instruction 2

1.2.3.2 Instructions and responses

CMS-T-005678-B.1

Reactions to instructions are marked with an arrow.

Example:

1. Instruction 1
- ➡ Reaction to instruction 1
2. Instruction 2

1.2.3.3 Alternative instructions

CMS-T-00000110-B.1

Alternative instructions are introduced with the word "or".

Example:

1. Instruction 1

or

Alternative instruction

2. Instruction 2

1.2.3.4 Instructions with only one action

CMS-T-005211-C.1

Instructions with only one action are not numbered, but rather shown with a arrow.

Example:

► Instruction

1.2.3.5 Instructions without sequence

CMS-T-005214-C.1

Instructions that do not require a specific sequence are shown as a list with arrows.

Example:

► Instruction

► Instruction

► Instruction

1.2.3.6 Workshop work

CMS-T-00013932-B.1



WORKSHOP WORK

- Identifies maintenance work that must be performed at a workshop that is adequately equipped in terms of agricultural technology, safety and environmental technology by specialist personnel with appropriate training.

1.2.4 Lists

CMS-T-000024-A.1

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

Example:

- Point 1
- Point 2

1.2.5 Item numbers in figures

CMS-T-000023-B.1

A framed number in the text, e.g. a 1, indicates an item number in an adjacent figure.

1.2.6 Direction information

CMS-T-00012309-A.1

Unless otherwise specified, all directions are always seen in the direction of travel.

1.3 Other applicable documents

CMS-T-00000616-B.1

A list of other applicable documents can be found in the Appendix.

1.4 Digital operating manual

CMS-T-00002024-B.1

The digital operating manual and e-learning can be downloaded from the Info Portal on the AMAZONE website.

1.5 Your opinion is important

CMS-T-000059-D.1

Dear reader, our documents are updated on a regular basis. Your suggestions for improvement help us to create ever more user-friendly documents. Please send us your suggestions by post, fax or email.

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CMS-I-00000638

Safety and responsibility

2

CMS-T-00010771-B.1

2.1 Basic safety instructions

CMS-T-00010772-B.1

2.1.1 Meaning of the operating manual

CMS-T-00006180-A.1

Observe the operating manual

The operating manual is an important document and a part of the implement. It is intended for the user and contains safety-related information. Only the instructions provided in the operating manual are reliable. If the operating manual is not observed, it can result in serious injury or death.

- ▶ The safety section must be completely read and observed before initial operation of the implement.
- ▶ Before starting work, also read and observe each section of the operating manual.
- ▶ Keep the operating manual in a safe place.
- ▶ Keep the operating manual available.
- ▶ Hand over the operating manual to the subsequent user.

2.1.2 Safe operating organisation

CMS-T-00002302-D.1

2.1.2.1 Personnel qualification

CMS-T-00002306-B.1

2.1.2.1.1 Requirements for persons working with the implement

CMS-T-00002310-B.1

If the implement is used improperly, people can be injured or killed: To prevent accidents due to improper use, every person who works with

the implement must meet the following minimum requirements:

- The person is physically and mentally capable of checking the implement.
- The person can safely perform work with the machine within the scope of this operating manual.
- The person understands the functioning of the machine within the scope of their work and can recognise and prevent dangers arising during operation.
- The person had understood the operating manual and can implement the information that is conveyed in the operating manual.
- The person must be familiar with safe driving of vehicles.
- For road travel, the person knows the relevant road traffic regulations and has the prescribed driving permit.

2.1.2.1.2 Qualification levels

CMS-T-00002311-A.1

For working with the machine, the following qualification levels are provided:

- Farmer
- Agricultural helper

As a matter of principle, the activities described in this operating manual can be performed by persons with the qualification level "Agricultural helper".

2.1.2.1.3 Farmer

CMS-T-00002312-A.1

Farmers use agricultural implement to cultivate fields. They decide on the use of an implement for a specific purpose.

Farmers are basically familiar with working with agricultural implements and can instruct agricultural helpers in how to use the implements if necessary. They can perform odd tasks and simple maintenance and repair work on agricultural implements themselves.

Farmers can be e.g.:

- Farmers with higher education or training from a technical college
- Farmers by experience (e.g. inherited farm, comprehensive practical knowledge)
- Contractors who work by order of farmers

Activity example:

- Safety training for agricultural helpers

2.1.2.1.4 Agricultural helpers

CMS-T-00002313-A.1

Agricultural helpers use agricultural implements by order of the farmer. They are instructed on the use of the implement by the farmer, and work independently according to the work assignment from the farmer.

Agricultural helpers can be e.g.:

- Seasonal workers and labourers
- Prospective farmers in training
- Employees of the farmer (e.g. tractor driver)
- Family members of the farmer

Activity examples:

- Driving the machine
- Adjusting the working depth

2.1.2.2 Workplaces and passengers

CMS-T-00002307-B.1

Passengers

Passengers can fall, be run over and severely injured or killed due to machine movements. Ejected objects can hit and injure passengers.

- ▶ Do not let anybody ride on the machine.
- ▶ Do not let anybody climb onto the driving machine.

2.1.2.3 Danger for children

CMS-T-00002308-A.1

Danger for children

Children cannot assess dangerous situations and can behave unpredictably. As a result, children are at a higher risk.

- ▶ Keep children away.
- ▶ *When you drive out or actuate machine movements,*
make sure that there are no children in the danger area.

2.1.2.4 Operational safety

CMS-T-00002309-D.1

2.1.2.4.1 Perfect technical condition

CMS-T-00002314-D.1

Only use properly prepared machines

Without correct preparation according to this operating manual, operational safety of the machine is not ensured. This can result in accidents and serious personal injury or even death.

- ▶ Prepare the machine according to this operating manual.

Danger due to damage to the machine

Damage to the machine can impede the operational safety of the machine and cause accidents. This can result in serious injury or death.

- ▶ *If you suspect or observe damage:*
Secure the tractor and machine.
- ▶ Repair safety-relevant damage immediately.
- ▶ Fix the damage according to this operating manual.
- ▶ *If you are not able to fix the damage according to this operating manual yourself:*
Have the damage repaired by a qualified specialist workshop.

Observe the technical limit values

Non-observance of the technical limits values of the machine can result in accidents and serious personal injury or even death. Moreover, the machine can be damaged. The technical limit values can be found in the Technical Data.

- ▶ Comply with the technical limit values.

2.1.2.4.2 Personal protective equipment

CMS-T-00002316-B.1

Personal protective equipment

Wearing personal protective equipment is an important safety element. Missing or unsuitable personal protective equipment increases the risk of damage to health and personal injury. Personal protective equipment includes: work gloves, safety shoes, protective clothing, breathing protection, hearing protection, face protection, and eye protection

- ▶ Determine the personal protective equipment required for each job and have it ready.
- ▶ Use only protective equipment that is in proper condition and offers effective protection.
- ▶ Adjust the personal protective equipment to the person, e.g. the size.
- ▶ Observe the manufacturer's instructions regarding operating materials, seed, fertiliser, crop protection products, and cleaning agents.

Wear suitable clothing

Loosely worn clothing increases the risk of getting caught or entangled on rotating parts and getting stuck on protruding parts. This can result in serious injury or death.

- ▶ Wear close-fitting, snag-free clothes.
- ▶ Never wear rings, necklaces and other jewellery.
- ▶ *If you have long hair,*
wear a hairnet.

2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

Keep warning symbols legible

Warning symbols on the machine warn you of risks in danger areas and are an important element of the machine's safety equipment. Missing warning symbols increase the risk of serious and lethal personal injury.

- ▶ Clean dirty warning symbols.
- ▶ Immediately replace any damaged and illegible warning symbols.
- ▶ Put the intended warning symbols on spare parts.

2.1.3 Knowing and preventing dangers

CMS-T-00010773-A.1

2.1.3.1 Safety hazards on the machine

CMS-T-00004924-B.1

Liquids under pressure

Escaping high pressure hydraulic fluid can penetrate into the body through the skin and cause serious personal injuries. A hole the size of a needle can already result in serious personal injuries.

- ▶ *Before you uncouple the hydraulic hose lines or check for damage,*
depressurise the hydraulic system.
- ▶ *If you suspect damage on a pressure system,*
have the pressure system checked by a qualified specialist workshop.
- ▶ Never look for leaks with your bare hands.
- ▶ Keep your body and face away from leaks.
- ▶ *If liquids penetrate the body,*
consult a doctor immediately.

2.1.3.2 Danger areas

CMS-T-00010774-A.1

Dangers areas on the implement

The following basic dangers are encountered in the danger areas:

The implement and its work tools move during operation.

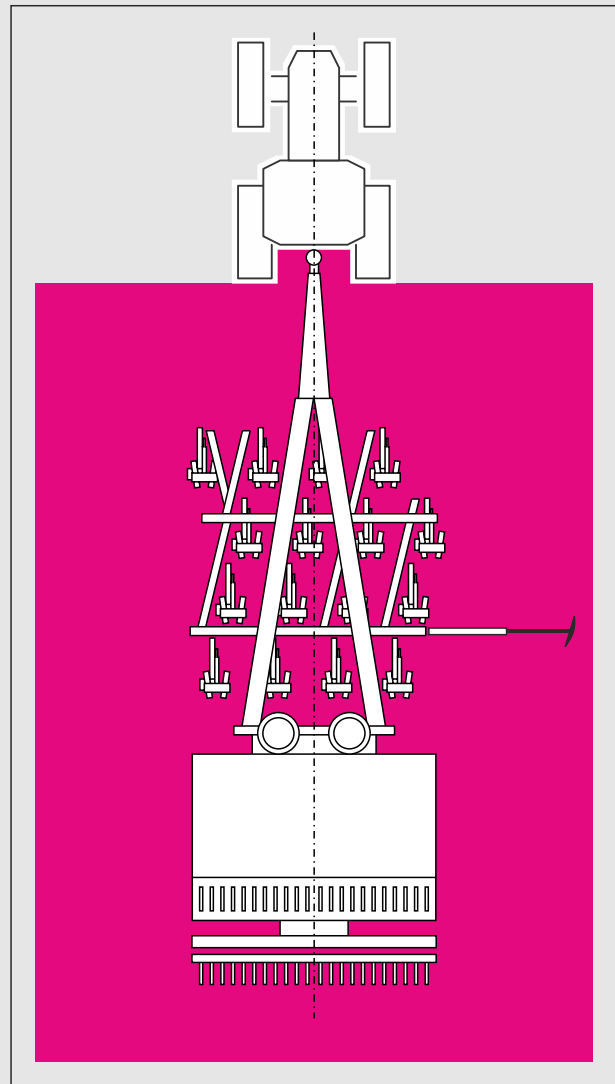
Hydraulically raised implement parts can descend unnoticed and slowly.

The tractor and implement can roll away unintentionally.

Materials or foreign objects can be ejected out of or away from the implement.

If the danger area is not observed, it can result in serious personal injury or death.

- ▶ Keep people out of the danger area of the implement.
- ▶ *If people enter the danger area,* immediately switch off the engines and drives.
- ▶ *Before you work in the danger area of the implement,* secure the tractor and implement. This also applies for quick checking work.



CMS-I-00007445

2.1.4 Safe operation and handling of the machine

CMS-T-00002304-I.1

2.1.4.1 Coupling implements

CMS-T-00002320-D.1

Coupling the implement on the tractor

Incorrectly coupling of the implement to the tractor results in hazards that can cause serious accidents.

There are crushing and shear points in the area of the coupling points between the tractor and the implement.

- ▶ *If you couple or uncouple the implement to or from the tractor, be very careful.*
- ▶ Use only suitable tractors for coupling and transporting the implement.
- ▶ *When the implement is coupled onto the tractor, make sure that the tractor's connecting device meets the implement requirements.*
- ▶ Couple the implement properly to the tractor.

2.1.4.2 Driving safety

CMS-T-00002321-E.1

Risk when driving on roads and fields

Any mounted or towed implement as well as front or rear ballast weights on the tractor influence the driving behaviour and the steering and braking power of the tractor. The driving characteristics also depend on the operating condition, the fill level of the load, and on the ground. If the driver does not take account of changing driving characteristics, he can cause accidents.

- ▶ Always ensure that the tractor's steering and braking systems are operating correctly.
- ▶ *The tractor must provide the required brake lag for the tractor and mounted implement.*
Check the function of the brakes before moving off.
- ▶ *The tractor front axle must always be loaded with at least 20 % of the empty tractor weight to ensure sufficient steering power.*
Use front ballast weights if necessary.
- ▶ Always attach the front or rear ballast weights properly on the specified fixing points.
- ▶ Calculate and observe the permitted payload for the mounted or towed implement.
- ▶ Observe the permissible axle loads and drawbar loads of the tractor.
- ▶ Observe the permissible drawbar load of the hitch device and drawbar.
- ▶ Drive in such a way that you always have full control over the tractor with the mounted or towed implement. 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 influence of the mounted implement.

When driving on roads, risk of accident caused by uncontrolled lateral motions of the implement

- ▶ Lock the tractor lower links for road travel.

Preparing the machine for road travel

If the machine is not properly prepared for road travel, it can result in serious traffic accidents.

- ▶ Check the lighting and identification for road travel for proper function.
- ▶ Remove coarse dirt from the implement.
- ▶ Follow the instructions in the section "Preparing the implement for road travel".

Parking the implement

The parked machine can tip over. People can be crushed and killed.

- ▶ Only park the machine on stable and even ground.
- ▶ *Before you perform setting or maintenance work,*
make sure that the implement is in a stable position. In case of doubt, support the implement.
- ▶ Follow the instructions in the section "*Parking the implement*".

Unsupervised parking

Parked tractors with coupled implements that are insufficiently secured and unsupervised represent danger for people and playing children.

- ▶ *Before you leave the machine,*
shutdown the tractor and the implement.
- ▶ Secure the tractor and machine.

2.1.5 Safe maintenance and modification

CMS-T-00002305-H.1

2.1.5.1 Changes on the implement

CMS-T-00002322-B.1

Only authorised design changes

Design changes and extensions can impede the functioning and operational safety of the machine. This can result in serious injury or death.

- ▶ Have any design changes and extensions performed only by a qualified specialist workshop.
- ▶ *To ensure that the operating permit remains valid in accordance with national and international regulations,*
ensure that the specialist workshop only uses conversion parts, spare parts and special equipment approved by AMAZONE.

2.1.5.2 Work on the machine

CMS-T-00002323-G.1

Only work on the machine when it is at a standstill

If the machine is not standing still, part can move unintentionally or the machine can be set in motion. This can result in serious injury or death.

- ▶ Before performing any work on the machine, shutdown and secure the machine.
- ▶ *To immobilise the machine,*
perform the following tasks.
- ▶ If necessary, secure the machine against rolling away with wheel chocks.
- ▶ Lower lifted loads down to the ground.
- ▶ Relieve the pressure in the hydraulic hose lines.
- ▶ *If you have to work on or under raised loads,*
lower the loads or secure raised machine parts with a hydraulic or mechanical locking device.
- ▶ Switch off all drives.
- ▶ Actuate the parking brake.
- ▶ Particularly on slopes, additionally secure the machine against rolling away with wheel chocks.
- ▶ Remove the ignition key and carry it with you.
- ▶ Remove the key from the battery circuit breaker.
- ▶ Wait until all parts that are still running come to a stop and that hot parts cool down.

Maintenance work

Improper maintenance work, particularly on safety-related components, endangers operational safety. This can result in accidents and serious personal injury or even death. Safety-related components include, for example, hydraulic components, electronic components, frames, springs, trailer coupling, axles and axle suspensions, lines and tanks containing flammable substances.

- ▶ *Before you adjust, maintain or clean the machine,* secure the machine.
- ▶ Repair the machine according to this operating manual.
- ▶ Only perform the work that is described in this operating manual.
- ▶ Have maintenance work that is labelled as "*WORKSHOP WORK*" performed at a workshop that is adequately equipped in terms of agricultural technology, safety and environmental technology by specialist personnel with appropriate training.
- ▶ Never perform welding, drilling, sawing, grinding, and cutting work on the frame, running gear or coupling devices of the implement.
- ▶ Never modify safety-related components.
- ▶ Never drill out existing holes.
- ▶ Perform all maintenance work at the prescribed maintenance intervals.

Raised implement parts

Raised implement parts can descend unintentionally and crush or kill people.

- ▶ Never linger under raised implement parts.
- ▶ *If you have to work on or under raised machine parts,* lower the implement parts or secure the raised implement parts with a mechanical support or hydraulic locking device.

Danger due to welding work

Improper welding work, particularly on or close to safety-related components, endangers the operational safety of the implement. This can result in accidents and serious personal injury or even death. Safety-related components include, for example, hydraulic components and electronic components, frames, springs, coupling devices to the tractor such as the 3-point mounting frame, drawbar, trailer support, trailer coupling or tensioned crosspiece as well as axles and axle suspensions, lines and tanks containing flammable substances.

- ▶ Allow only qualified specialist workshops with suitably approved personnel to perform welding work on safety-related components.
- ▶ Only allow qualified personnel to perform welding work on all other components.
- ▶ *If you have doubts as to whether a component can be welded:*
Ask a qualified specialist workshop.
- ▶ *Before welding on the implement:*
Uncouple the implement from the tractor.
- ▶ Do not weld close to a crop protection sprayer that was previously used to spread liquid fertiliser.

2.1.5.3 Operating materials

CMS-T-00002324-C.1

Unsuitable operating materials

Operating materials that do not meet AMAZONE requirements can cause implement damage and accidents.

- ▶ Only use operating material that meet the requirements in the Technical Data.

2.1.5.4 Special equipment and spare parts

CMS-T-00002325-B.1

Special equipment, accessories, and spare parts

Special equipment, accessories, and spare parts that do not meet AMAZONE requirements can impede the operational safety of the implement and cause accidents.

- ▶ Only use original parts or parts that meet AMAZONE requirements.
- ▶ *If you have any questions regarding special equipment, accessories or spare parts,*
contact your dealer or AMAZONE.

2.2 Safety routines

CMS-T-00002300-C.1

Securing the tractor and implement

If the tractor and implement are not secured against unintentional starting and rolling away, the tractor and implement can be set in motion in an uncontrolled manner, and can run over, crush and kill people.

- ▶ Lower the raised implement or raised implement parts.
- ▶ Relieve pressure in the hydraulic hose lines by actuating the operating devices.
- ▶ *If you have to stand under the raised implement or components,* secure the raised implement and components against lowering with a mechanical safety support or hydraulic locking device.
- ▶ Switch off the tractor.
- ▶ Apply the tractor's parking brake.
- ▶ Remove the ignition key.

Securing the machine

After uncoupling, the implement has to be secured. If the implement and implement parts are not secured, there is a risk of personal injury due to crushing and cutting.

- ▶ Only park the implement on stable and level ground.
- ▶ *Before you depressurise the hydraulic hose lines and disconnect them from the tractor,* move the implement into working position.
- ▶ Protect people against direct contact with sharp-edged or protruding implement parts.

Make sure that the protective equipment is functional

If protective equipment is missing, damaged or removed, implement parts can cause serious personal injury or even death.

- ▶ Check the implement at least once a day for damage, proper installation, and functioning of the protective equipment.
- ▶ *If you are not sure if the protective equipment is properly installed and functional,* have the protective equipment checked by a qualified specialist workshop.
- ▶ Make sure that the protective devices are properly installed and functional before any work on the implement.
- ▶ Replace damaged protective equipment.

Climbing on and off

Negligent behaviour while climbing on and off can cause people to fall off the ladder. People who climb onto the machine without using the intended access steps can slip, fall, and suffer severe injury.

- ▶ Use only the intended access steps
- ▶ *Dirt as well operating materials can impede walking safety and stability.*
Always keep steps and platforms clean and in proper condition, so that safe stepping and standing is ensured.
- ▶ Never climb onto the machine when it is in motion.
- ▶ Climb up and down facing the machine.
- ▶ When climbing up and down, maintain 3-point contact with the access steps and handrails: always keep two hands and one foot or two feet and one hand on the machine.
- ▶ When climbing up and down, never hold onto the control elements. Accidental actuation of control elements can unintentionally activate potentially dangerous functions.
- ▶ When climbing down, never jump off of the machine.

Intended use

3

CMS-T-00010770-A.1

- The implement is designed solely for professional use according to Good Agricultural Practices.
- The implement is an agricultural machine to be mounted on the lower link, hitch ball or drawbar eye of a tractor that meets the technical requirements.
- The implement is suitable and intended for metering, spreading and transporting conventional seeds and fertiliser.
- When driving on public roads, the implement, depending on the provisions of the applicable road traffic regulations, can be mounted and transported at the rear of a tractor that meets the technical requirements.
- The implement may only be used and maintained by persons who fulfil the requirements. The personnel requirements are described in the section "*Personnel qualification*".
- The operating manual is part of the implement. The implement is solely intended for use in compliance with this operating manual. Uses of the implement that are not described in this operating manual can lead to serious personal injuries or even death and to implement and material damage.
- The applicable accident prevention regulations as well as generally accepted safety-related, occupational health and road traffic regulations must also be observed by the users and the owner.
- Further instructions for intended use in special cases can be requested from AMAZONE.
- Uses other than those specified under the intended use are considered as improper. The manufacturer is not liable for any damage resulting from improper use, solely the operator is responsible.

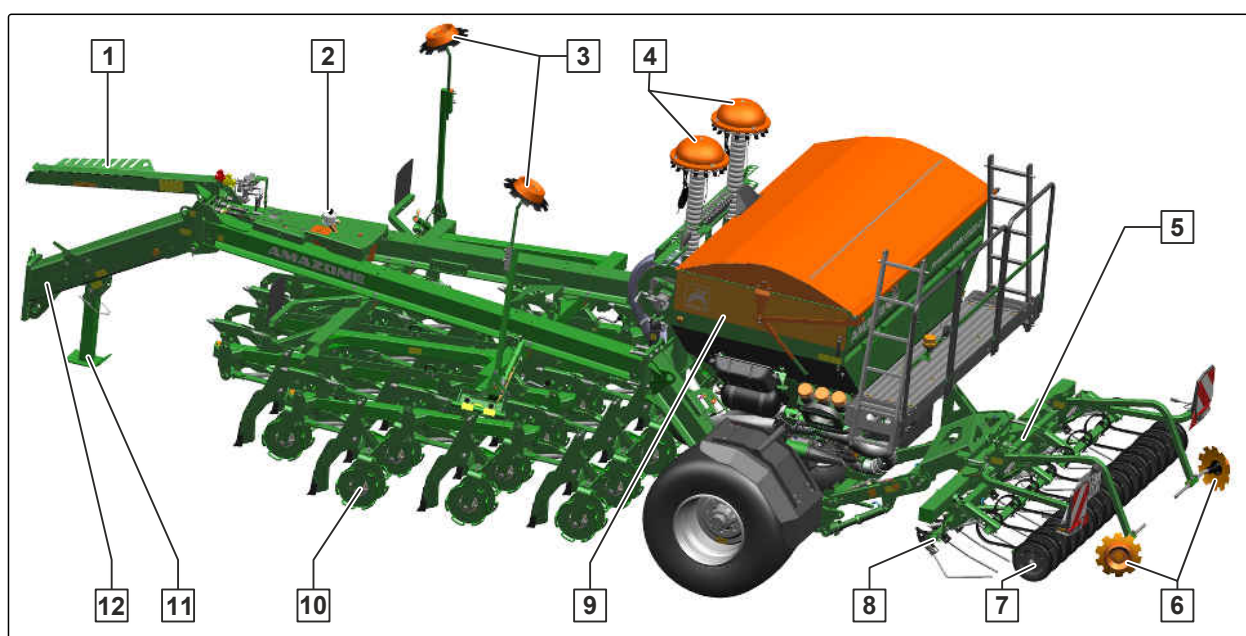
Product description

4

CMS-T-00010776-B.1

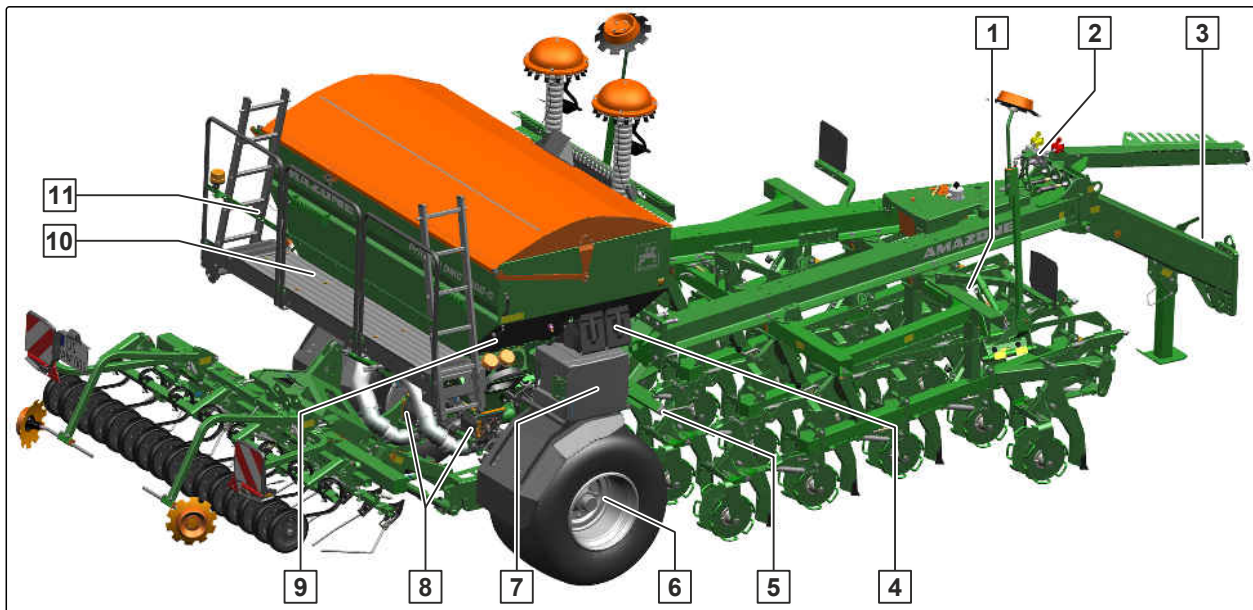
4.1 Implement overview

CMS-T-00010780-A.1



CMS-I-00007812

- | | |
|---|--|
| 1 Hose cabinet | 2 Oil tank of the on-board hydraulic system |
| 3 Track marker | 4 Distributor heads |
| 5 Road safety bars in parking position | 6 Tramline marker |
| 7 Roller harrow | 8 Exact following harrow |
| 9 Hopper with swivelling cover tarpaulin | 10 Chisel coulter with depth control wheel |
| 11 Jack | 12 Drawbar |



CMS-I-00007813

- | | |
|---|---|
| 1 Rating plates | 2 Brake valve on implement with pneumatic brake system |
| 3 Brake valve on implement with hydraulic brake system | 4 Wheel chocks |
| 5 Parking brake | 6 Running gear with tyres |
| 7 Storage bin | 8 Metering unit |
| 9 TwinTerminal | 10 Service platform |
| 11 Camera | |

4.2 Function of the implement

CMS-T-00010779-A.1

The implement enables direct seeding via the chisel coulters.

The spreading material is carried in the hopper. The hopper is divided into hopper chambers so that seed and fertiliser can be carried and spread.

A metering unit is installed under each hopper chamber. Each metering unit is driven by an electric motor. The set metered quantity enters the air flow generated by the fan and is conveyed to the distributor heads. In the distributor heads, the spreading material is evenly distributed onto all of the coulters.

The chisel coulters shape the seed furrow and deposit the spreading material at the set placement depth.

The exact following harrow levels the soil and covers the spreading material.

Depending on the implement equipment, the next bout is marked on the field with track markers.

4.3 Special equipment

CMS-T-00010781-A.1

Special equipment is equipment that is not fitted on the implement or is only available in certain markets. The sales documents provide information on the equipment of your implement, or consult your dealer for more detailed information.

- Hopper extension 800 l, 1,600 l
- Lighting for road travel
- Tail light
- Work lights
- Track marker
- Filling auger
- Mudguard
- Dust separator
- Air pre-warming
- Maize seeding set
- Tramline marker
- Liquid fertiliser mounting kit
- GreenDrill pack top seed drill
- Micropellet spreader
- Exact following harrow
- Roller harrow
- Camera system
- Seed tube monitoring
- Reduction of the transport width

4.4 Protective equipment

CMS-T-00010782-A.1

4.4.1 Fan guard screen

CMS-T-00003581-B.1

The fan guard screen **1** protects the user against injuries caused by rotating parts and the fan against foreign objects.

The design of the fan guard screen can differ depending on the implement.

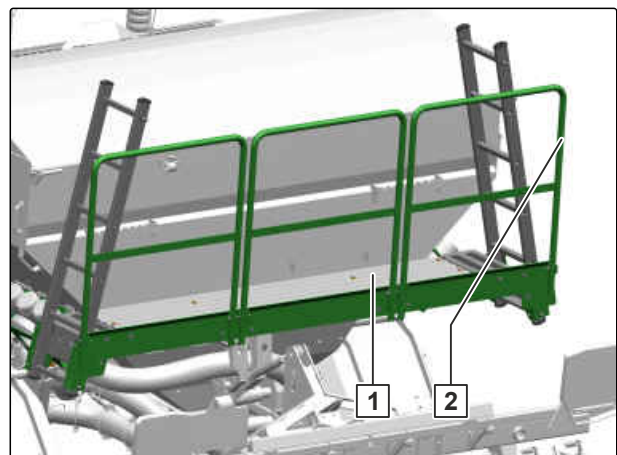


CMS-I-00002545

4.4.2 Railing on the service platform

CMS-T-00010894-A.1

The railing **2** protects people from falling down from the service platform **1**.

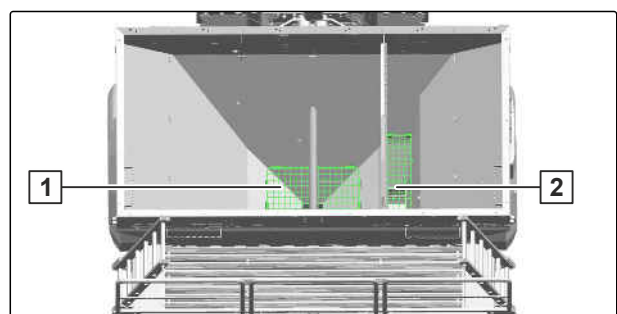


CMS-I-00007526

4.4.3 Guard screen over the metering units

CMS-T-00010955-A.1

The guard screens **1** and **2** over the metering units are attached to the floor of the hopper chambers. The guard screens protect people against injuries caused by rotating parts and the metering unit against foreign objects.



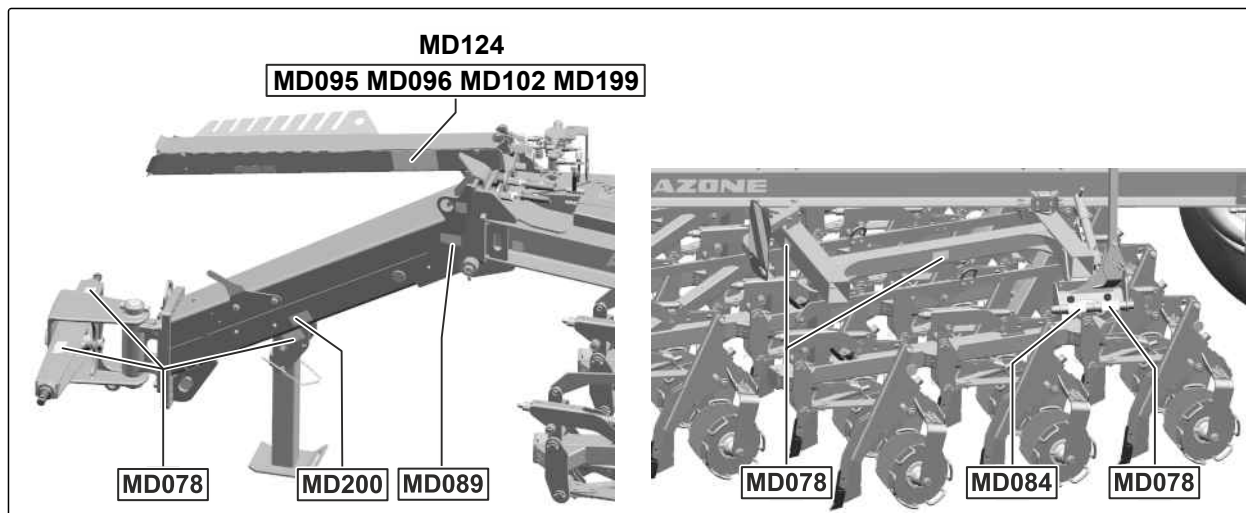
CMS-I-00007521

4.5 Warning symbols

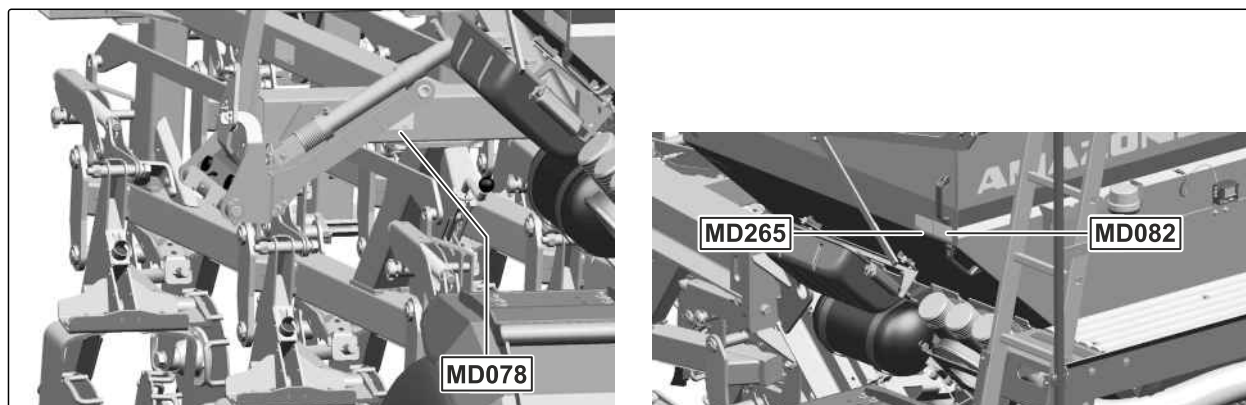
CMS-T-00010777-B.1

4.5.1 Positions of the warning symbols

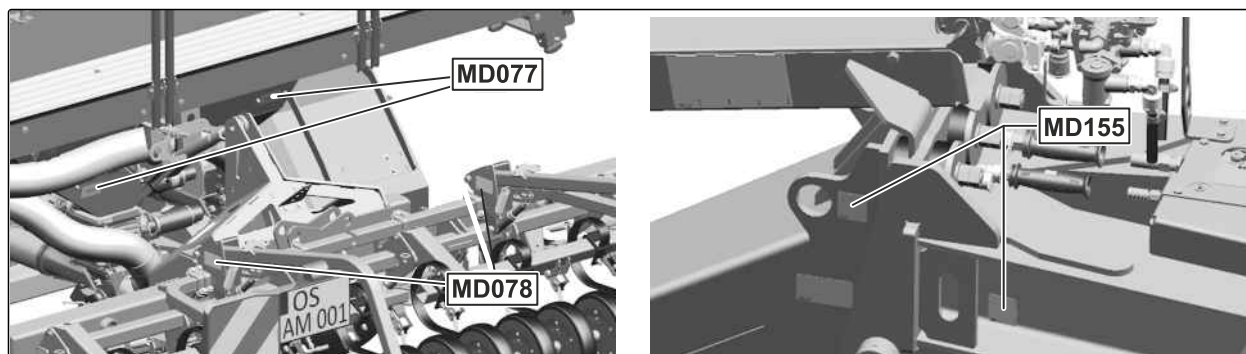
CMS-T-00012037-B.1



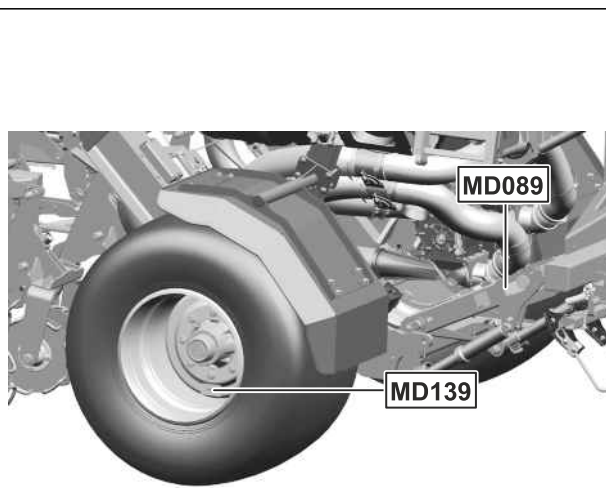
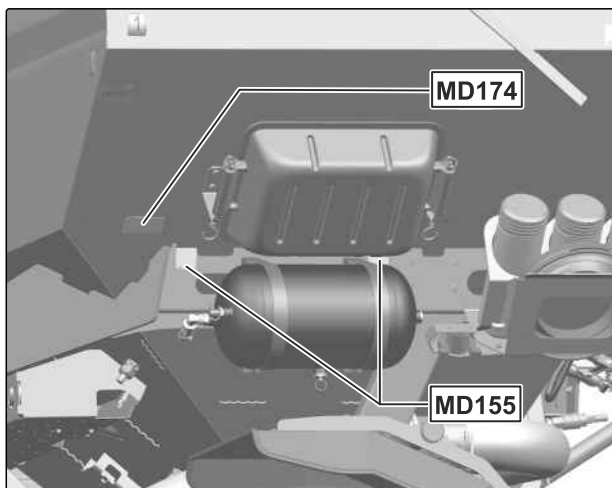
CMS-I-00009335



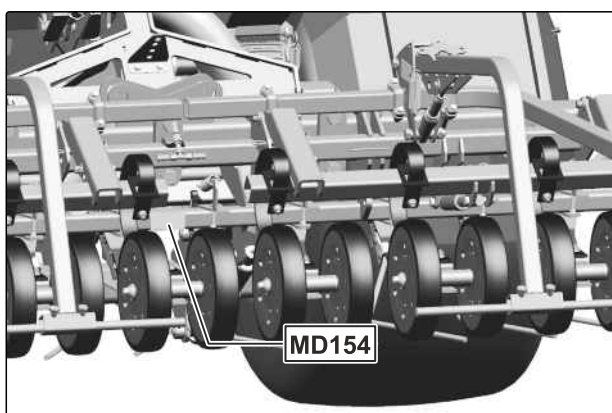
CMS-I-00009342



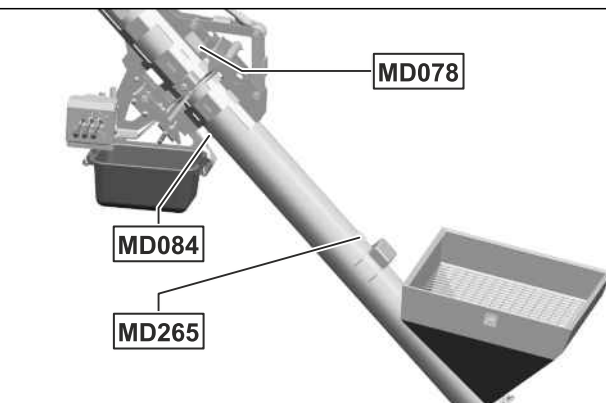
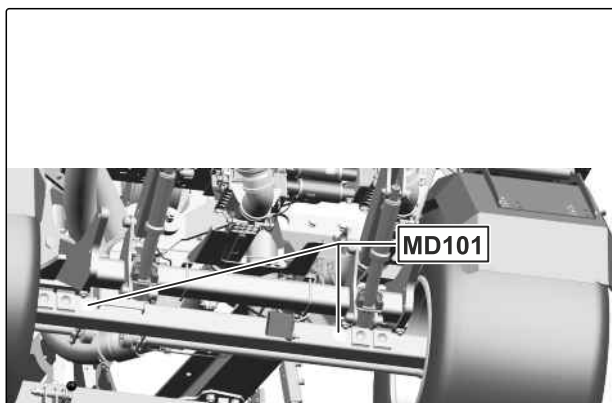
CMS-I-00009337



CMS-I-00009338



CMS-I-00009339



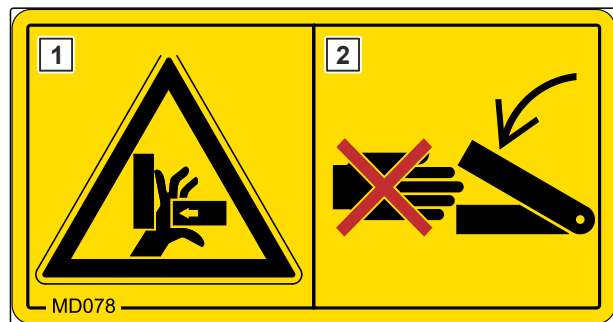
CMS-I-00009340

4.5.2 Layout of the warning symbols

Warning symbols indicate danger areas on the machine and warn against residual dangers. In these danger areas, there are permanent or unexpected dangers.

A warning symbol consists of two fields:

- Field **1** shows the following:
 - A pictogram depicting the danger area, surrounded by triangular safety symbol
 - The order number
- Field **2** shows a pictogram depicting how to avoid the danger.

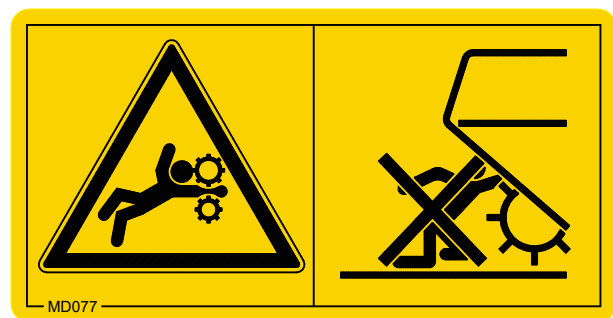


4.5.3 Description of the warning symbols

MD 077

Risk due to being drawn in and caught

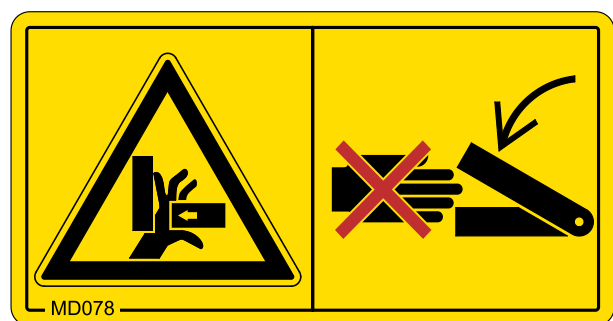
- ▶ Disconnect the power supply from the implement before approaching the danger zone.
- ▶ Wait until all moving parts are at a standstill before reaching into the danger area
- ▶ Make sure that there is nobody standing in the danger area or close to the moving parts.



MD 078

Risk of crushing fingers or hands

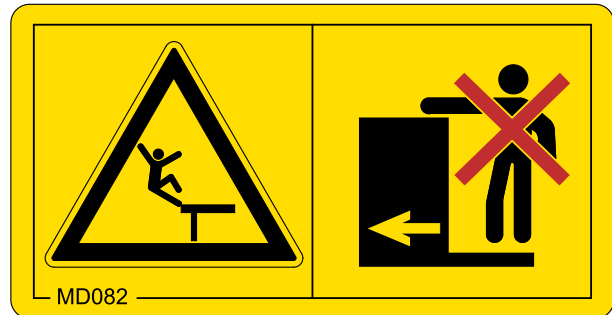
- ▶ *As long as the tractor engine or implement motor is running,* stay away from the danger area.
- ▶ *If you have to move marked parts with your hands,* pay attention to the crushing areas.
- ▶ Make sure that there is nobody standing in the danger area.



MD 082

Risk of falling from tread surfaces and platforms

- ▶ Do not let anybody ride on the implement.
- ▶ Do not let anybody climb onto the driving implement.

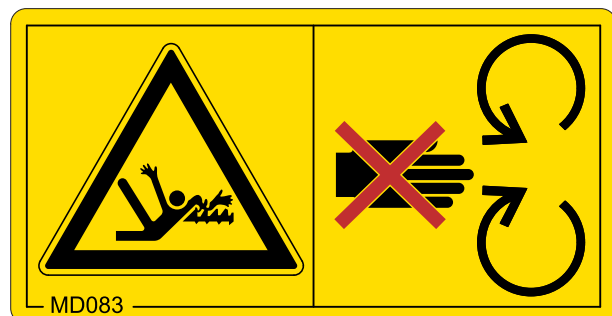


CMS-I-000081

MD 083

Risk due to being drawn in and caught

- ▶ Ensure that the energy supply to the implement is interrupted before you remove the protective devices.
- ▶ Wait until all moving parts are at a standstill before reaching into the danger area.
- ▶ Make sure that there is nobody standing in the danger area or close to the moving parts.



CMS-I-00003694

MD 084

Risk of crushing for the whole body from lowering implement parts

- ▶ Make sure that there is nobody standing in the danger area.

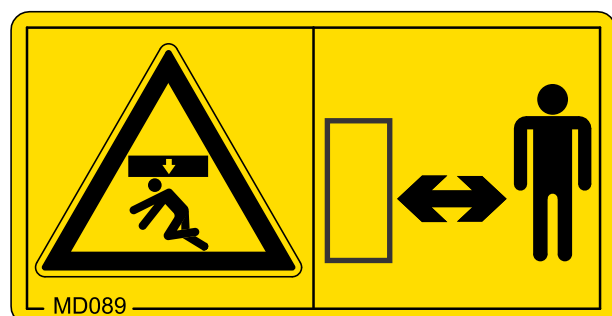


CMS-I-000454

MD089

Risk of crushing from the machine parts unintentionally lowering

- ▶ Make sure that there is nobody standing in the danger area.



CMS-I-00003027

MD095

Risk of accident due to non-compliance with the instructions in this operating manual

- ▶ Before your work on or with the implement, read and understand the operating manual.



CMS-I-000138

MD 096

Risk of infection from escaping hydraulic fluid under high pressure

- ▶ Never look for leaks in hydraulic hose lines using your hand or fingers.
- ▶ Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.
- ▶ *If you are injured by hydraulic oil, consult a doctor immediately.*

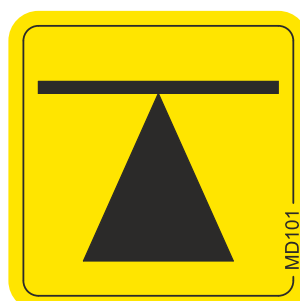


CMS-I-000216

MD 101

Risk of accidents due to improperly attached lifting equipment

- ▶ Only attach the lifting equipment at the marked positions.



CMS-I-00002252

MD 102

Risk due to unintentional starting and rolling away of the machine

- Before performing any work, secure the implement against unintentional starting and rolling away.



CMS-I-00002253

MD 139

Risk due to improperly tightened bolted connections

- Tighten the bolted connections with the required torque.

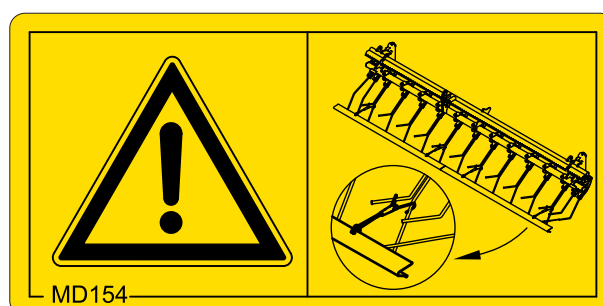


CMS-I-00007442

MD 154

Risk of injury or even death due to unprotected seeding harrow tines

- *Before driving on public roads,* put on the road safety bar as described in the operating manual.

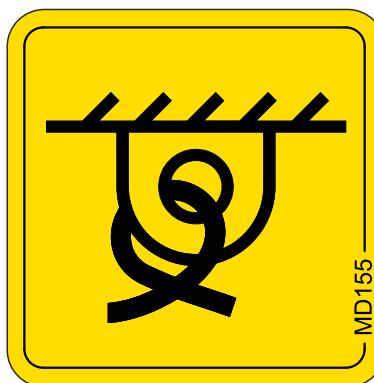


CMS-I-00003657

MD 155

Risk of accident and machine damage during transport due to improperly secured machine

- ▶ Only attach the lashing belts at the marked lashing positions for transporting the machine.

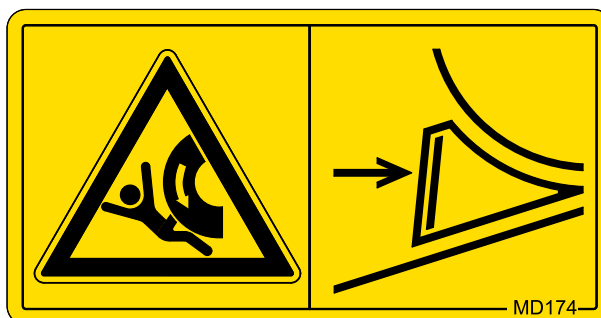


CMS-I-00000450

MD 174

Risk of rolling over due to unsecured implement

- ▶ Secure the implement against rolling away.
- ▶ To do so, use the parking brake and/or wheel chocks.

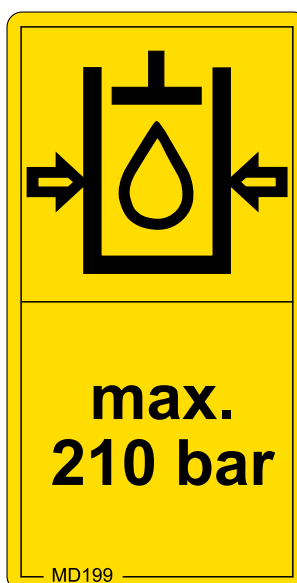


CMS-I-00000458

MD 199

Risk of accident if the hydraulic system pressure is too high

- ▶ Only couple the implement to tractors with a maximum tractor hydraulic pressure of 210 bar.

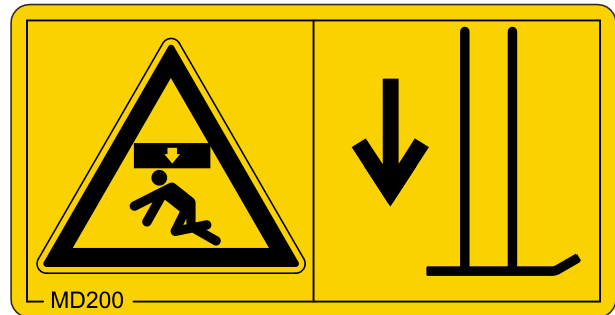


CMS-I-00000486

MD 200

Risk of crushing the entire body due to necessary periods spent under raised, unsecured implement

- Secure the implement with the mechanical support device against accidental lowering before performing work under the implement.



CMS-I-00007440

MD 251

Risk of crushing due to lowering implement parts

- Secure lifted implement parts with the mechanical support device before reaching into the danger area.



CMS-I-00007441

MD 265

Risk of chemical burns by dressing dust

- Do not breathe in the harmful substance.
- Avoid contact with eyes and skin.
- Before working with hazardous materials, put on the protective clothing recommended by the manufacturer.
- Follow the manufacturer's safety instructions for handling harmful substances.



CMS-I-00003659

4.6 Rating plate on the implement

CMS-T-00004505-G.1

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

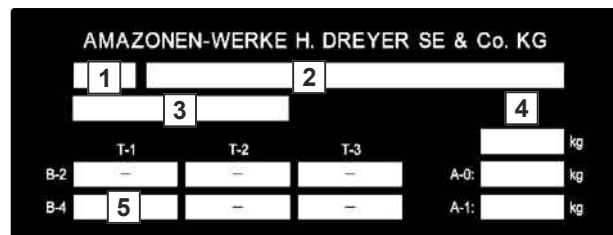


CMS-I-00004294

4.7 Additional rating plate

CMS-T-00005949-B.1

- 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
- A1** Permissible technical axle load for axle 1
- A2** Permissible technical axle load for axle 2



CMS-I-00005056

4.8 Brake systems

CMS-T-00012146-A.1

4.8.1 Dual-circuit pneumatic brake system

The dual-circuit pneumatic brake system brakes the coupled implement when the tractor brake is actuated.

If the compressed air lines are uncoupled, the implement is braked as long as there is compressed air in the pressure accumulator.

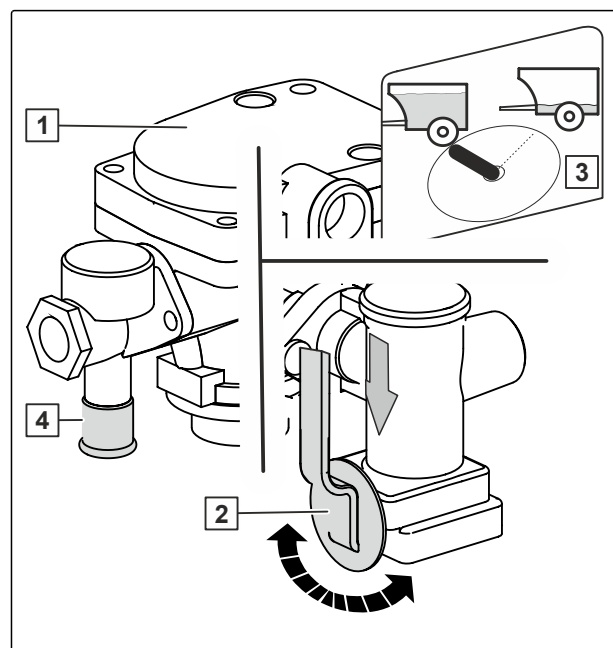
The brake line is controlled via the brake valve **1**.

The brake valve can vary depending on the implement:

- Depending on the version, the brake line can be adjusted in 2 or 3 levels using the hand lever **2**.
- The brake line can be adjusted in 2 levels using the rotary knob **3**.

With the control knob **4** or the hand lever **2**, the brake can be released for manoeuvring with the implement.

CMS-T-00012086-A.1



CMS-I-00007785

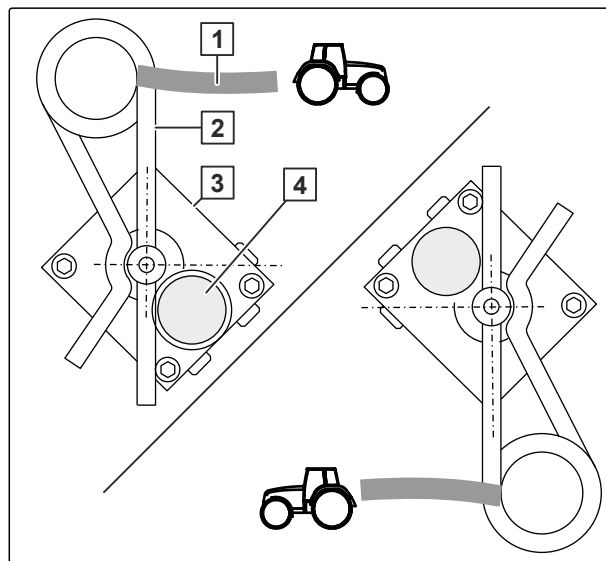
4.8.2 Single-circuit hydraulic brake system

CMS-T-00012087-A.1

The single-circuit hydraulic brake system brakes the coupled implement when the tractor brake is actuated.

If the implement is disconnected from the tractor, the brake valve brakes the implement. The brake valve is triggered by a ripcord **1**. The ripcord is fastened to the brake valve **3** via a spring cotter pin **2**. The brake valve has a hand pump **4**.

The hand pump relieves the pressure in the system, which releases the brake.

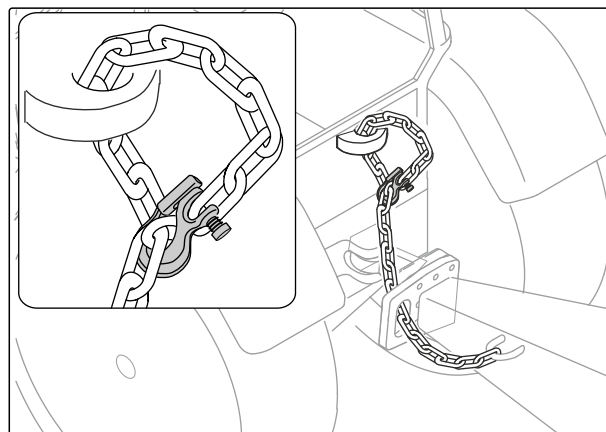


CMS-I-00007787

4.9 Safety chain

CMS-T-00001425-C.1

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

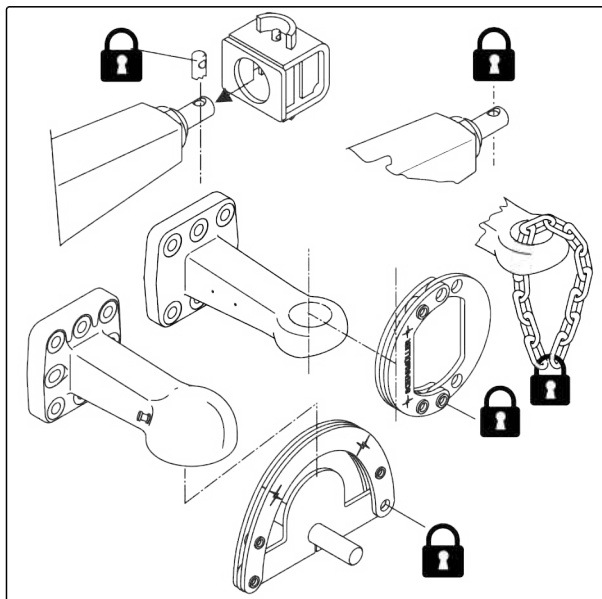


CMS-I-00007814

4.10 Safety device against unauthorised use

CMS-T-00004292-C.1

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

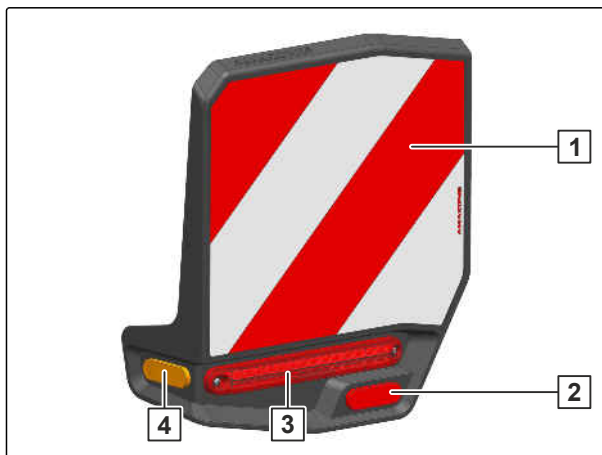


CMS-I-00003534

4.11 Rear lighting and identification for road travel

CMS-T-00001498-F.1

- 1 Warning signs
- 2 Reflector, red
- 3 Rear lights, brake lights, and turn indicators
- 4 Reflector, yellow



CMS-I-00004545



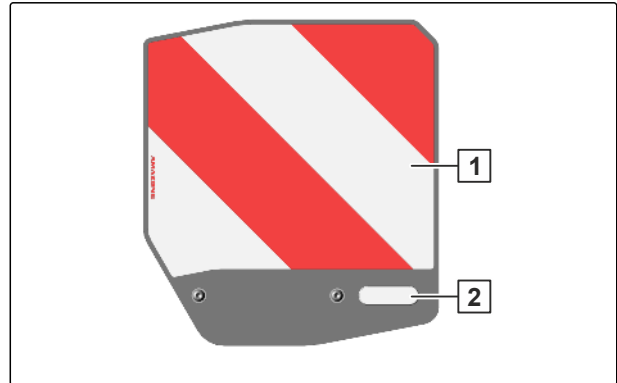
NOTE

The lighting and identification for road travel can vary depending on the national regulations.

4.12 Front lighting and identification

CMS-T-00009971-A.1

- 1 Warning signs
- 2 Reflector, white



CMS-I-00004522



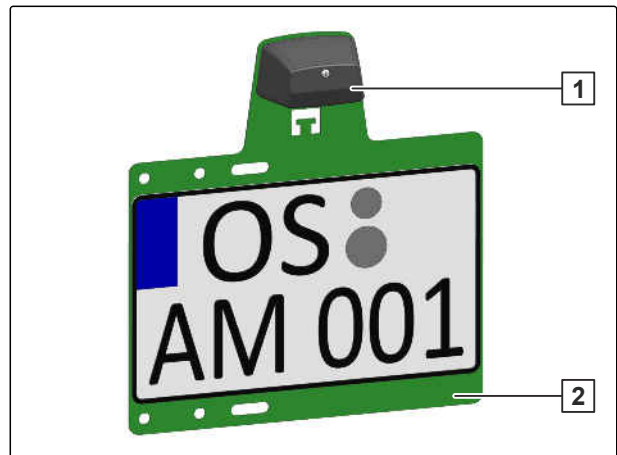
NOTE

The lighting and identification for road travel can vary depending on the national regulations.

4.13 Additional license plate

CMS-T-00003999-C.1

- 1 Licence plate lighting
- 2 Licence plate holder



CMS-I-00003163

4.14 Work lights

CMS-T-00011665-B.1

The work lights are used to illuminate the work area.

Depending on the implement equipment, the work lights are either supplied with power and operated via ISOBUS or supplied with power from the tractor and operated via the control box separately.



CMS-I-00002218

4.15 Camera system

CMS-T-00007276-C.1

The camera at the rear of the implement increases safety when manoeuvring.

The monitor can display several camera images simultaneously.



CMS-I-00007206

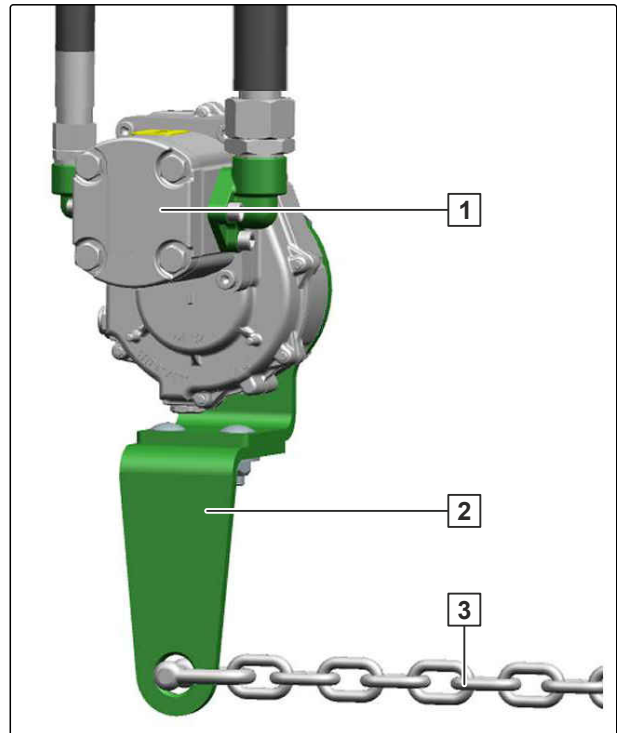
4.16 On-board hydraulic system

CMS-T-00010897-A.1

Depending on the implement equipment, the on-board hydraulic system can drive the fan.

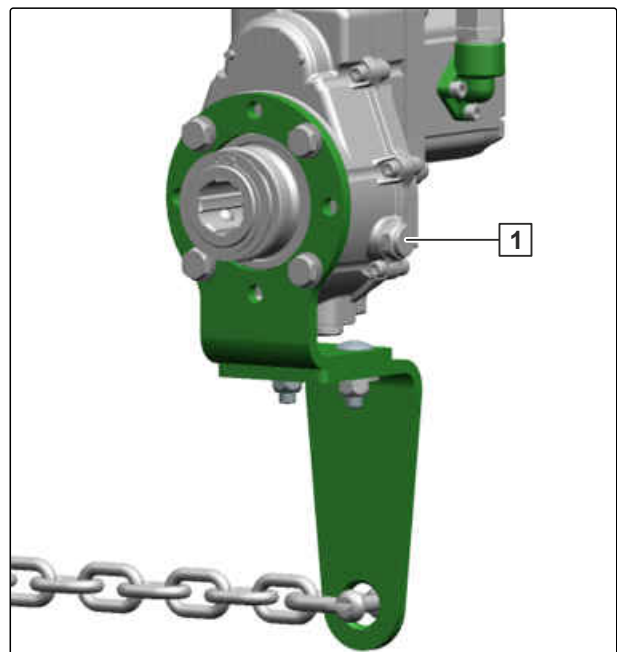
The hydraulic pump **1** is driven by the tractor PTO shaft. The torque arm **2** is secured with the chain **3** and prevents the hydraulic pump from rotating.

Implements with on-board hydraulic system are equipped with an oil cooler that is located on the fan.



CMS-I-00007517

The vent valve **1** is used to vent the on-board hydraulic system during initial operation.



CMS-I-00007873

4.17 TwinTerminal

CMS-T-00004156-D.1

With the TwinTerminal, the following functions are possible:

- Calibrate the spread rate
- Emptying the implement
- Communication with the control terminal
 - Enter the calibration parameters
 - Enter the collected spread rate

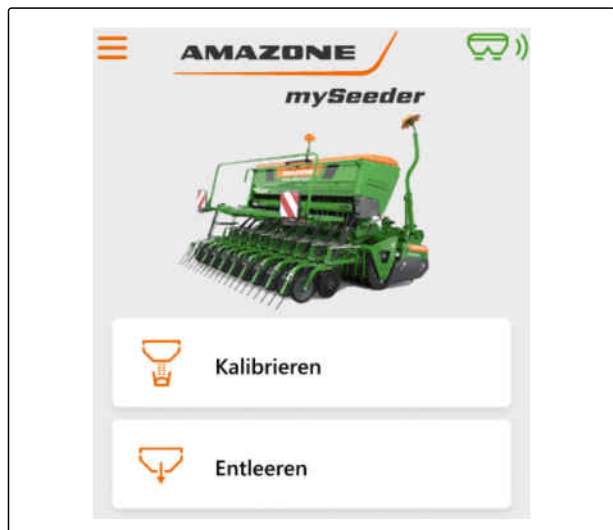


CMS-I-00003079

4.18 mySeeder app

CMS-T-00006215-C.1

With the mySeeder app, the implement can be connected to a mobile end device via Bluetooth and exchange data with the mySeeder app. Moreover, the mySeeder app can be used to calibrate the implement or empty the hopper through the metering unit.



CMS-I-00004418

The mySeeder app can be obtained from the Apple App Store or the Google Play Store. To do so, use the QR code or the link www.amazone.de/qrcode_mySeeder.



CMS-I-00004417

4.19 Radar sensor

CMS-T-00001778-C.1

On electric drives, the radar sensor records the working speed. The working speed is used to determine the worked area and the required speed for the metering drives.



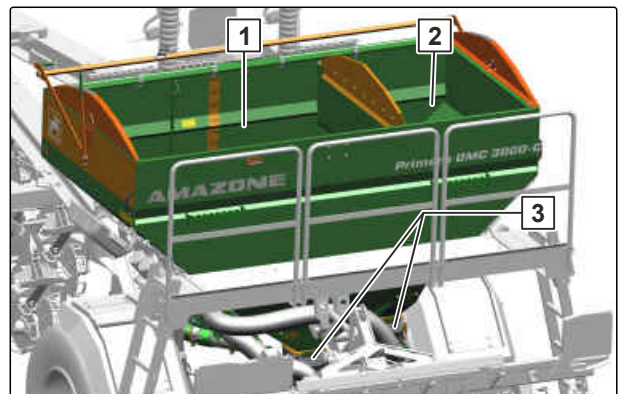
CMS-I-00002221

4.20 Hopper

CMS-T-00010962-A.1

The hopper has a large **1** and a small **2** hopper chamber, in which seed and fertiliser can be carried.

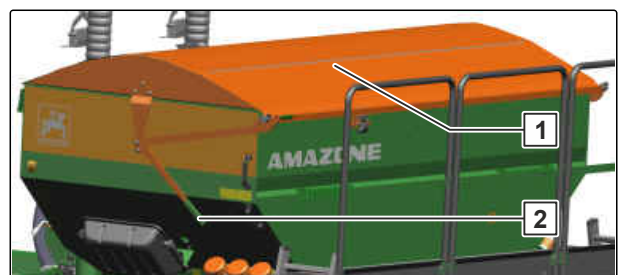
There is a metering unit **3** under each hopper chamber.



CMS-I-00007757

The swivelling cover tarpaulin **1** protects the contents of the hopper from water and dust.

With the lever **2** on the left side, you can open and close the swivelling cover tarpaulin.



CMS-I-00007755

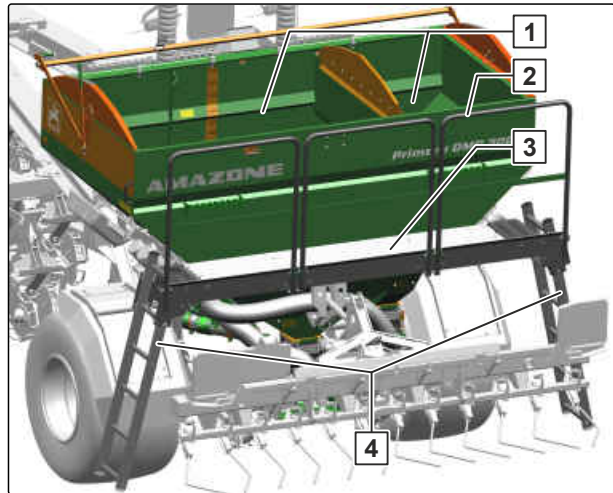
4 | Product description

Fan

The hopper can be accessed via the ladders on the sides [4] and the service platform [3].

The railing [2] can be folded to enable filling with an external filling auger.

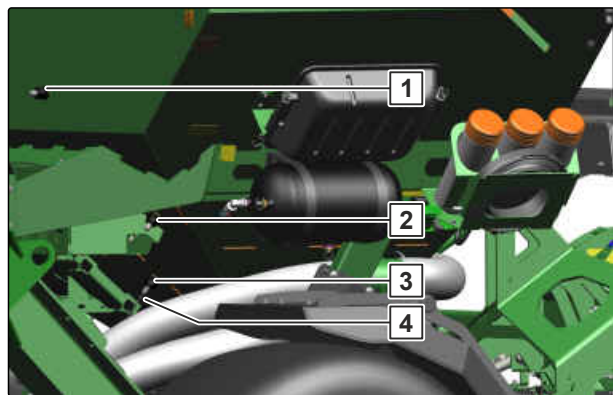
The guard screens [1] catch foreign objects.



CMS-I-00007758

Each hopper chamber is equipped with a fill level sensor [4] for monitoring the fill level. When the spreading material no longer covers the fill level sensor, the control terminal displays a warning message and issues an alarm signal.

The fill level sensor can be attached in the upper [1], middle [2] or lower position [3], depending on the spreading material.



CMS-I-00007817

4.21 Fan

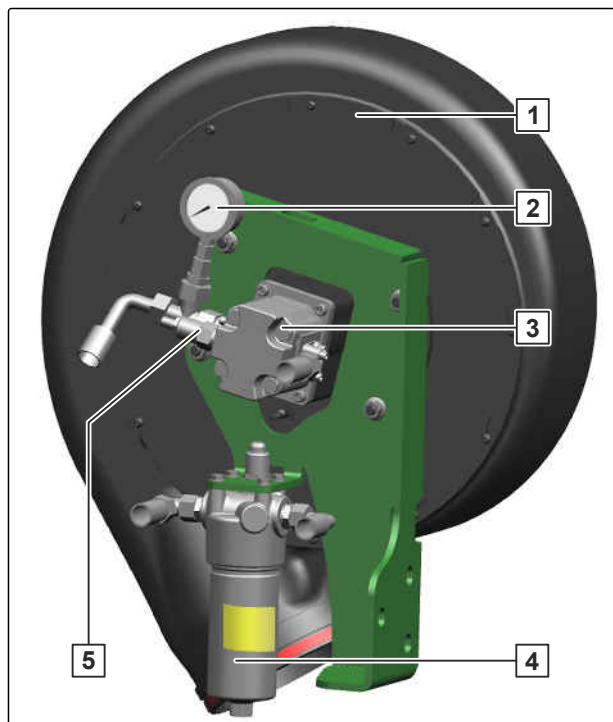
CMS-T-00011666-A.1

The fan [1] generates an air current that conveys the spreading material to the spreading points. The fan is driven by a hydraulic motor [3], which can be driven by the tractor hydraulic system or by the tractor PTO shaft.

The fan speed determines the strength of the air current in the conveyor sections. The control terminal shows the current fan speed and issues an alarm if there is deviation from the nominal speed.

The pressure gauge [2] shows the pressure in the return flow of the hydraulic line.

The hydraulic system is equipped with an oil filter [4] and a pressure relief valve [5].



CMS-I-00007547

4.22 Metering system

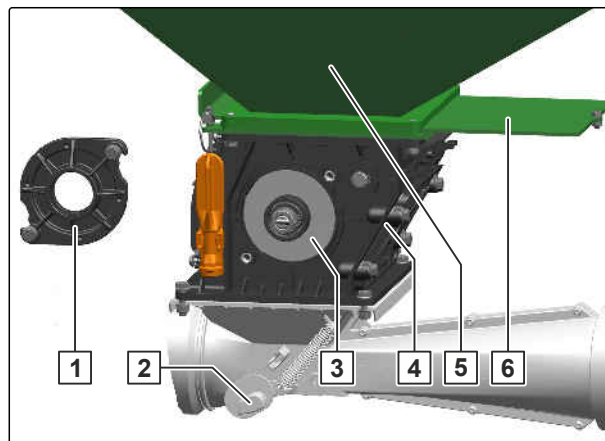
CMS-T-00014658-B.1

4.22.1 Metering unit

CMS-T-00012130-A.1

The metering units **4** are under the hopper chambers **5**. The metering roller **3** is behind the bearing cover **1** and is electrically driven. The spreading material falls into the sluice or injector and is directed by the air current to the distributor head and then on to the spreading points.

The metering unit can be closed at the top with the sliding shutter **6**, so that spreading material no longer flows in. The calibration flap **2** is used to take out the metered spreading material to calibrate the metered quantity.



CMS-I-00007818

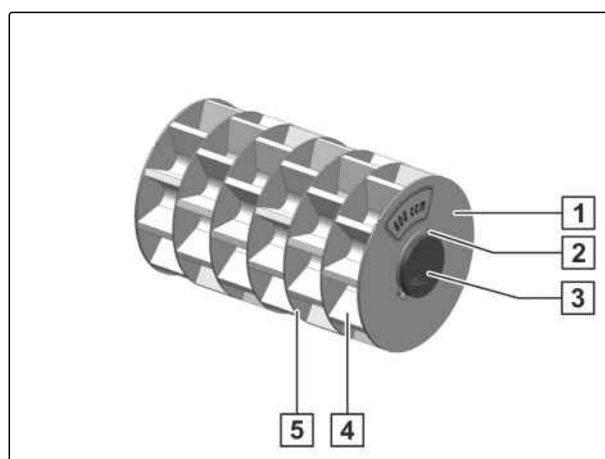
As soon as the implement is raised when turning at the end of a field, the electric motor switches off and the metering roller comes to a halt.

4.22.2 Metering roller

CMS-T-00003565-D.1

The metering roller is electrically driven and meters the spreading material into the sluice or the injector.

- 1** End plate
- 2** Locking ring
- 3** Drive hub
- 4** Metering wheel
- 5** Intermediate plate



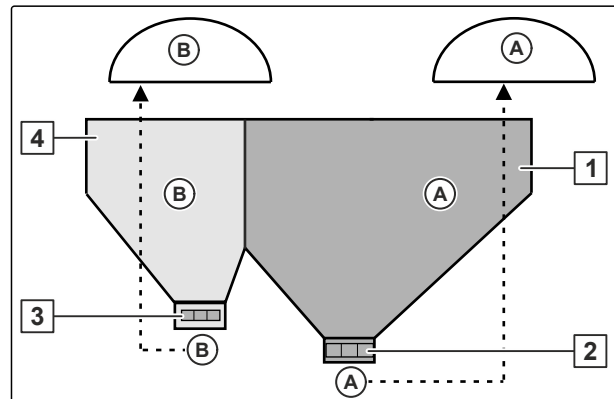
CMS-I-00002549

4.22.3 Conveyor sections

Each metering unit is assigned to a conveyor section. The conveyor sections carry the spreading material to the distributor heads.

The spreading material **A** goes from the hopper chamber **1** through the metering units **2** to the distributor head **A**.

The spreading material **B** goes from the hopper chamber **4** through the metering units **3** to the distributor head **B**.



CMS-T-00014659-B.1

CMS-I-00009307

4.22.4 Distributor head and tramline control

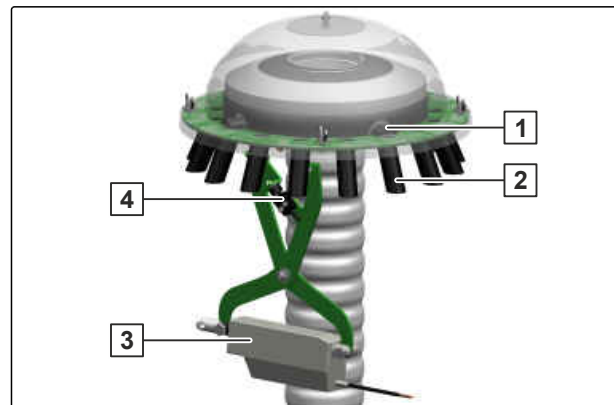
In the distributor head, the spreading material is distributed to the individual outlets **2** and then reaches the coulters through the seed lines. The seed lines are numbered.

With tramline control, tramlines can be created on the field. The outlets in the distributor head that are involved in creating tramlines are equipped with shutters **1**. When tramline control is active, the motor **3** moves the shutters so that they close the corresponding outlets. The associated coulters then do not deposit any spreading material.

The sensor **4** checks whether the shutters are working correctly. In event of faulty position, a warning message is issued.

The spacing of the tramlines and the reduced metered quantity for creating a tramline can be set on the control terminal.

The spacing of the two tracks of a tramline can be adapted to the track width of the cultivating implement. Depending on the implement equipment, the width of the tramlines can also be adapted to the wheelmark width of the cultivating implement.



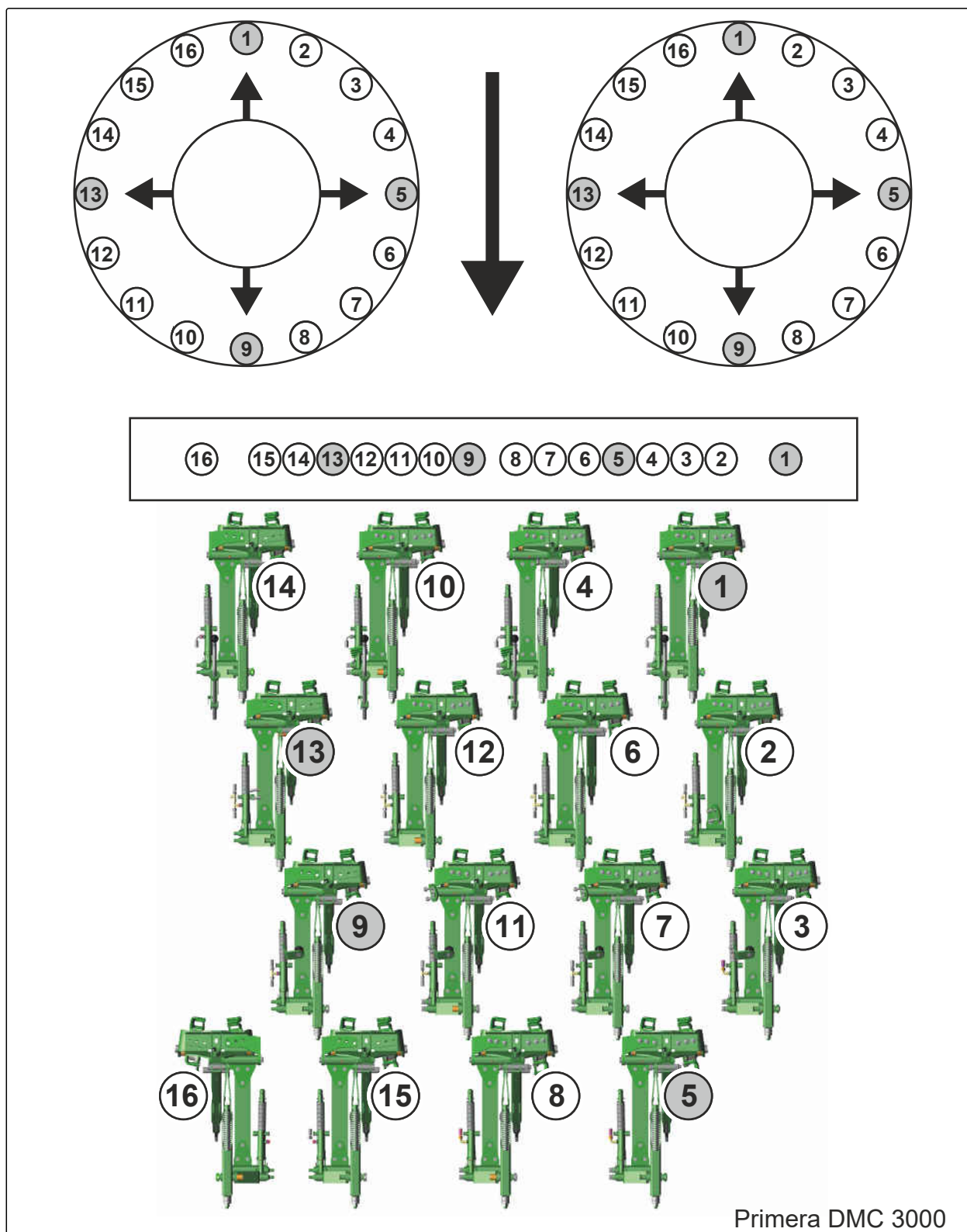
CMS-T-00012224-A.1

CMS-I-00007891

4.22.5 Assignment of the coulters to the distributor heads

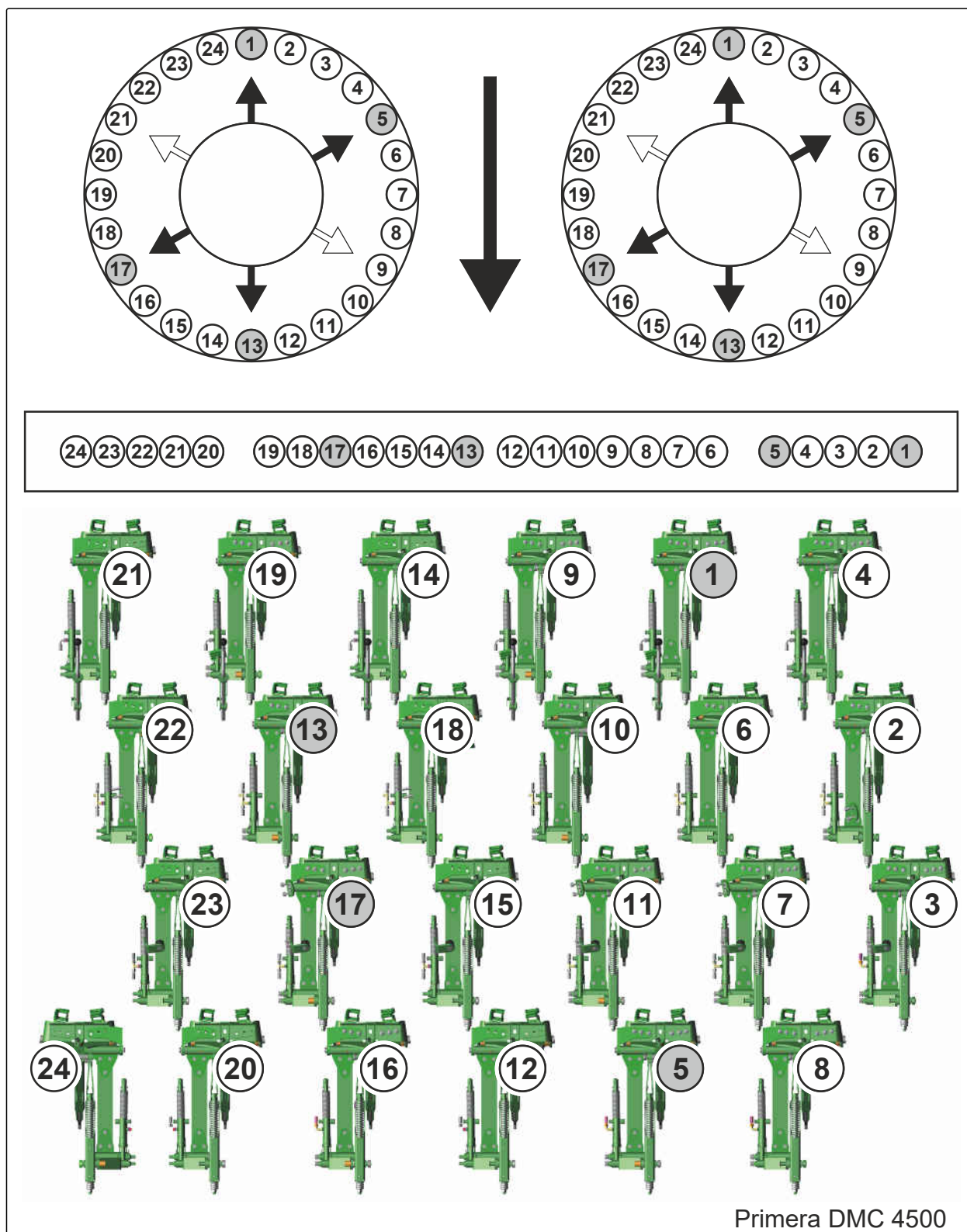
Assignment for Primera DMC 3000:

CMS-T-00014670-A.1



CMS-I-00007832

Assignment for Primera DMC 4500:



CMS-I-00007833

The figures show which outlets in the distributor heads belong to which coulters.

The outlets and coulters that are set for tramlines per default are marked with numbers in a grey circle. The black arrows in the distributor heads point to the associated outlets.

4.23 Chisel coulter

CMS-T-00010900-A.1

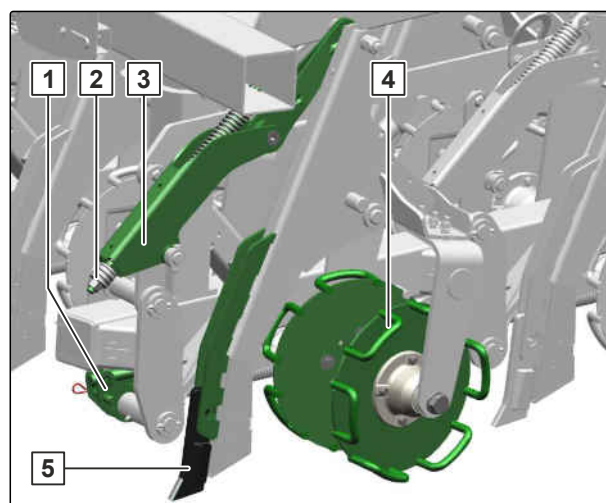
The coulter chisels **5** shape the seed furrow and deposit the spreading material.

The depth control wheels **4** guide the chisel coulters at the placement depth and close the seed furrows. The placement depth is adjustable.

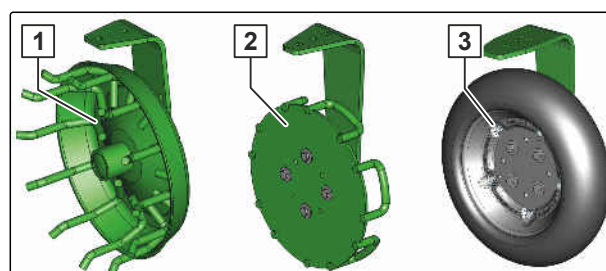
The holders for the chisel coulters are designed as an overload safety. The chisel coulters are spring-loaded on the top link **3** and lower link **1**, so that the chisel coulters can deflect upwards by up to 30 cm on stones.

The spring preload **2** for the overload safety must not be adjusted.

Depending on the implement equipment, the depth control wheels can be rocky ground rollers **1**, bracket rollers **2** or air-filled wheels **3**.



CMS-I-00007524



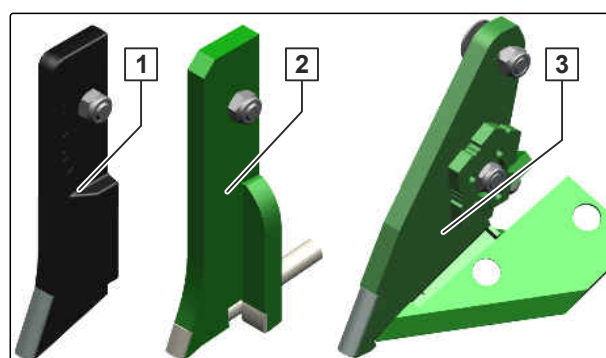
CMS-I-00008189

The following chisel coulter versions can be installed:

Chisel coulter for direct seeding **1**: the spreading material is deposited in a row.

Chisel coulter for band seeding **2**: the spreading material is deposited in a wider band, suitable for mulch seeding.

Duckfoot chisel **3**: the spreading material is deposited at a small placement depth. The chisels have 2 cuttings edges and are suitable for mulch seeding. The penetration angle must be adjusted to the placement depth.



CMS-I-00007527

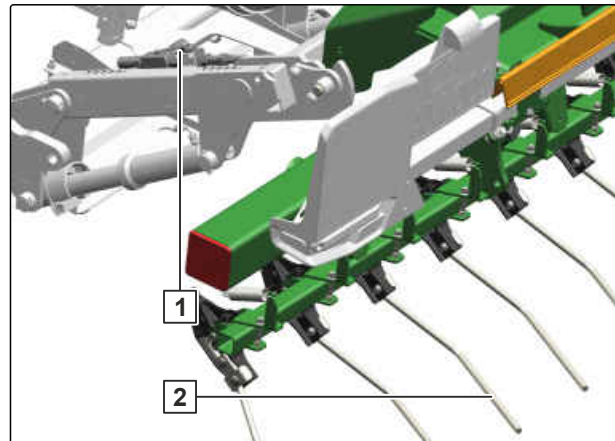
4.24 Exact following harrow

CMS-T-00010950-A.1

The harrow tines **2** of the exact following harrow cover the deposited spreading material evenly with loose soil and level the soil surface.

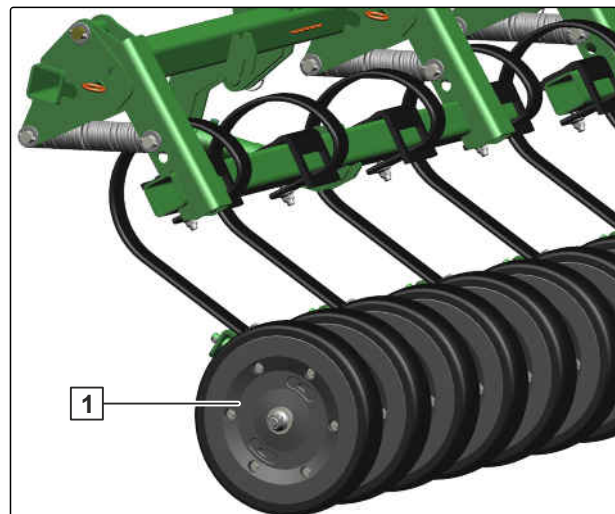
The exact following harrow is hydraulically lifted and lowered together with the seeding coulter. The pitch and the working depth can be adjusted.

The exact following harrow must be secured in the lifted position with the stop tap **1** before road travel.



CMS-I-00007552

Depending on the implement equipment, a roller harrow **1** is mounted behind the exact following harrow. The roller harrow is usually used when the ground conditions are dry. If the roller harrow is not being used, it can be put in parking position.



CMS-I-00007538

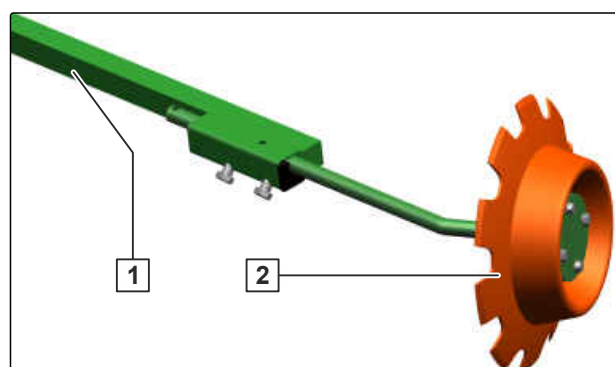
4.25 Track marker

CMS-T-00011557-A.1

The track markers **1** dig into the ground alternately on the left and the right of the implement. The track disc **2** produces a mark. This mark serves the tractor driver as an orientation aid.

The track markers must be lifted before the track markers pass an obstacle or the tractor turns around.

The length of the track marker and pitch of the track discs are adjustable.



CMS-I-00007584

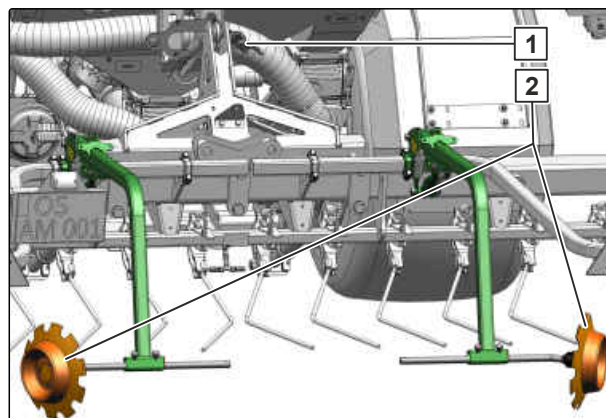
4.26 Tramline marker

CMS-T-00011720-A.1

When creating tramlines, the tramline marker automatically lowers the track discs **2** and makes tracks. These tracks make the tramlines visible before the seed has germinated. The discs are raised if no tramline is created.

Before road travel and when parking the implement, the lifted position must be secured on the stop tap **1**.

The track width and the pitch of the track discs can be adjusted.



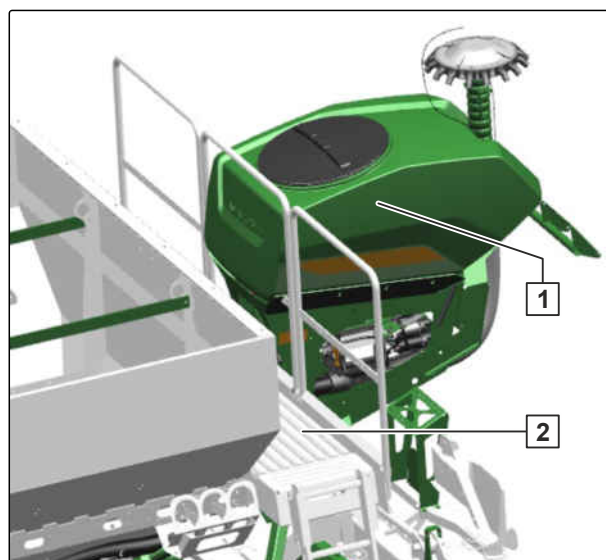
CMS-I-00007582

4.27 GreenDrill pack top seed drill

CMS-T-00011722-A.1

The GreenDrill pack top seed drill **1** enables the seeding of fine seeds and catch crops.

The GreenDrill pack top seed drill can be accessed via the service platform **2**.



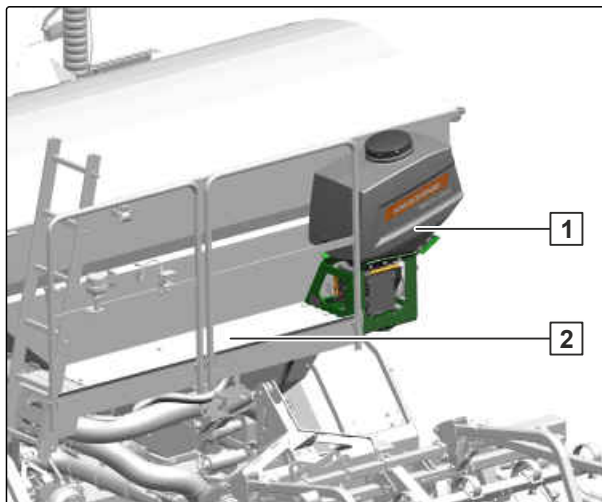
CMS-I-00007689

4.28 Micro plus micropellet spreader

CMS-T-00012238-A.1

The Micro plus micropellet spreader **1** enables spreading of micropellets while seeding.

The micropellet spreader can be accessed via the service platform **2**.



CMS-I-00007911

Technical data

5

CMS-T-00010993-A.1

5.1 Dimensions

CMS-T-00010995-A.1

	Primera DMC 3000	Primera DMC 4500
Working width	3 m	4.5 m
Transport width	3.22 m (3 m with special equipment)	4.72 m (4.5 m with special equipment)
Total height	3.7 m	
Transport height	3.7 m	
Total length	8.76 m to 10.5 m	
Filling height	2.65 m 3.05 m with extension	

5.2 Hopper volume

CMS-T-00010994-A.1

	2-chamber hopper	2-chamber hopper with extension
Total volume	4,200 l	5,800 l
Hopper volume:	Division: $\frac{3}{4}$: $\frac{1}{4}$	
$\frac{3}{4}$ Spreading material 1	3,150 l	4,350 l
$\frac{1}{4}$ Spreading material 2	1,050 l	1,450 l

5.3 Micro plus hopper volume

CMS-T-00012590-A.1

Hopper volume	Diameter of the filling opening
110 l	239 mm

5.4 Coulters

CMS-T-00010996-A.1

	Primera DMC 3000	Primera DMC 4500
Number of seeding coulters	16	24
Number of coulters modules	4	6
Row spacing	18.75 cm	18.75 cm

5.5 Mounting category

CMS-T-00008620-D.1

Coupling device	Category
Ball hitch coupling	M20 / K 80
Drawbar eye	D = 46 mm
	D = 50 mm
	D = 51 mm
	D = 58 mm
	D = 71 mm
	D = 79 mm
Lower link hitch	Category 3
	Category 4N

5.6 Permissible payload

CMS-T-00011015-C.1

Permissible payload for road travel
Permissible payload = $A_Z - A_L =$ _____ kg

Permissible payload for operation
Permissible payload = $G_Z - G_L =$ _____ kg

- A_Z : Permissible technical axle loads according to the rating plate [kg]
- A_L : Axle loads determined in an empty state [kg]
- G_Z : Permissible technical implement weight according to the rating plate [kg]
- G_L : Determined tare weight [kg]

5.7 Optimal working speed

CMS-T-00010997-A.1

10-18 km/h

5.8 Spread rate

CMS-T-00012295-A.1



NOTE

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

Spreading material	Spread rate at 15 km/h
Seed	Maximum 250 kg/ha
	Minimum 2 kg/ha (1 metering unit)
Fertiliser	Maximum 80 kg/ha

5.9 Performance characteristics of the tractor

CMS-T-00011457-A.1

Type	Engine rating
Primera DMC 3000	Starting at 60 kW / 80 hp
Primera DMC 4500	Starting at 95 kW / 130 hp

Electrical system	
Battery voltage	12 V
Lighting socket	7-pin

Hydraulic system	
Maximum operating pressure	210 bar
Tractor pump output	At least 80 l/min at 170 bar for fan drive
	At least 50 l/min at 170 bar for fan drive with on-board hydraulic system
Implement hydraulic oil	HLP68 DIN51524 The hydraulic oil is suitable for the combined hydraulic oil circuits of all standard tractor manufacturers.
Control units	Single-acting, at least 2 control units depending on the implement equipment
Pressure-free return flow	Do not exceed a back pressure of 10 bar

PTO shaft (only with on-board hydraulic system)	
Required speed	1,000 1/min
Direction of rotation	Clockwise (when looking at the tractor from the rear)

Brake system	
Implement	Tractor
Dual-circuit pneumatic brake system	Dual-circuit pneumatic brake system
Single-circuit hydraulic brake system	Single-circuit hydraulic brake system

5.10 Hydraulic oil for the on-board hydraulic system

CMS-T-00012045-A.1

Oil designation	HLP68 DIN 51524
Oil quantity	32 l to 35 l

5.11 Noise development data

CMS-T-00006745-A.1



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 cab closed.



Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5.12 Drivable slope inclination

CMS-T-00010998-A.1

Across the slope		
On left in direction of travel	20 %	
On right in direction of travel	20 %	

Up the slope and down the slope		
Up the slope	20 %	
Down the slope	20 %	

5.13 Soil properties

CMS-T-00010999-A.1

Soil texture	All
Deviation from the level plane (microrelief)	-6 cm to 6 cm
Soil moisture	up to 20 %
Soil strength (depth of 0 cm to 10 cm)	2.0 MPa
Soil strength (depth of 10 cm to 15 cm)	2.5 MPa

5.14 Lubricants

CMS-T-00002396-B.1

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

Preparing the machine

6

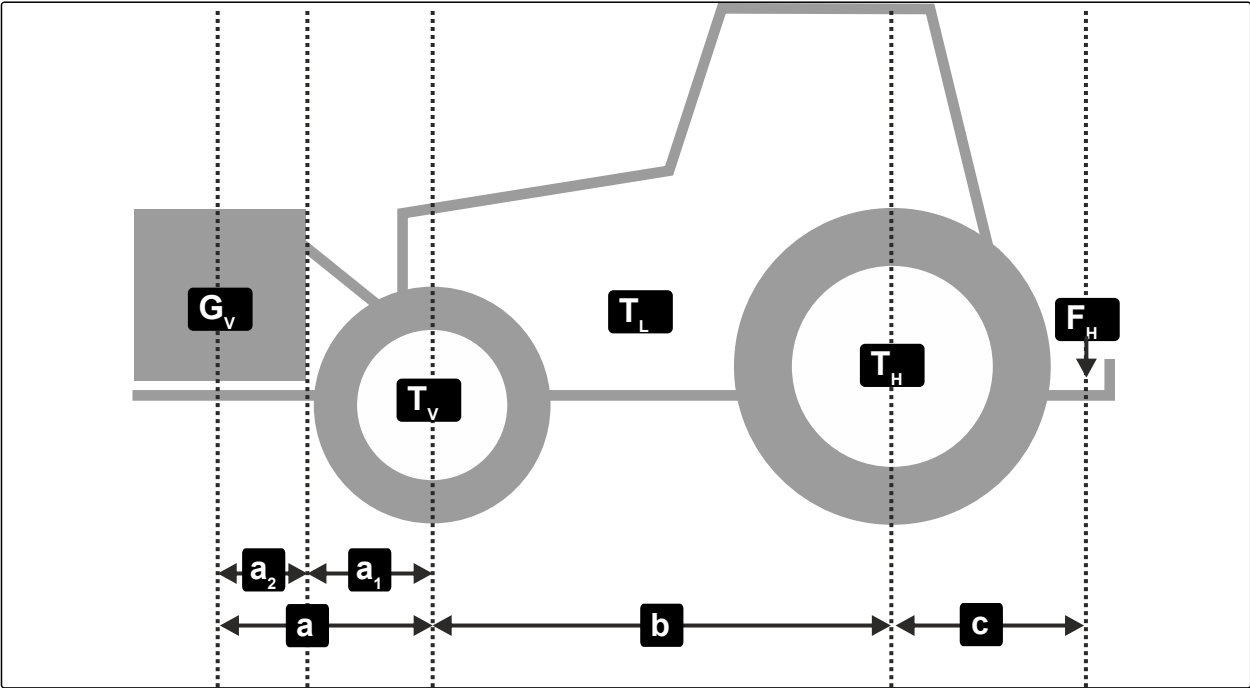
CMS-T-00010921-B.1

6.1 Checking the tractor suitability

CMS-T-00004592-F.1

6.1.1 Calculating the required tractor characteristics

CMS-T-00004868-E.1



CMS-I-00000580

Designation	Unit	Description	Calculated values
T_L	kg	Tractor empty weight	
T_V	kg	Front axle load of the operational tractor without mounted implement or ballast weights	
T_H	kg	Rear axle load of the operational tractor without mounted implement or ballast weights	
G_V	kg	Total weight of front-mounted implement or front ballast	
F_H	kg	Drawbar load	

Designation	Unit	Description	Calculated values
a	m	Distance between the centre of gravity of the front-mounted implement or the front ballast and the centre of the front axle	
a ₁	m	Distance between the centre of the front axle and the centre of the lower link connection	
a ₂	m	Centre of gravity distance: Distance between the centre of gravity of the front-mounted implement or the front ballast and the centre of the lower link connection	
b	m	Wheelbase	
c	m	Distance between the centre of the rear axle and the centre of the lower link connection	

1. Calculate the minimum front ballasting.

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

$$G_{\min} = \underline{\hspace{100pt}}$$

$$G_{\min} = \text{[Grey box]}$$

CMS-I-00003504

2. Calculate the actual front axle load.

$$T_{Vtat} = \frac{G \cdot (a + b) + T_V \cdot b - F_H \cdot c}{b}$$

$$T_{Vtat} = \underline{\hspace{100pt}}$$

$$T_{Vtat} = \text{[Grey box]}$$

CMS-I-00005422

3. Calculate the actual total weight of the tractor-implement combination.

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

$$G_{tat} =$$

$$G_{tat} =$$

CMS-I-00006344

4. Calculate the actual rear axle load.

$$T_{Htat} = G_{tat} - T_{Vtat}$$

$$T_{Htat} =$$

$$T_{Htat} =$$

CMS-I-00000514

5. Determine the tyre load capacity for two tractor tyres in the manufacturer specifications.
6. Write down the determined values in the following table.



IMPORTANT

Danger of accident due to implement damage caused by excessive loads

- Make sure that the calculated loads are smaller or equal to the permissible loads.

	Actual value according to calculation			Permitted value according to tractor operating manual			Tyre load capacity for two tractor tyres	
Minimum front ballasting		kg	≤		kg		-	-
Total weight		kg	≤		kg		-	-
Front axle load		kg	≤		kg	≤		kg
Rear axle load		kg	≤		kg	≤		kg

6.1.2 Determining the required coupling devices

CMS-T-00004593-D.1

Coupling device		
Tractor	AMAZONE implement	
Upper hitch		
Pin coupling, form A, B, C A, not automatically A, automatically, smooth pin A, automatically, crowned pin	Drawbar eye	Bushing 40 mm
	Drawbar eye	40 mm
	Drawbar eye	50 mm, only compatible with form A
Upper hitch or lower hitch		
Ball hitch coupling 80 mm	Ball hitch coupling	80 mm
Lower hitch		
Towing hook or hitch hook	Drawbar eye	Centre hole Ø 50 mm Eyelets Ø 30 mm
	Rotating drawbar eye	compatible only with form Y, hole Ø 50 mm
	Drawbar eye	Centre hole Ø 50 mm Eyelets Ø 30-41 mm
Swinging drawbar, Category 2	Drawbar eye	Centre hole 50 mm Eyelets 30 mm
		Bushing, 40 mm 40 mm
		50 mm
Swinging drawbar	Drawbar eye	
Swinging drawbar or Piton-fix	Drawbar eye	Centre hole 50 mm Eyelets 30 mm
	Rotating drawbar eye	compatible only with form Y, hole Ø 50 mm
Non-swivel clevis coupling	Rotating drawbar eye	
Lower link hitch	Lower link traverse	

- Check whether the coupling device of the tractor is compatible with the coupling device of the implement.

6.1.3 Comparing the permissible DC value with actual DC value

CMS-T-00004867-B.1

Designation	Description
T	Permissible total weight of the tractor in t, including the drawbar load
C	Sum of the permissible axle loads of the implement in t

1. Calculate the D_c value.
2. Check whether the calculated D_c value is smaller or equal to the D_c values on the rating plate of the connection devices of the implement and tractor.

$$D_c = 9,81 \cdot \frac{T \cdot C}{T + C}$$

$$D_c = 9,81 \cdot \frac{\text{ } \cdot \text{ }}{\text{ } + \text{ }}$$

$$D_c = \text{ }$$

CMS-I-00003582

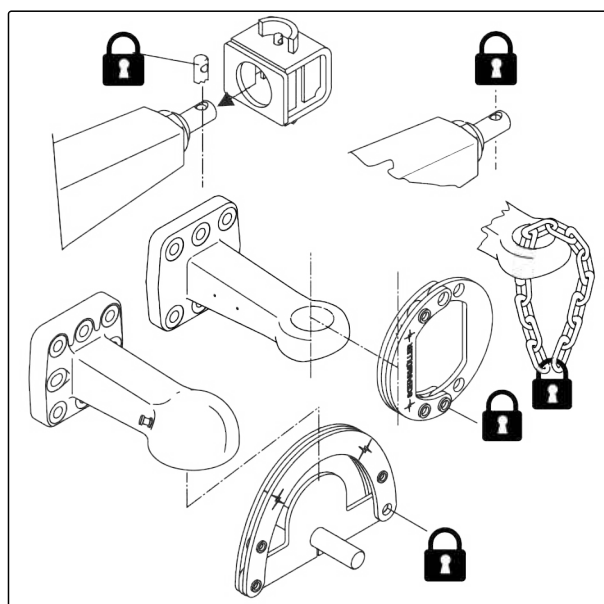
6.2 Coupling the implement

CMS-T-00010923-A.1

6.2.1 Removing the safety device against unauthorised use

CMS-T-00005089-B.1

1. Unlock the padlock.
2. Remove the safety device against unauthorised use from the hitch device.



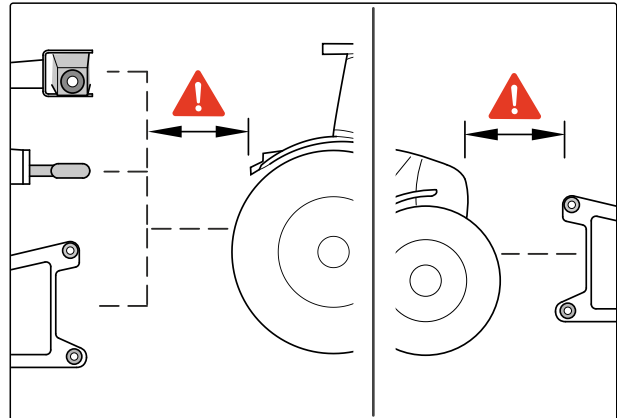
CMS-I-00003534

6.2.2 Driving the tractor towards the implement

CMS-T-00005794-D.1

Enough space must remain between the tractor and implement so that the supply lines can be coupled without obstructions.

- Drive the tractor towards the implement, leaving a sufficient distance.



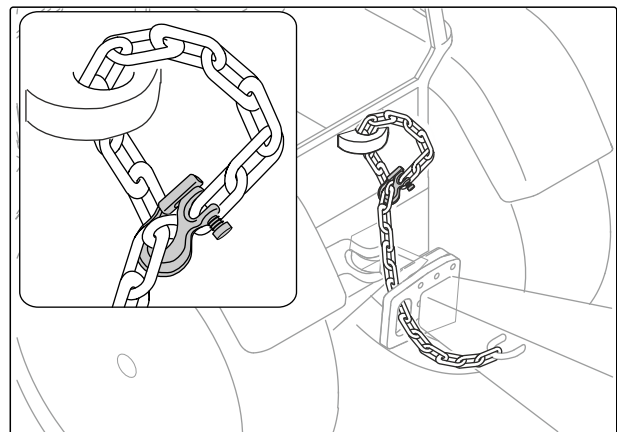
CMS-I-00004045

6.2.3 Fastening the safety chain

CMS-T-00004293-D.1

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

- Fasten the safety chain on the tractor as prescribed.



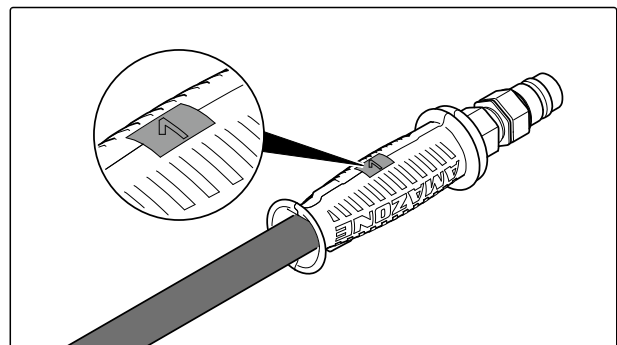
CMS-I-00007814

6.2.4 Coupling the hydraulic hose lines




CMS-T-00010924-A.1


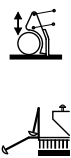


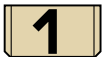










All hydraulic hoses are equipped with handles. The handles have colour markings with a code number or a code letter. The markings are assigned to the respective hydraulic functions of the pressure line of a tractor control unit. Stickers are applied on the implement for the markings, which illustrate the respective hydraulic functions.

The tractor control unit is used with different types of actuation, depending on the hydraulic function:



CMS-I-00000121

Type of actuation	Function	Symbol
Latching	Permanent oil circulation	
Momentary	Oil circulation until action is executed	
Floating	Free oil flow in the tractor control unit	

Designation		Function			Tractor control unit	
Yellow			Coulters, exact following harrow, track marker	Lowering (working position)	Single-acting	
				Lifting		
Beige			Filling auger	Switching on the hydraulic oil supply	Single-acting	
Green			Track marker (obstacle switching)	Lowering	Single-acting	
				Lifting		
Red (for implements without on-board hydraulic system)			Fan hydraulic motor	Switching on and off	Single-acting	
Red (for implements without on-board hydraulic system)		Fan return flow line				



WARNING

Risk of injury or even death

If the hydraulic hose lines are incorrectly connected, the hydraulic functions may be faulty.

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

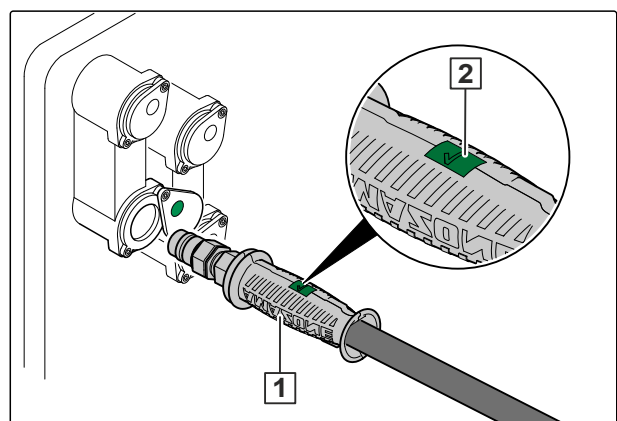


IMPORTANT

Implement damage due to insufficient hydraulic oil return flow

- ▶ Only use lines of size DN16 or larger for the pressureless hydraulic oil return flow.
- ▶ Select short return paths.
- ▶ Connect the pressureless hydraulic return flow to the intended coupling.
- ▶ *Depending on the implement equipment:* couple the leakage oil line in the intended coupling.
- ▶ Install the supplied coupling sleeve on the pressureless hydraulic oil return.

1. Depressurise the hydraulic system between the tractor and the implement using the tractor control unit.
 2. Clean the hydraulic plugs.
 3. Couple the hydraulic hose lines **1** to the hydraulic sockets of the tractor according to the marking **2**.
- ➔ The hydraulic plugs lock perceptibly.
4. Route the hydraulic hose lines with sufficient freedom of movement and without chafing points.



CMS-I-00001045

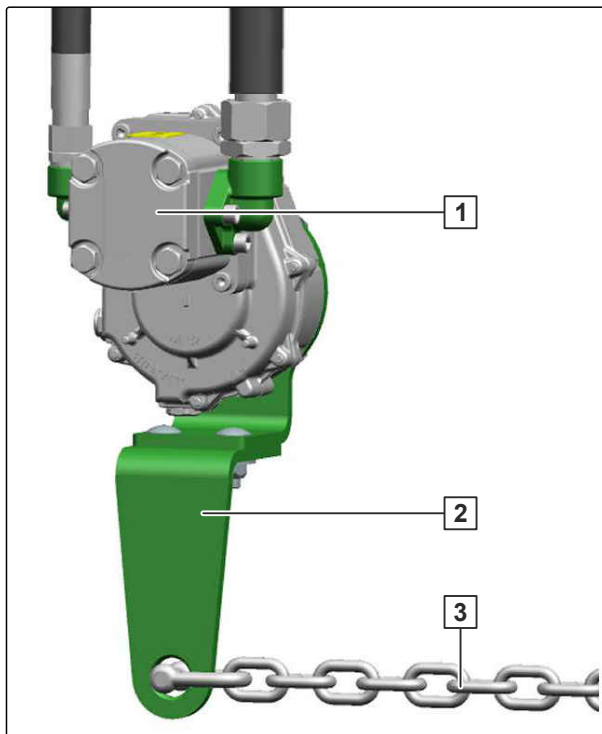
6.2.5 Coupling the hydraulic pump

CMS-T-00010898-A.1

NOTE

Before initial operation, the suction line of the hydraulic pump must be filled with oil.

1. Clean and grease the tractor PTO shaft.
2. Put the hydraulic pump **1** on the tractor PTO shaft in the right position of the torque arm **2**.
3. Depending on the design, secure the hydraulic pump with the pin or bolt it on.
4. *To secure the hydraulic pump against rotating:*
Attach the chain **3**.
5. Route the hydraulic lines with sufficient freedom of movement and without chafing points or clamping points.

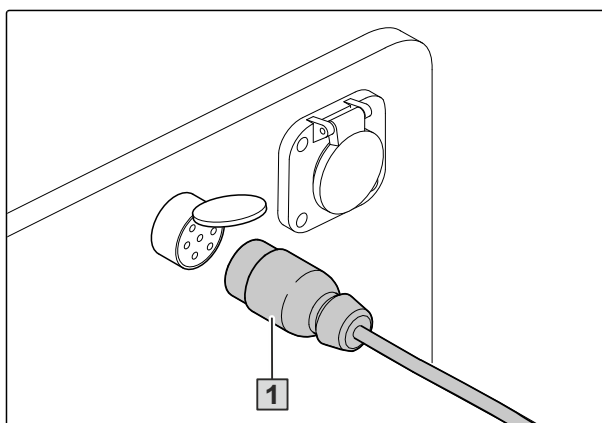


CMS-I-00007517

6.2.6 Coupling the power supply

CMS-T-00001399-G.1

1. Insert the plug **1** for the power supply.
2. Route the power supply cable with sufficient freedom of movement and without chafing or pinching points.
3. Check the lighting on the implement for proper function.



CMS-I-00001048

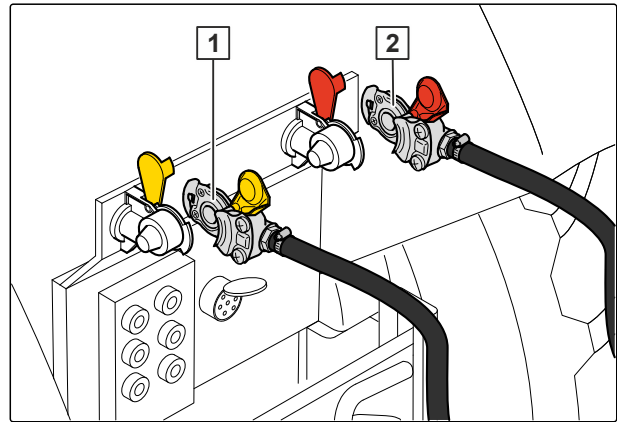
6.2.7 Coupling the brake system

CMS-T-00004317-F.1

6.2.7.1 Coupling the dual-circuit pneumatic brake system

CMS-T-00004318-F.1

1. Open the cover of the coupling heads on the tractor.
2. Clean off any dirt from the sealing rings on the coupling heads.
3. Disconnect the yellow coupling head for the brake line **1** from the parking device.
4. Connect the yellow coupling head to the coupling marked in yellow on the tractor.
5. Disconnect the red coupling head for the brake line **2** from the parking device.
6. Connect the red coupling head to the coupling marked in red on the tractor.
7. Route the brake lines with sufficient freedom of movement and without chafing or pinching points.



CMS-I-00003559

6.2.7.2 Coupling the single-circuit hydraulic brake system

CMS-T-00004319-D.1

1. Clean the hydraulic plug and hydraulic socket.
2. Couple the hydraulic plug and hydraulic socket.

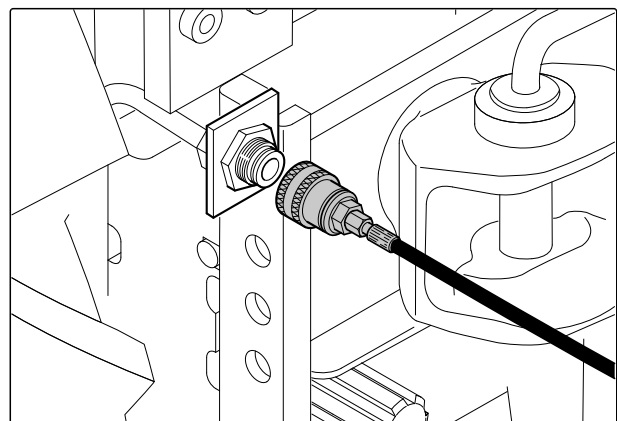


TROUBLESHOOTING

Is it difficult to couple the hydraulic plug and hydraulic socket?

The pressure accumulator of the emergency brake presses hydraulic oil into the hydraulic lines.

1. Relieve the hydraulic pressure using the hand pump on the brake valve of the emergency brake.

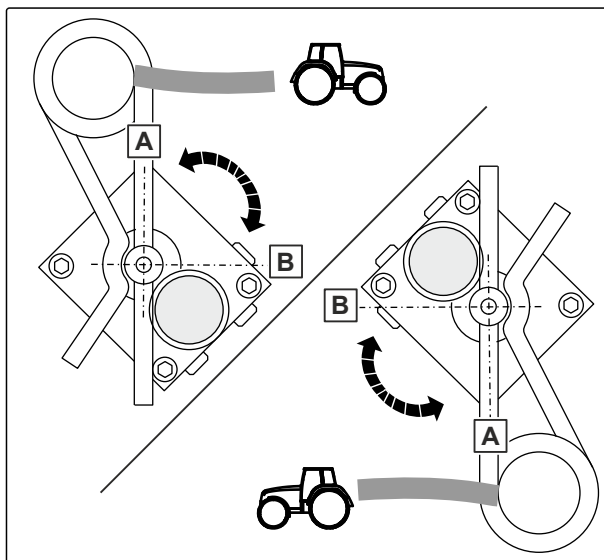


CMS-I-00003560

6 | Preparing the machine

Coupling the implement

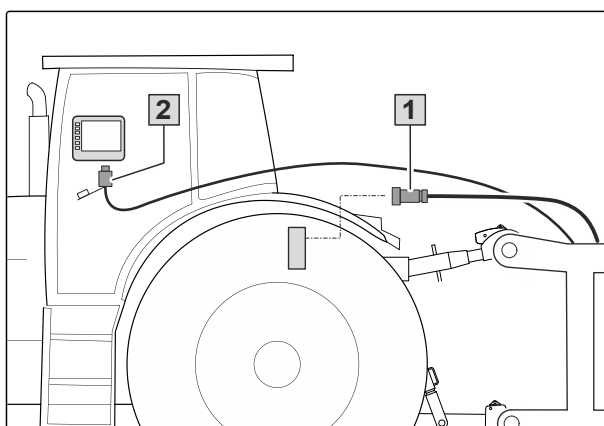
3. Move the brake valve to position **A**.
 4. Attach the ripcord to a sturdy point on the tractor.
 5. Actuate the tractor brake several times with the tractor motor running.
- ➔ The pressure accumulator of the emergency brake will be charged.



CMS-I-00007789

6.2.8 Coupling the ISOBUS or control computer

1. Insert the plug of the ISOBUS line **1** or control computer line **2**.
2. Route the ISOBUS line with sufficient freedom of movement and without chafing or pinching points.

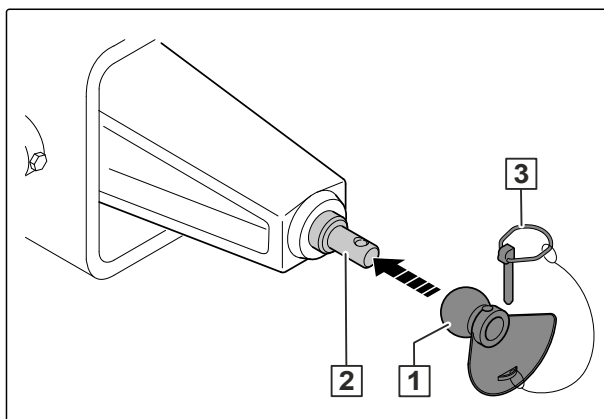


CMS-I-00006891

6.2.9 Coupling on the lower link hitch

6.2.9.1 Attaching the backstop profiles for the lower links

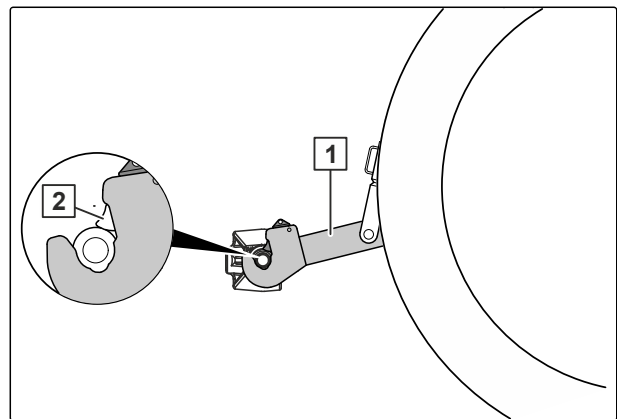
1. Put the backstop profiles **1** on the lower link pins **2** of the lower link cross member.
2. Secure the backstop profiles with the linch pin **3**.



CMS-I-00007047

6.2.9.2 Coupling the tractor's lower link

1. Set the tractor lower links **1** to the same height.
2. Drive the tractor towards the implement.
3. Couple the tractor lower links from the tractor seat.
4. Check whether the lower link catch hooks **2** are correctly locked.
5. Lock the tractor lower links laterally.

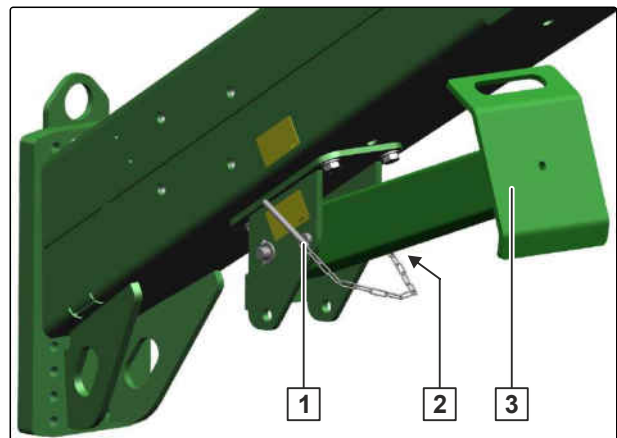


CMS-T-00004294-F.1

CMS-I-00003346

6.2.9.3 Swivelling up the jack

1. slightly raise the implement using the lower links.
2. Pull the lynch pin **2** out of the pin.
3. Pull out the pin **1**.
4. Swivel up the jack **3**.
5. Insert the pin.
6. Secure the pin with the lynch pin.



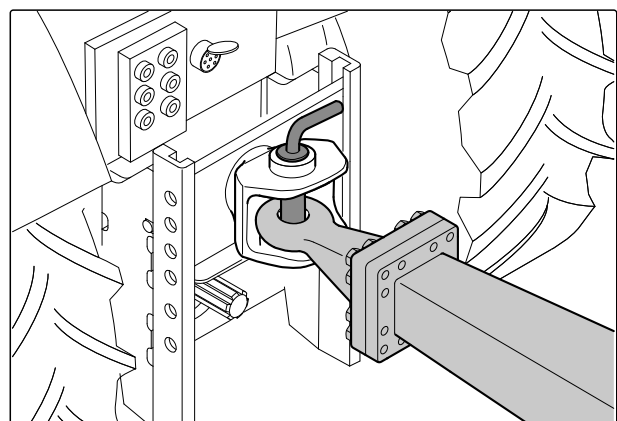
CMS-T-00011002-A.1

CMS-I-00007519

6.2.10 Coupling the ball hitch coupling or drawbar eye

6.2.10.1 Coupling the drawbar eye

1. Drive the tractor towards the implement.
2. Couple the drawbar eye onto the clevis coupling of the tractor.

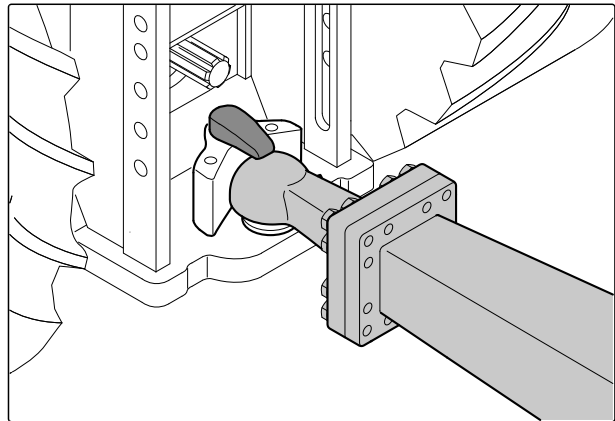


CMS-T-00010982-A.1

CMS-I-00003557

6.2.10.2 Coupling the ball hitch coupling

1. Drive the tractor towards the implement.
2. Lower the drawbar and put the ball bracket on the ball hitch.
3. Secure the ball hitch coupling on the tractor side.



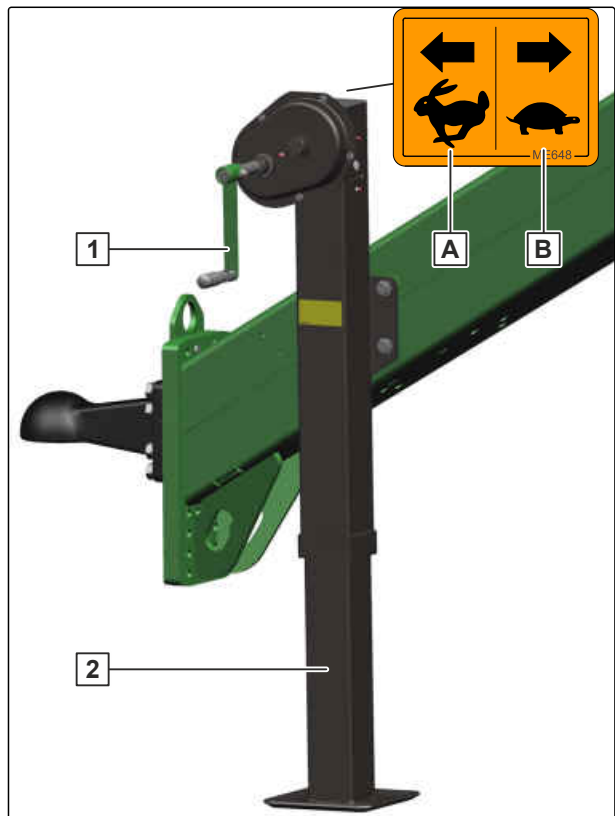
CMS-T-00010983-A.1

CMS-I-00003558

6.2.10.3 Lifting the jack

The jack must be moved under load with the hand crank pushed in in slow gear **B**. If there is no more load on the jack, the hand crank can be pulled out and the jack can be moved in fast gear **A**.

1. Unfold the handle of the hand crank **1**.
2. With the hand crank pushed in **1**, crank up the jack **2** until it no longer bears any load.
3. Pull out the hand crank.
4. Turn the hand crank until the jack reaches the upper stop.
5. Fold in the handle of the hand crank.



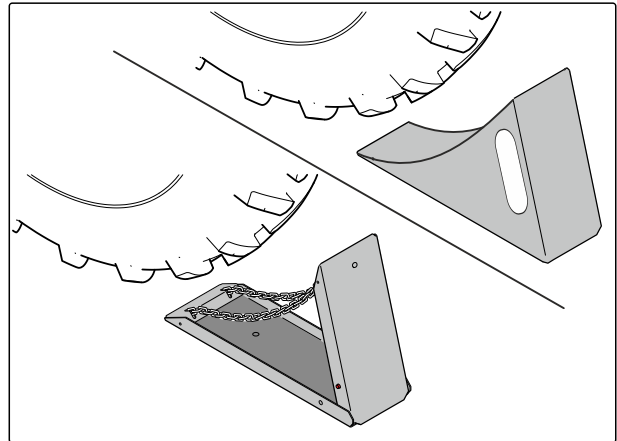
CMS-T-00010970-A.1

CMS-I-00007520

6.2.11 Removing the wheel chocks

1. Remove wheel chocks from the wheels.
2. Fold the foldable wheel chocks.
3. Put the wheel chocks in the holder.

CMS-T-00004296-D.1

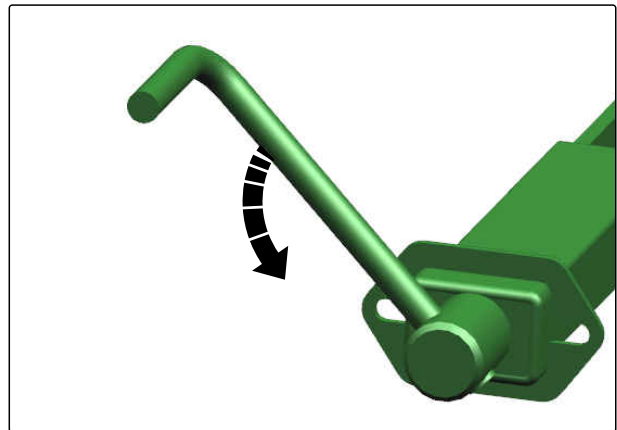


CMS-I-00007790

6.2.12 Releasing the parking brake

- Turn the hand crank counter-clockwise until the brake cable is relaxed.

CMS-T-00012108-A.1



CMS-I-00007808

6.3 Preparing the implement for operation

CMS-T-00010922-B.1

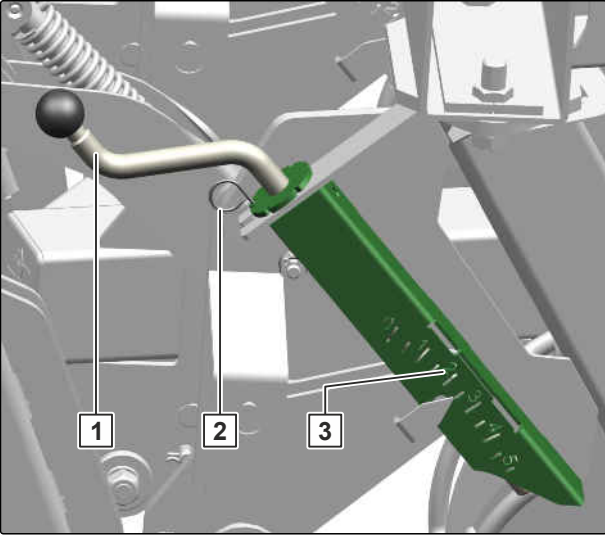
6.3.1 Adjusting the placement depth of the chisel coulters

CMS-T-00010901-A.1

The placement depth is adjusted on each holder with a crank **1**.

The placement depth depends on the soil conditions. The scale **3** serves for orientation and does not show the absolute placement depth.

1. Pull out the lock pin **2**.
2. Adjust the placement depth with the crank **1**.
3. Insert the lock pin.
4. Make the same adjustment on all setting elements.
5. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.



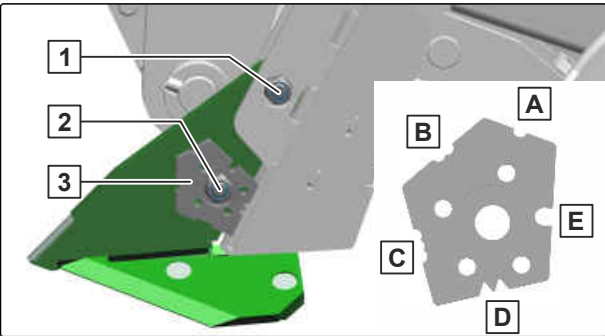
CMS-I-00007523

6.3.2 Adjusting the penetration angle of the duckfoot chisels

CMS-T-00010902-A.1

The penetration angle of the duckfoot chisel must be adjusted to the placement depth of the chisel coulters.

1. Adjust the placement depth of the chisel coulters to a value greater than 0 cm.
2. Lower the chisel coulters.
3. Loosen the nuts **1** and **2**.
4. Turn the adjustment plates **3** on both sides until the desired surface is resting on the coulter body:



CMS-I-00007531

Placement depth	Contact surface of the adjustment plates
0 cm to 1 cm	D
1 cm	C
1.5 cm to 2 cm	B
2.5 cm and more	A

The contact surface **E** will not be used.

5. Tighten the nuts **1** and **2**.
6. Make the same adjustment on all setting elements.
7. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.

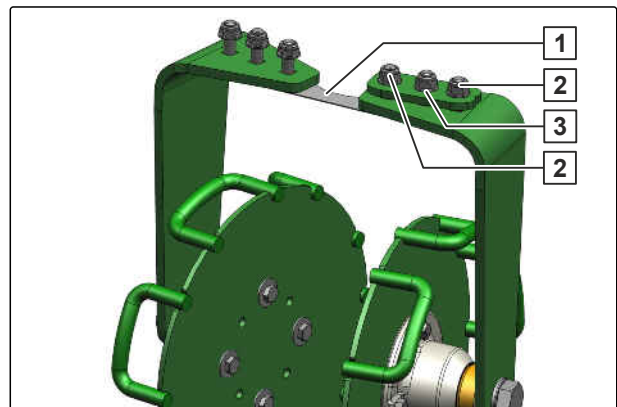
6.3.3 Adjusting the pitch of the depth control wheels

The factory setting for the pitch is defined by a positioning plate **1**.

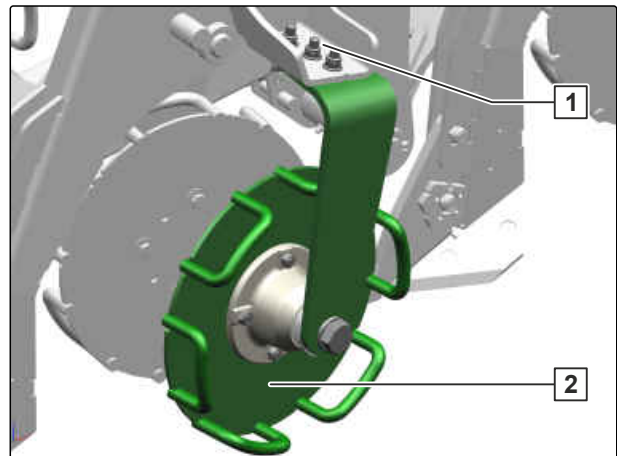
The positioning plate can be removed and the pitch can be adjusted to the soil conditions if necessary. A larger pitch should be selected for direct seeding, and a smaller one for mulch seeding.

1. Unscrew the nuts **2** and remove the bolts.
2. Take off the positioning plate **1**.
3. Reinsert the bolts and nuts, but do not tighten them yet.
4. Loosen the nuts **1**.
5. Swivel the depth control wheel **2** to the desired position.
6. Tighten all of the nuts.
7. Make the same adjustments on all of the depth control wheels.
8. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.

CMS-T-00010951-A.1



CMS-I-00008340

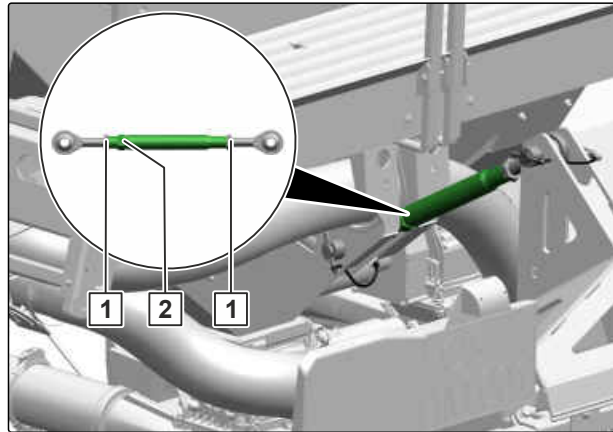


CMS-I-00007530

6.3.4 Adjusting the pitch of the exact following harrow

CMS-T-00010952-A.1

1. Move the implement into working position on the field.
2. Apply the tractor's parking brake, switch off the engine and remove the ignition key.
3. Loosen the lock nut **1**.
4. Turn the turnbuckle **2** until the exact following harrow is in the desired position.
5. Tighten the lock nuts.
6. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.



CMS-I-00007553

6.3.5 Adjusting the working depth of the exact following harrow

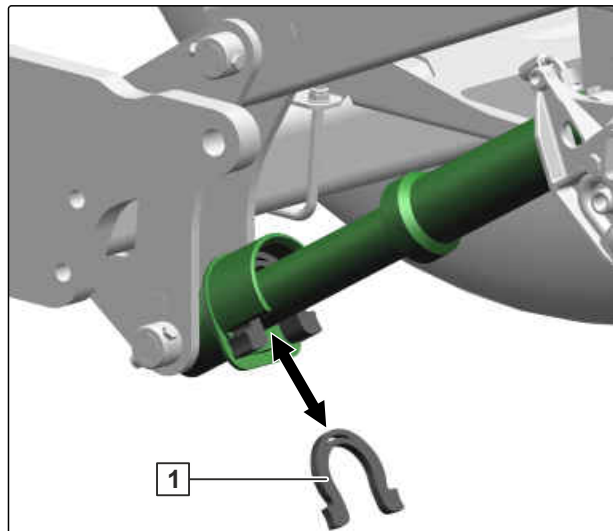
CMS-T-00010953-A.1



REQUIREMENTS

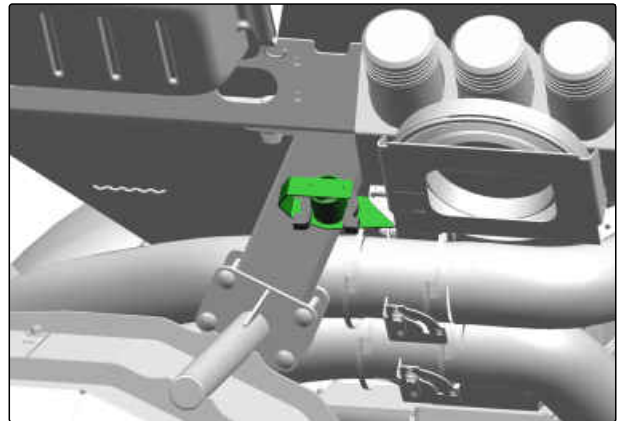
- ✓ Spacer elements are available for adjusting the working depth.

1. Lift the coulters and exact following harrow using the "yellow" tractor control unit.
2. Install or remove the required number of spacer elements **1** on both sides of the exact following harrow.



CMS-I-00007534

3. Store unnecessary spacer elements in the holder.
4. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.



CMS-I-00007535

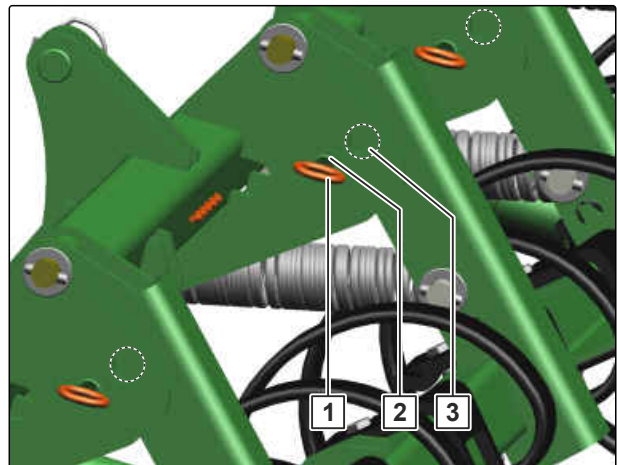
6.3.6 Moving the roller harrow into working position or parking position

CMS-T-00010992-A.1

1. Lift the coulters and exact following harrow using the "yellow" tractor control unit.
2. Pull the linch pin out of the pin **1**.
3. *To move the roller harrow into working position:*
Insert the pin **1** in position **2**

or

To move the roller harrow into parking position:
Insert the pin **1** in position **3**.
4. Secure the pin with a linch pin.
5. Make the same adjustment on all setting elements.



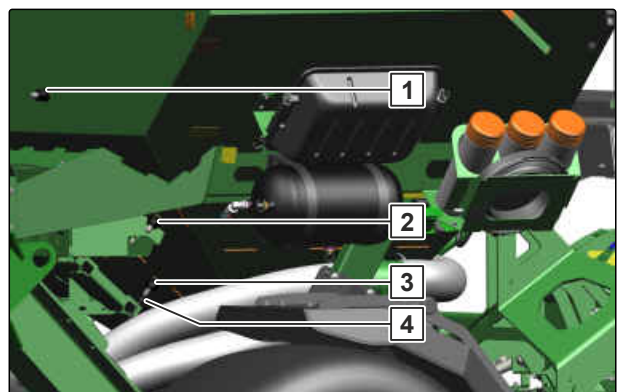
CMS-I-00007539

6.3.7 Repositioning the fill level sensor

CMS-T-00011830-A.1

The fill level sensor must be attached at the suitable height, depending on the spreading material.

- Grains and legumes: attach the fill level sensor in the middle **2** or upper holder **1**
- Fine seed: attach the fill level sensor in the middle **2** or lower holder **3** (factory setting)
- Fertiliser: attach the fill level sensor in one of the three holders, depending on the spread rate



CMS-I-00007817



NOTE

Reposition the fill level sensor only when the hopper is empty. Otherwise, the flow of spreading material prevents the attachment of the fill level sensor.

1. Loosen the nuts on the fill level sensor **4**.
2. Loosen the nut of the sealing plug on the desired holder.
3. Insert the fill level sensor in the desired holder and fasten it with the nut.
4. Insert the sealing plug into the vacated holder and fasten it with the nut.

6.3.8 Filling the hopper

CMS-T-00012017-B.1

6.3.8.1 Checking the implement for moisture

CMS-T-00012127-A.1

After longer periods of standstill of the implement or after heavy rainfall, moisture can accumulate in the conveyor section and in the seed lines.

1. Before filling the hopper, check the conveyor sections and the seed lines for moisture.
2. *If small amounts of moisture can be seen:*
Move the implement into working position and run the fan until the conveyor section and seed lines are dry

or

If larger amounts of moisture have accumulated:

Carry out the following steps.

3. Open the calibration flaps on the metering units.
4. Drain off the water in the conveyor hoses through the calibration flaps by lifting and moving the conveyor hoses accordingly.
5. Drain off the water in the seed lines through the coulters by lifting and moving the seed lines from the distributor head towards the coulters. If necessary, disconnect the hoses at a suitable point.

6. Run the fan with the calibration flaps open until the conveyor section is dry.
7. Close the calibration flaps.
8. Run the fan until the seed lines are dry.

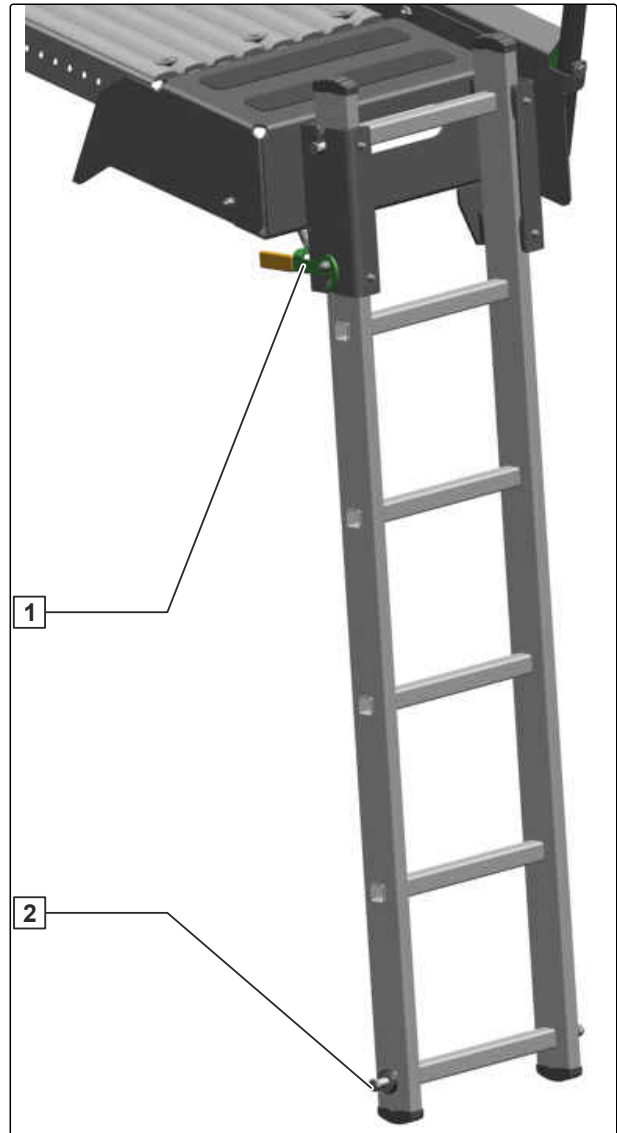
6.3.8.2 Extending and retracting the ladder

CMS-T-00012019-A.1

- *To extend the ladder:*
Unlock the side lever **1** and pull the ladder down.

or

To retract the ladder:
Hold the ladder by one of the rungs and slide it up.
- ➔ The lever is automatically locked on the pin **2** and holds the ladder in the upper position.



CMS-I-00007759

6.3.8.3 Opening and closing the swivelling cover tarpaulin

CMS-T-00012018-A.1

1. Extend the ladder.
2. Climb on the service platform via the ladder.

6 | Preparing the machine

Preparing the implement for operation

3. *To open the swivelling cover tarpaulin* **1**:
Pull the handle **2** up.

or

To close the swivelling cover tarpaulin:
Press the handle **2** down.



CMS-I-00007755

6.3.8.4 Filling the hopper with BigBags

CMS-T-00011826-A.1



REQUIREMENTS

- ✓ The implement is coupled to the tractor.
- ✓ The fan is switched off.
- ✓ The tractor parking brake is applied.
- ✓ The tractor engine is switched off and the ignition key is removed.

1. Open the swivelling cover tarpaulin.
2. Fill the hopper with BigBags.
3. Close the swivelling cover tarpaulin.
4. Climb down from the service platform via the ladder.
5. Retract the ladder.
6. If known, enter the metered quantity [kg] on the control terminal.

6.3.8.5 Using the filling auger to fill the hopper

CMS-T-00012020-B.1

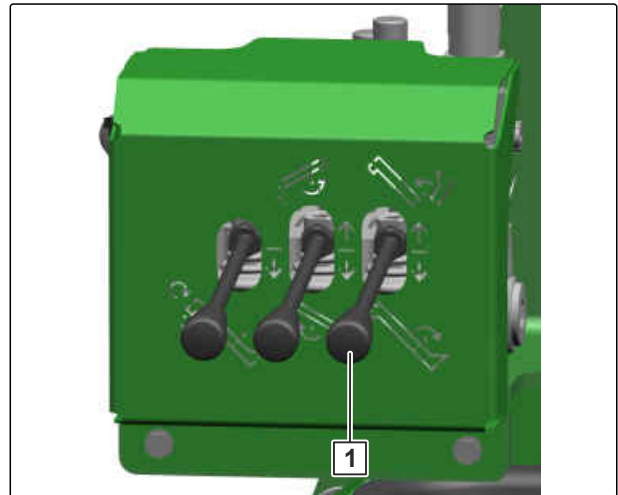


REQUIREMENTS

- ✓ The implement is coupled to the tractor.
- ✓ The fan is switched off.
- ✓ The tractor parking brake is applied.
- ✓ The tractor engine is switched off and the ignition key is removed.

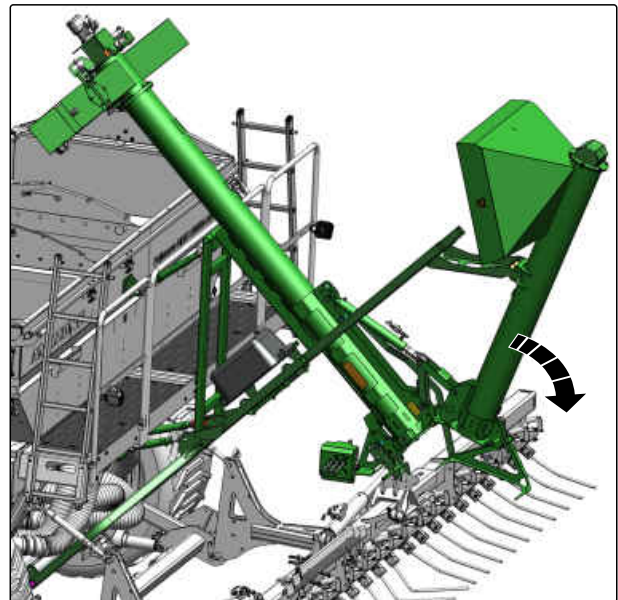
1. Open the swivelling cover tarpaulin.
2. *To supply the filling auger with hydraulic oil:*
Actuate the "beige" tractor control unit.

3. *To unfold the filling auger:*
Actuate the right lever **1** on the control panel.



CMS-I-00007762

➔ The filling auger is unfolded.



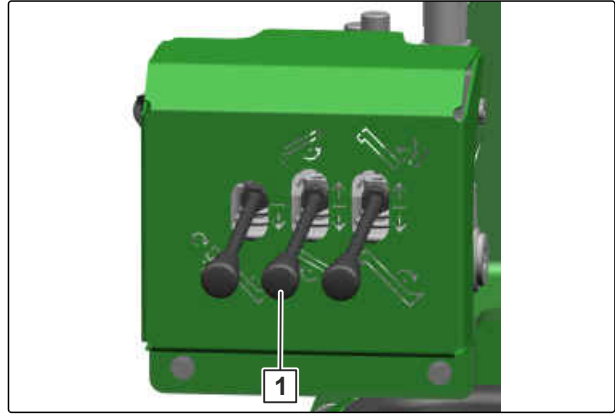
CMS-I-00007763

6 | Preparing the machine

Preparing the implement for operation

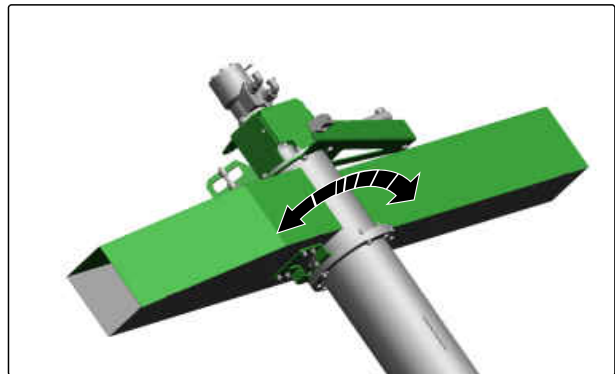
4. *To swivel the outlet towards the hopper chamber to be filled:*

Actuate the centre lever **1** on the control panel.



CMS-I-00007761

➔ The outlet swivels in the desired direction.



CMS-I-00007777

5. *To start the feed auger drive:*

Actuate the left lever **1** on the control panel.

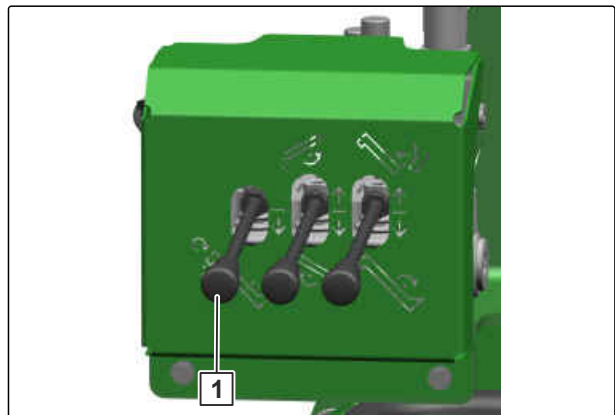
6. Fill the filling funnel of the filling auger with the spreading material.

7. *When the hopper is full:*
stop filling the filling funnel.

8. Leave the feed auger running until it is empty.

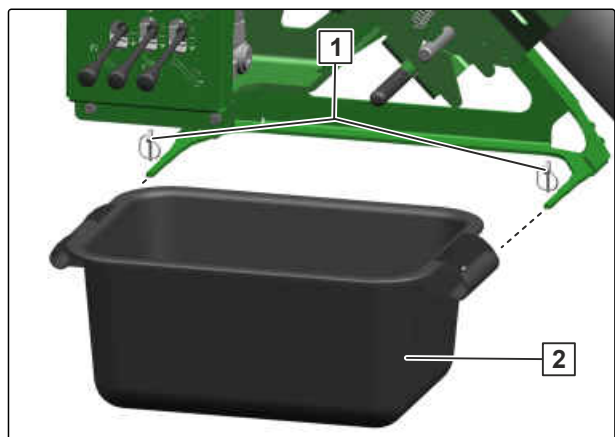
9. *To stop the feed auger:*

Actuate the left lever on the control panel.



CMS-I-00007760

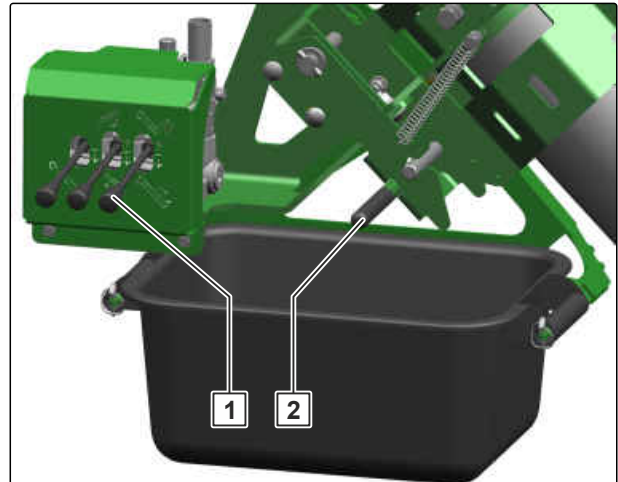
10. Take the collection bucket **2** out of the parking position, insert it under the opening of the filling auger, and secure with lynch pins **1**.



CMS-I-00007766

11. *To swivel the outlet into the horizontal position:*
Actuate the centre lever on the control panel.

12. *To fold the filling auger:*
Release the ratchet **2**, hold tight and actuate the right lever **1** on the control panel.



CMS-I-00007765

- ➔ The filling auger is folded and at the same time, the swivelling railing is folded.



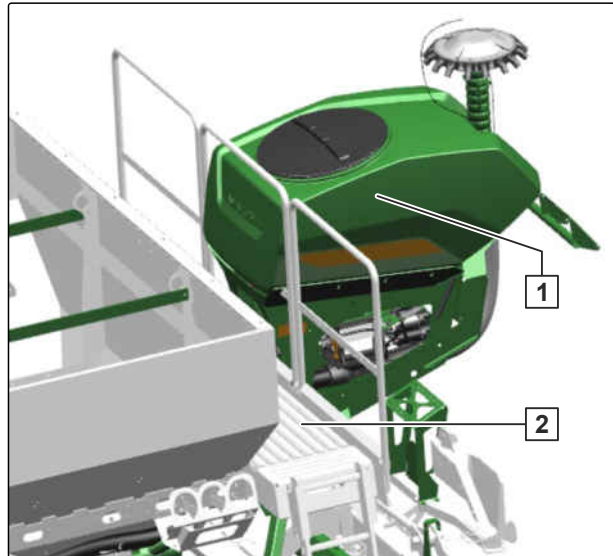
CMS-I-00007764

13. Empty the collection bucket into the respective hopper chamber.
14. Put the collection bucket in the parking position.
15. Close the swivelling cover tarpaulin.
16. If known, enter the metered quantity [kg] on the control terminal.

6.3.9 Preparing for filling the GreenDrill pack top seed drill

CMS-T-00011748-A.1

1. Switch off the fan.
2. Switch off the control terminal.
3. Lift and deposit the spreading material on the service platform **2** with lifting gear.
4. Extend the ladder.
5. Climb on the service platform via the ladder.
6. *To fill the hopper:*
Refer to the operating manual for the GreenDrill pack top seed drill.

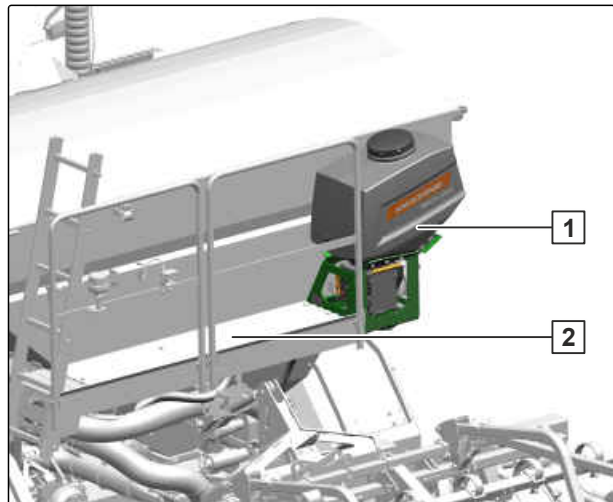


CMS-I-00007689

6.3.10 Preparing for filling the micropellet spreader

CMS-T-00012219-A.1

1. Switch off the fan.
2. Switch off the control terminal.
3. Lift and deposit the micropellets on the service platform with lifting gear.
4. Extend the ladder.
5. Climb on the service platform via the ladder.



CMS-I-00007911

6.3.11 Filling the hopper of the micropellet spreader

CMS-T-00012428-A.1

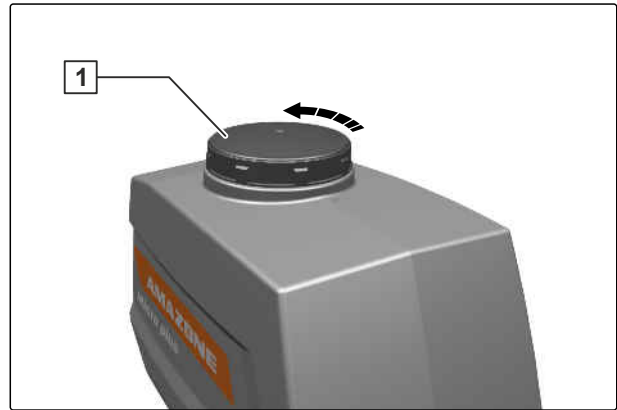
1. Switch off the fan.
2. Switch off the control terminal.

3. Open the hopper cover **1**.
4. Fill the spreading material into the hopper.
5. Close the hopper cover.



NOTE

Due to the variance in the spreading material, AMAZONE recommends calibrating the spread rate after each filling.

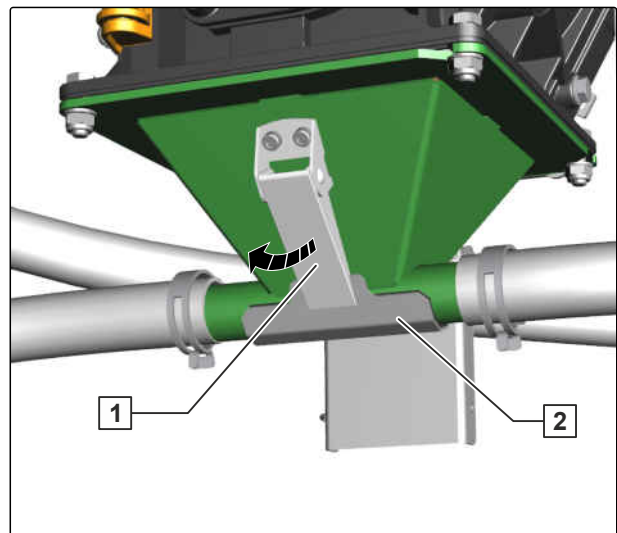


CMS-I-00007989

6.3.12 Calibrating the metering unit of the micropellet spreader

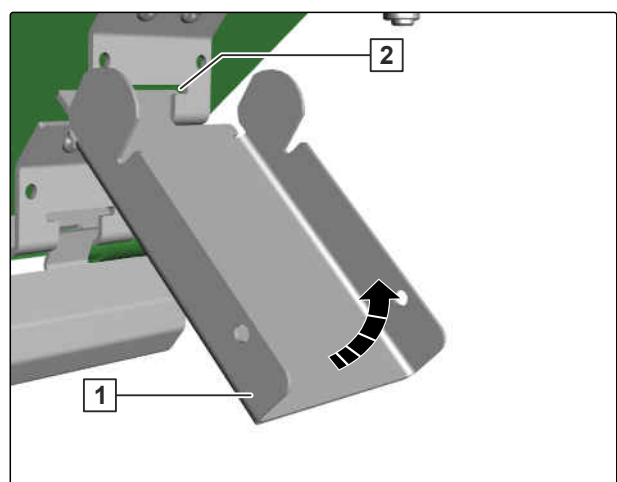
CMS-T-00012433-A.1

1. To open the calibration flap **2**:
Open the quick-release fastener **1**.



CMS-I-00007990

2. To take the deflector plate **1** out of the holder:
Turn the deflector plate up until it can be guided through the slot **2**.

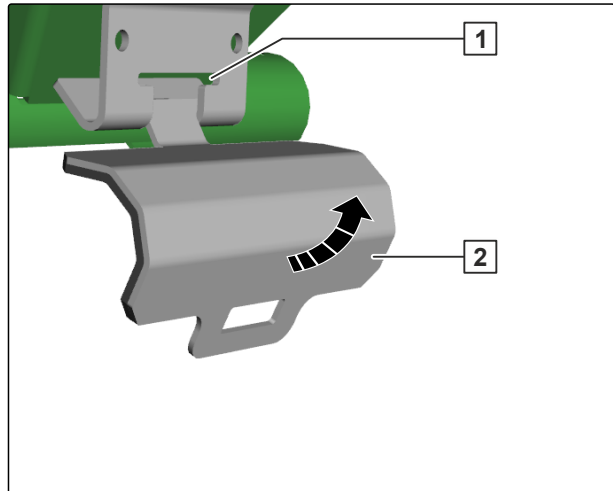


CMS-I-00007991

6 | Preparing the machine

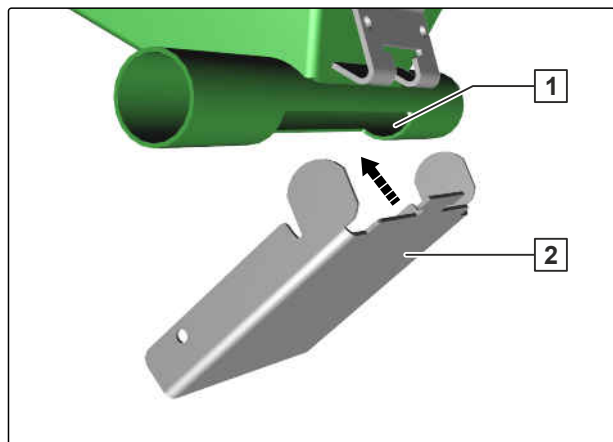
Preparing the implement for operation

3. To take the calibration flap **2** out of the holder:
Turn the calibration flap up until it can be guided through the slot **1**.



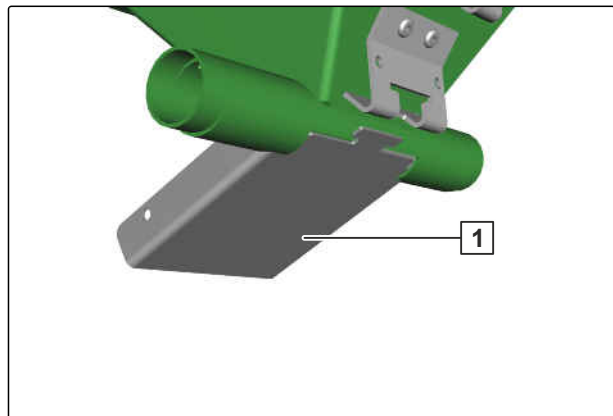
CMS-I-00007992

4. Attach the deflector plate **2** on the opening **1** of the tube.



CMS-I-00007998

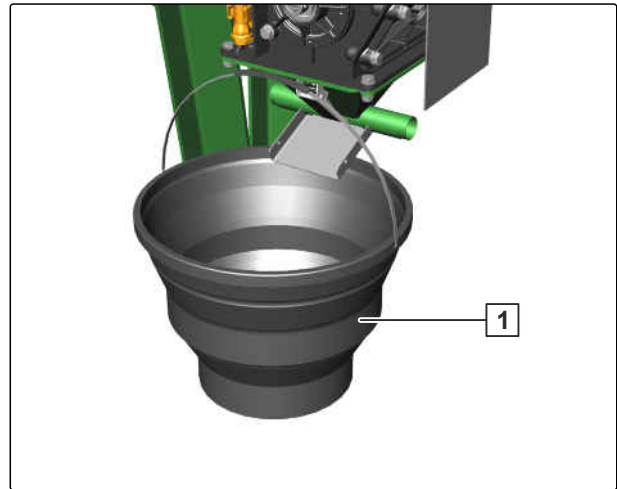
- ➔ The deflector plate **1** is in the calibration position.



CMS-I-00008002

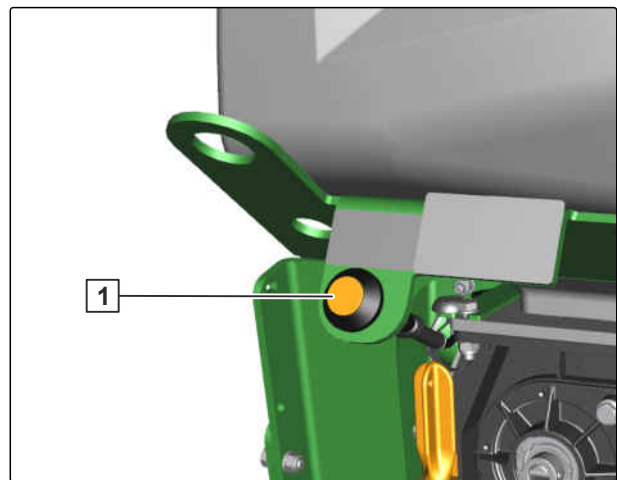
The design of the calibration bucket can vary depending on the implement equipment.

5. Take the calibration bucket **1** from the mount on the implement.
6. *To collect the spreading material from the calibration:*
Place the calibration bucket under the deflector plate.



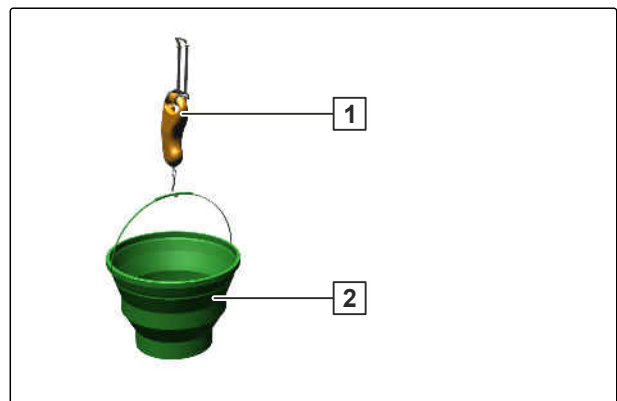
CMS-I-00008004

7. *To start the calibration:*
Press the calibration button **1**.



CMS-I-00008003

8. Take the calibration scale **1** out of the storage bin and hang it on the weighing point.
9. Hang the calibration bucket **2** on the scale.
10. *To enter the weight of the collected spreading material on the control terminal or control computer:*
Refer to the ISOBUS software operating manual, "Calibration menu"



CMS-I-00008443

or

refer to the "Control computer" operating manual.

6.3.13 Adjusting the track marker

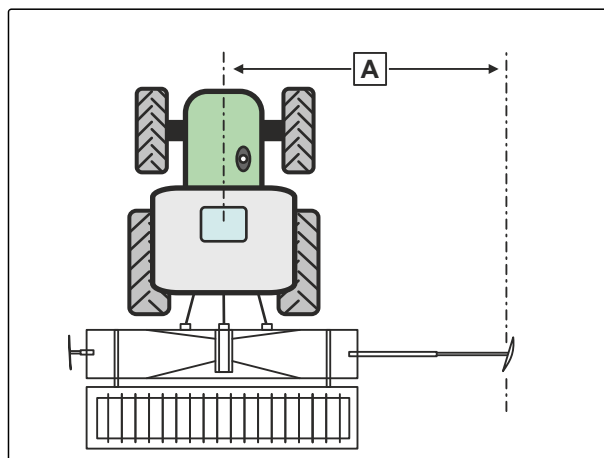
CMS-T-00011010-A.1

6.3.13.1 Adjusting the track marker length

CMS-T-00011715-A.1

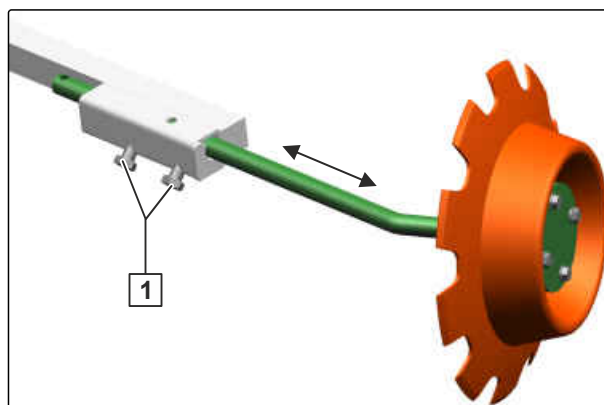
The track markers must be set such that the distance

A corresponds to the implement width.



CMS-I-00003078

1. Loosen the bolts **1**.
2. Move the track disc to the desired position.
3. Tighten the bolts.
4. Make the same adjustments on the second track marker.



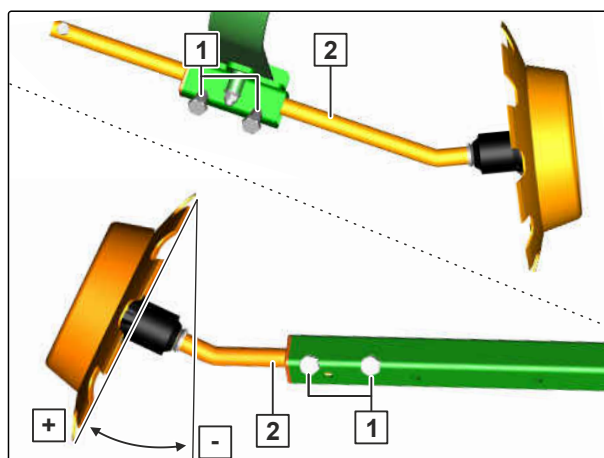
CMS-I-00007585

6.3.13.2 Adjusting the pitch of the track discs

CMS-T-00011005-A.1

1. Loosen the bolts **1**.

Work application	Pitch
Light soils	Reduce - About parallel to the direction of travel
Heavy soils	Increase + More on-grip to the direction of travel



CMS-I-00001077

2. Move the track disc to the desired position by turning the axle **2**.

3. Tighten the bolts.
4. Repeat the procedure on all of the track discs.
5. After five hours of operation, check the bolt connection for tight fit.
6. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.

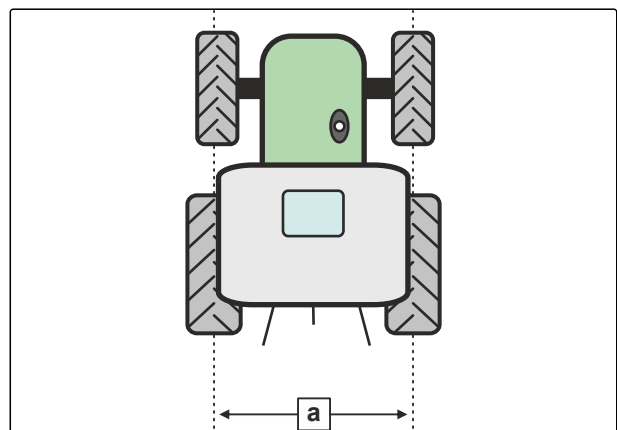
6.3.14 Adjusting the tramline marker

CMS-T-00011004-A.1

6.3.14.1 Adjusting the track width

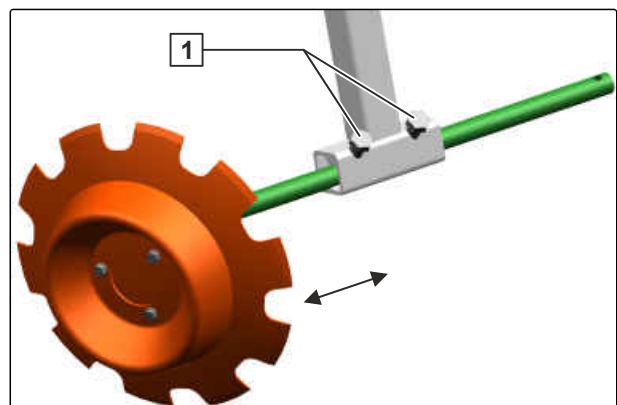
CMS-T-00011721-A.1

1. Determine the tractor track width **a** of the cultivating implement.



CMS-I-00003195

2. Loosen the bolts **1**.
3. Move the track disc to the desired position.
4. Tighten the bolts.
5. Make the same adjustments on the other track disc.

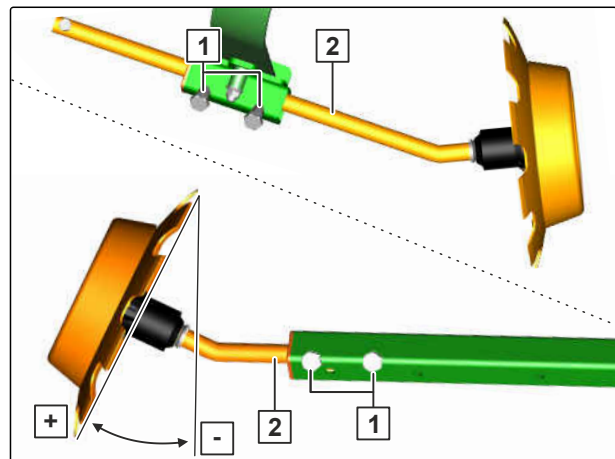


CMS-I-00007583

6.3.14.2 Adjusting the pitch of the track discs

1. Loosen the bolts **1**.

Work application	Pitch
Light soils	Reduce - About parallel to the direction of travel
Heavy soils	Increase + More on-grip to the direction of travel



CMS-T-00011005-A.1

CMS-I-00001077

2. Move the track disc to the desired position by turning the axle **2**.
3. Tighten the bolts.
4. Repeat the procedure on all of the track discs.
5. After five hours of operation, check the bolt connection for tight fit.
6. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.

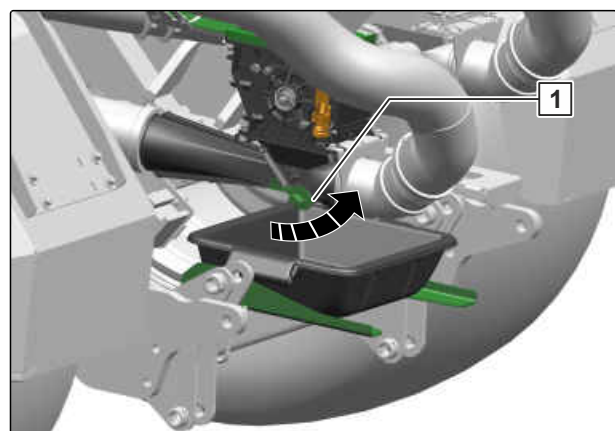
6.3.15 Preparing the metering unit for operation

CMS-T-00012211-A.1

6.3.15.1 Putting the metering unit into operation

CMS-T-00011937-A.1

- *If work is started without calibration:*
Close the calibration flap **1**.



CMS-I-00007769

6.3.15.2 Selecting the metering roller

CMS-T-00003574-I.1

Spreading material	Metering volume									
	3.75 cm ³	7.5 cm ³	20 cm ³	40 cm ³	120 cm ³	210 cm ³	350 cm ³	600 cm ³	660 cm ³	880 cm ³
Beans									X	
Buckwheat						X		X		
Spelt								X	X	X
Peas									X	
Flax (dressed)			X	X						
Barley						X	X	X		X
Grass seeds						X				
Oats						X	X	X		X
Millet			X	X						
Caraway		X	X	X						
Lupines					X		X		X	
Lucerne		X	X	X						
Maize					X					
Poppy	X	X	X							
Oil flax (moist dressed)		X	X	X						
Fodder radish		X	X	X						
Phacelia		X	X	X						
Rapeseed	X	X	X	X						
Rye						X	X	X		X
Red clover		X	X	X						
Mustard			X	X						
Soya							X		X	

Spreading material	Metering volume									
	3.75 cm ³	7.5 cm ³	20 cm ³	40 cm ³	120 cm ³	210 cm ³	350 cm ³	600 cm ³	660 cm ³	880 cm ³
Sunflower seeds					X	X		X		X
Turnips		X	X	X						
Triticale						X		X		X
Wheat						X	X	X		X
Vetches			X	X		X				
Fertiliser (granular)							X		X	



NOTE

For granular fertiliser, always use a flexible roller with a metering volume of 350 cm³ or 660 cm³.

The selection of metering rollers are recommendations. The optimum metering roller can only be determined through calibration.

The roller volumes are written on the side of the roller.

1. The metering roller according to the spreading material can be found in the table.
2. *To install the desired metering roller:*
See "*Changing the metering roller*".
3. *To perform the calibration:*
See "*Calibrating the metered quantity*".

6.3.15.3 Converting modular metering rollers

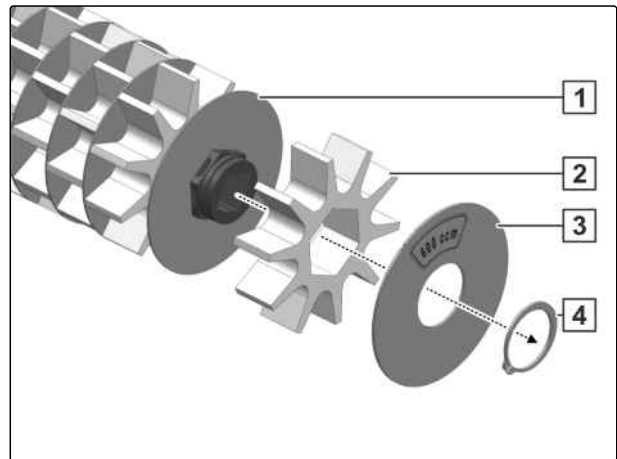
CMS-T-00003613-H.1

6.3.15.3.1 Enlarging the metering chambers

CMS-T-00003564-F.1

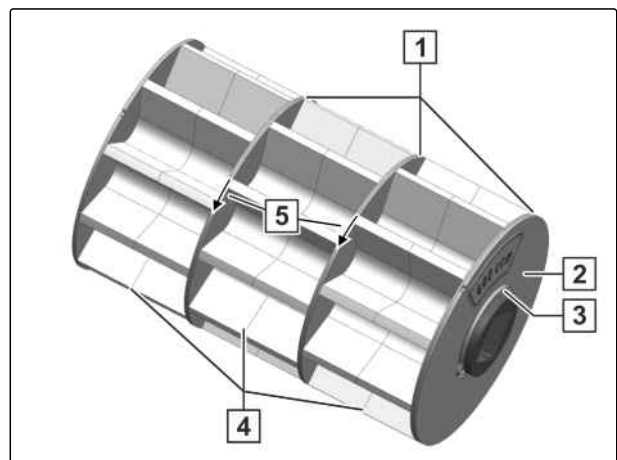
When very large seeds need to be metered, the chambers of the modular metering roller must be enlarged.

1. Remove the locking ring **4**.
2. Remove the end plate **3**.
3. Remove the metering wheels **2** and intermediate plates **1**.



CMS-I-00002550

4. Install the metering wheels **4** and intermediate plates **1** in pairs.
5. *For uniform concentricity:*
Install the metering chambers with a uniform offset **5**.
6. Install the end plate **2**.
7. Install the locking ring **3**.



CMS-I-00002551

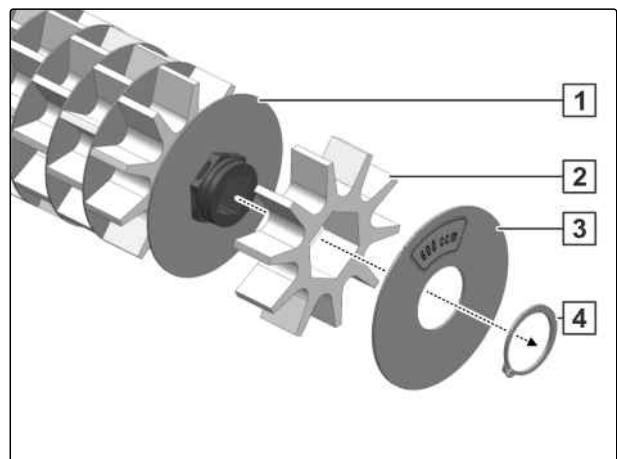
6.3.15.3.2 Adjusting the metering volume

CMS-T-00003614-G.1

The volume of a metering roller can be modified by repositioning, removing or inserting metering wheels.

The volume of the metering roller should only be large enough so that the desired quantity of spreading material can be spread.

1. Remove the locking ring **4**.
2. Remove the end plate **3**.
3. Remove the metering wheels **2** and intermediate plates **1**.

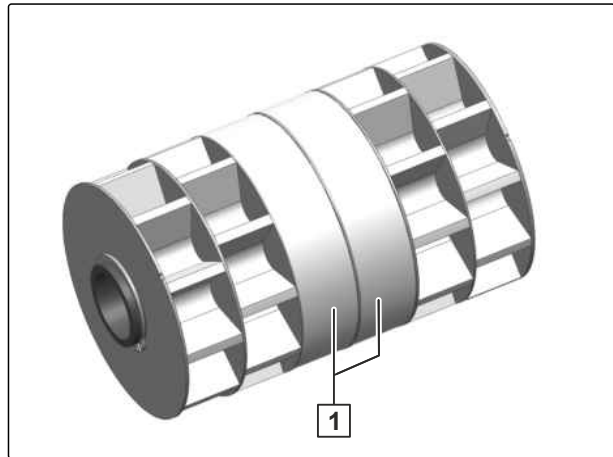


CMS-I-00002550

6 | Preparing the machine

Preparing the implement for operation

4. *For uniform concentricity:*
Position the metering wheels without chambers **1** symmetrically at the centre **2**.
5. Install the metering wheels and intermediate plates.
6. Install the end plate.
7. Install the locking ring.



CMS-I-00002552

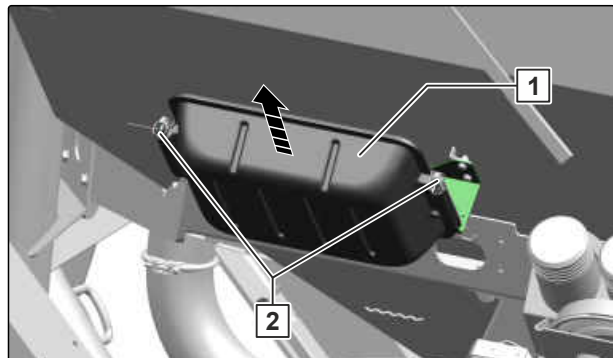
6.3.15.4 Changing the metering roller

CMS-T-00012016-A.1

NOTE

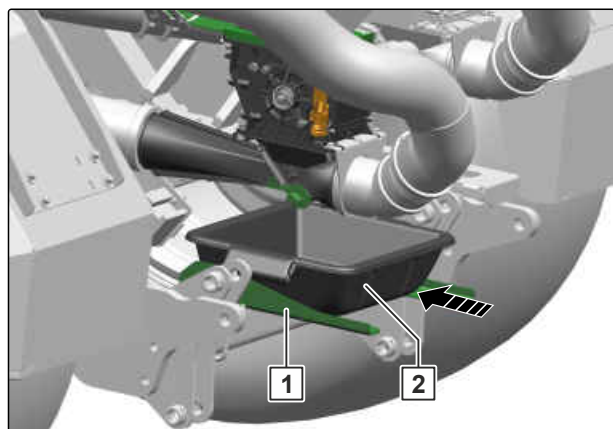
It is easier to change the metering roller when the hopper chamber is empty.

1. Switch off the fan.
2. Remove the linch pin **2** and take the calibration bucket **1** out of the parking position.



CMS-I-00007770

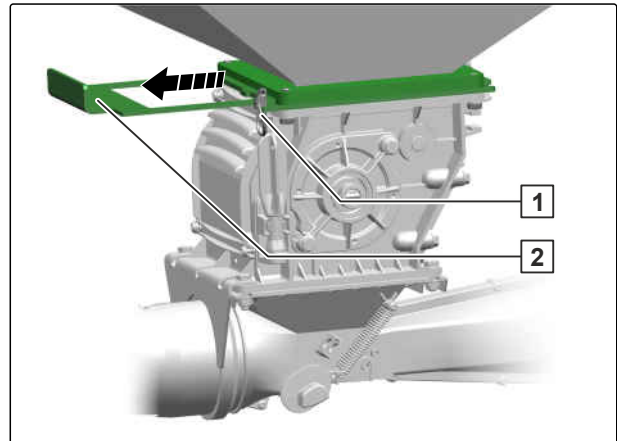
3. Slide the calibration bucket **2** into the holder **1** underneath the metering unit.



CMS-I-00007767

When the hopper chamber is filled, the sliding shutter between the hopper chamber and the metering unit must be closed:

4. Remove the lynch pin **1**.
5. Pull out the sliding shutter **2**.



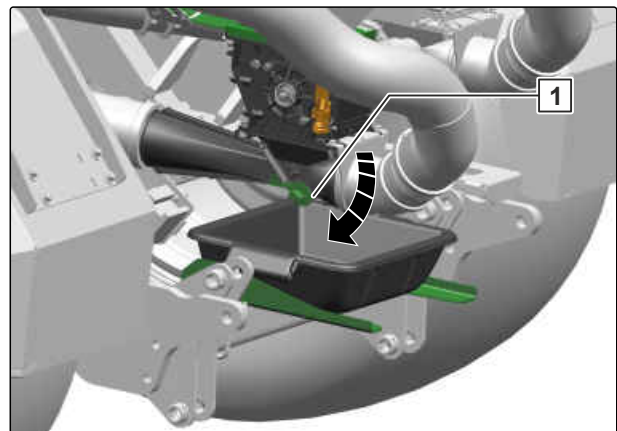
CMS-I-00007875

6. *To remove spreading material residues from the metering unit housing:*

Open the calibration flap **1**.

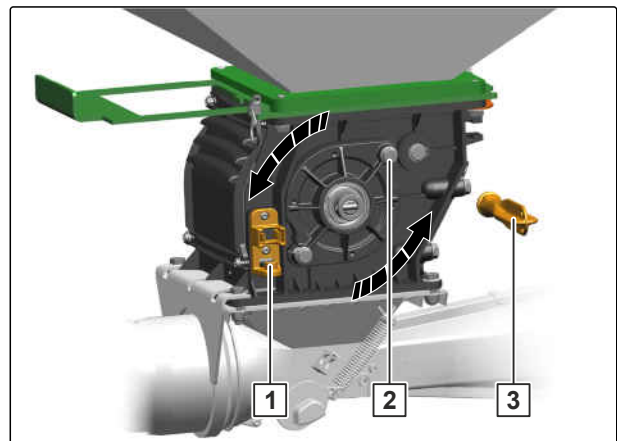
7. *To empty the metering unit and the metering roller:*
Refer to the ISOBUS software operating manual, "Emptying".

8. Switch off the control terminal and disconnect the power supply between the tractor and the implement.



CMS-I-00007876

9. Loosen the bolts **2** with the spanner **3**.
10. Park the spanner in the holder **1**.
11. Unscrew the bearing cover.

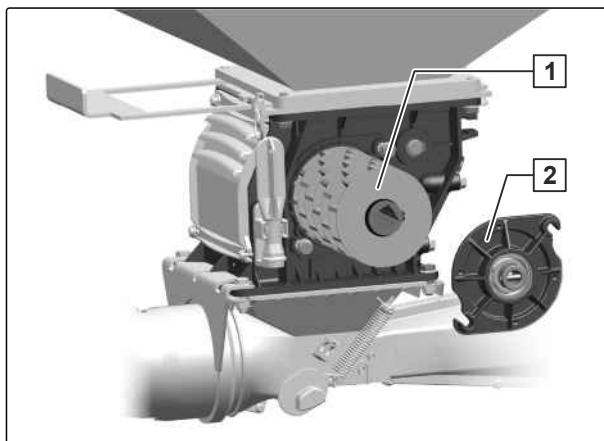


CMS-I-00007876

6 | Preparing the machine

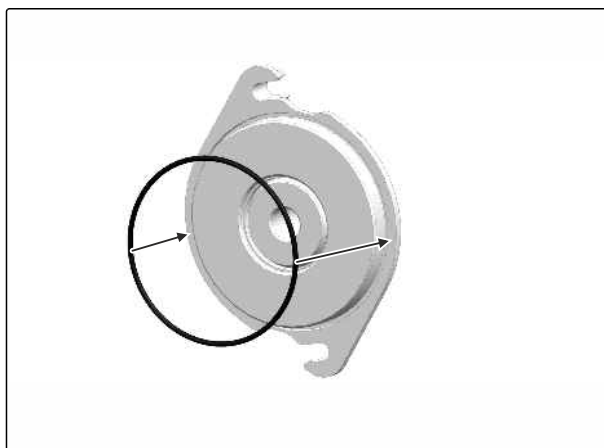
Preparing the implement for operation

12. Pull off the bearing cover **2**.
13. Pull the metering roller **1** out of the metering unit.
14. Install the selected metering roller.



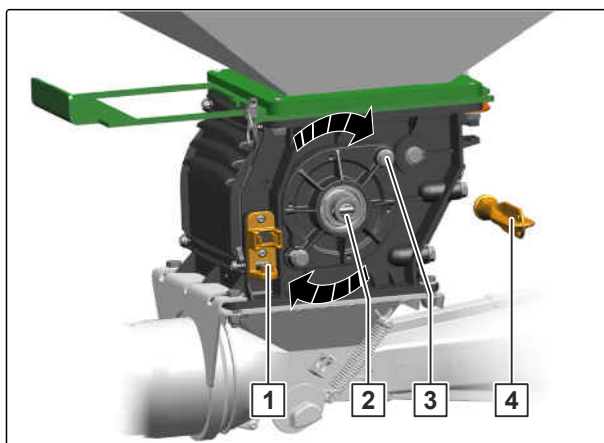
CMS-I-00007877

15. Check the sealing ring of the bearing cover for damage.
16. *If the sealing ring is damaged:*
replace it.



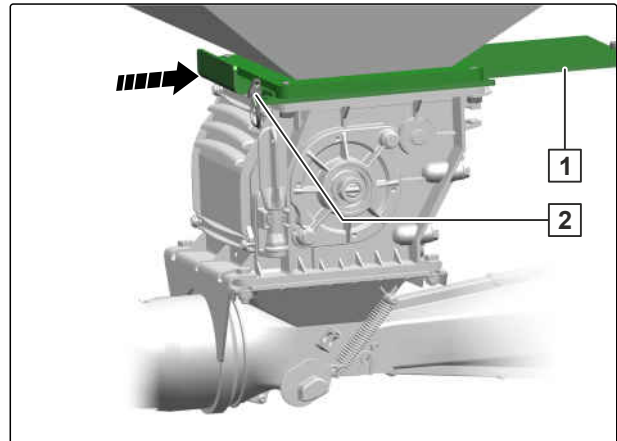
CMS-I-00002999

17. Align the catch **2** on the bearing cover with the drive shaft.
18. Put on the bearing cover and screw it on firmly.
19. Tighten the bolts **3** with the spanner **4**.
20. Park the spanner in the holder **1**.



CMS-I-00007878

21. Push in the sliding shutter **1**.
22. Insert the linch pin **2**.
23. Close the calibration flap.
24. Take the calibration bucket out of the holder under the metering unit.
25. Empty the calibration bucket.
26. Put the calibration bucket in parking position and secure with the linch pins.



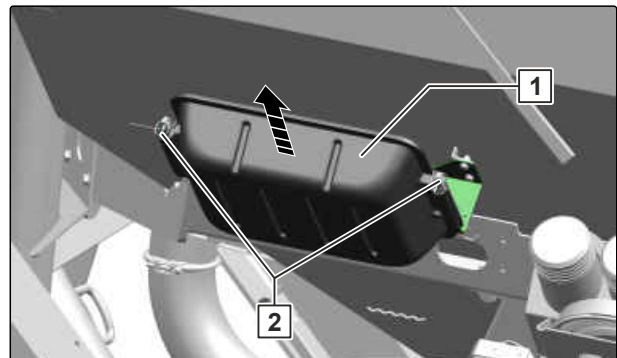
CMS-I-00007879

6.3.15.5 Calibrating the metered quantity

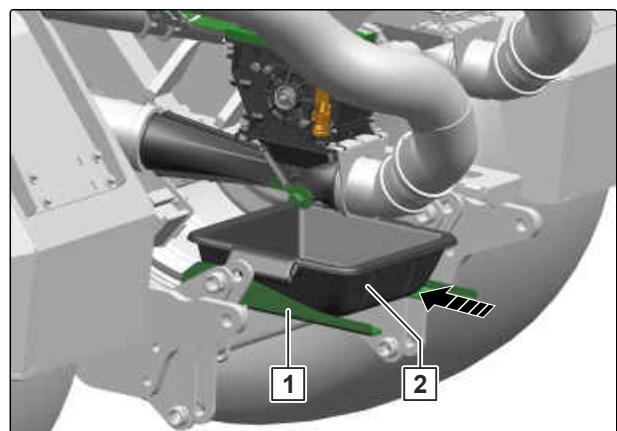
CMS-T-00012031-A.1

Perform the calibration on all metering units consecutively. The sequence of the metering units can be freely selected.

1. Fill the hopper with spreading material, see *"Filling the hopper"*.
2. Remove the linch pin **2** and take the calibration bucket **1** out of the parking position.
3. Slide the calibration bucket **2** into the holder **1** underneath the metering unit.



CMS-I-00007770

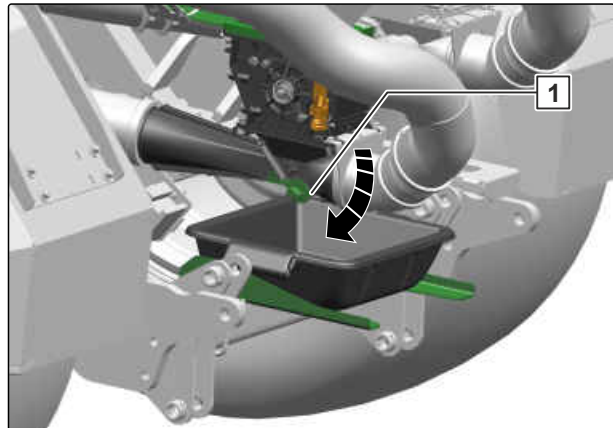


CMS-I-00007767

6 | Preparing the machine

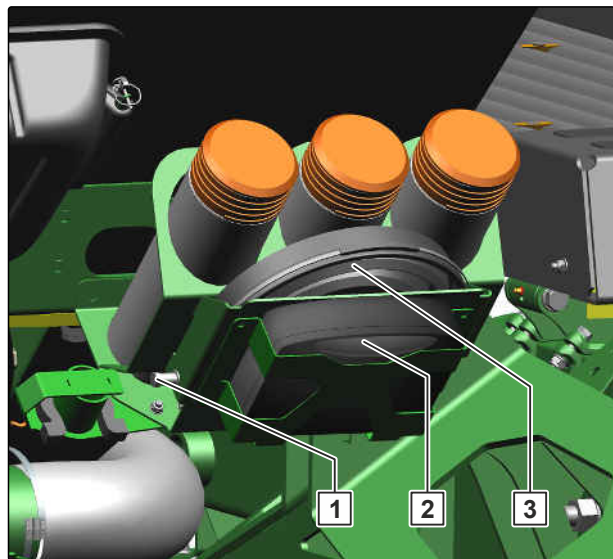
Preparing the implement for operation

4. Open the calibration flap **1**.
5. *To start the calibration via the control terminal:*
Refer to the ISOBUS software operating manual, "Calibration menu".



CMS-I-00007768

6. Take the collapsible bucket **3** and the calibration scale **2** out of the mount.
7. Hang the calibration scale on the pin **1**.
8. Hang the collapsible bucket on the calibration scale.
9. Close the calibration flap.



CMS-I-00007819

10. Take the calibration bucket out of the holder under the metering unit.
11. *To determine the weight of the spreading material:*
Pour the spreading material into the collapsible bucket.
12. Repeat the calibration test until the desired quantity is metered.
13. Empty the collapsible bucket.
14. Put the calibration bucket in parking position and secure with the linch pins.
15. Stow the calibration scale and the collapsible bucket in the mount.

6.3.16 Adjusting the fan speed

CMS-T-00011724-A.1

6.3.16.1 Adjusting the fan speed via the tractor hydraulic system

CMS-T-00011556-A.1



REQUIREMENTS

- ☑ The hoppers are full.



WARNING

Risk of injury due to parts of the fan being flung out

If the fan is operated at excessive speeds, fan parts can break and be flung out.

- ▶ Make sure that the fan speed does not exceed 4,000 1/min.



NOTE

The specifications for the fan speed are rough reference values. If spreading material remains in the conveyor section or is blown out of the seedbed, the setting must be adjusted.

Working width	Fan speed	
	Fine seed, e.g. rapeseed	Cereals, legumes
3 m	2,800 1/min	3,500 1/min
4.5 m	3,100 1/min	3,900 1/min

1. Read the fan nominal speed from the table.
2. Switch on the fan with the "red" tractor control unit.
3. Adjust the hydraulic oil supply on the tractor such that the fan nominal speed is reached.
4. *To enable monitoring of the fan speed:*
Enter the fan nominal speed on the control terminal.

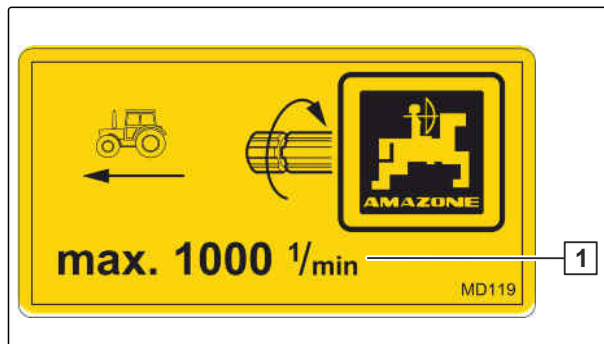
6.3.16.2 Adjusting the fan speed via the on-board hydraulic system



REQUIREMENTS

- ☑ The hoppers are full.

A sticker on the fan housing marks the permitted tractor PTO shaft speed **1** of the tractor.



CMS-I-00001898



WARNING

Risk of injury due to parts of the fan being flung out

If the fan is operated at excessive speeds, fan parts can break and be flung out.

- Make sure that the fan speed does not exceed 4,000 1/min.



NOTE

The specifications for the fan speed are rough reference values. If spreading material remains in the conveyor section or is blown out of the seedbed, the setting must be adjusted.

Working width	Fan speed	
	Fine seed, e.g. rapeseed	Cereals, legumes
3 m	2,800 1/min	3,500 1/min
4.5 m	3,100 1/min	3,900 1/min

1. Read the fan nominal speed from the table.
2. *To adjust the fan pressure:*
Adjust the speed of the tractor PTO shaft.
3. *To enable monitoring of the fan speed:*
Enter the fan nominal speed on the control terminal.
4. *To monitor the fan pressure:*
Read the fan pressure on the pressure gauge.

6.3.16.3 Adjusting the pressure relief valve on the fan

CMS-T-00011725-A.1

If necessary, the fan speed can be adjusted via the pressure relief valve of the hydraulic motor on the fan.

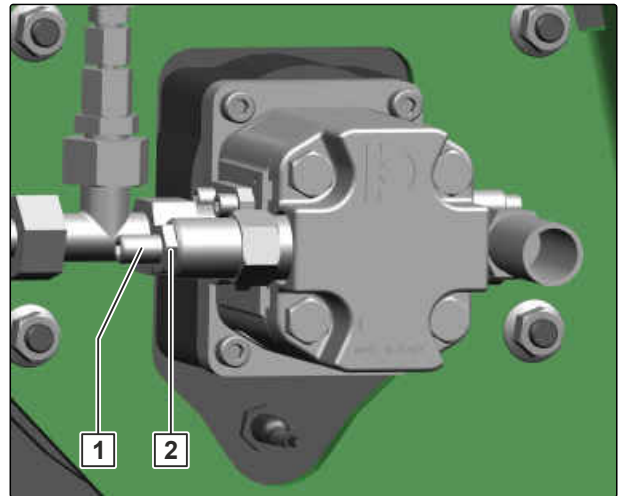
1. Remove the lock nut **2**.

2. *To increase the speed:*
Screw in the bolt **1**

or

To reduce the speed:
Screw out the bolt **1**.

3. Tighten the lock nut.



CMS-I-00007548

6.3.17 Adjusting the tramline rhythm

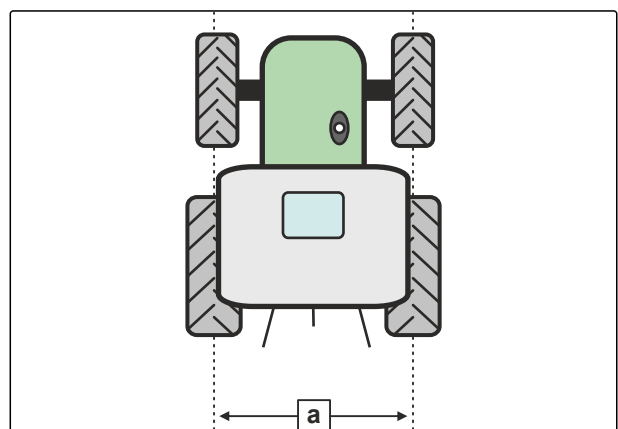
CMS-T-00012157-A.1

6.3.17.1 Determining the track width and wheelmark width of the cultivating implement

CMS-T-00012145-A.1

When the implement is delivered or when buying a new cultivating implement, check that the tramline set in the distributor head is suitable for the track of the cultivating implement. To do so, you must first determine the track width and wheelmark width of the cultivating implement.

1. Determine the track width **a** of the cultivating implement.

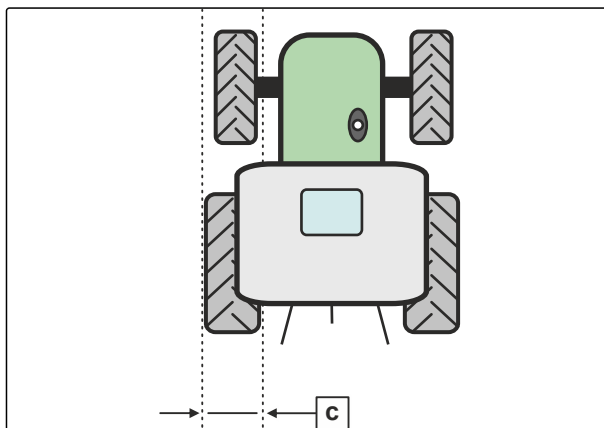


CMS-I-00003195

6 | Preparing the machine

Preparing the implement for operation

- Determine the wheelmark width **c** of the cultivating implement.

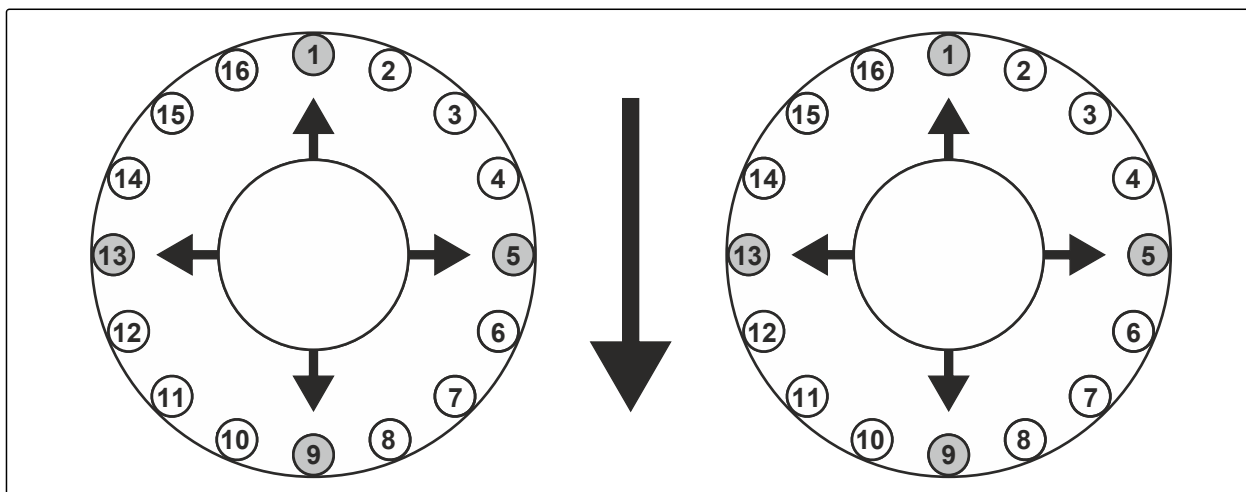


CMS-I-00003196

6.3.17.2 Determining the outlets for the tramline control

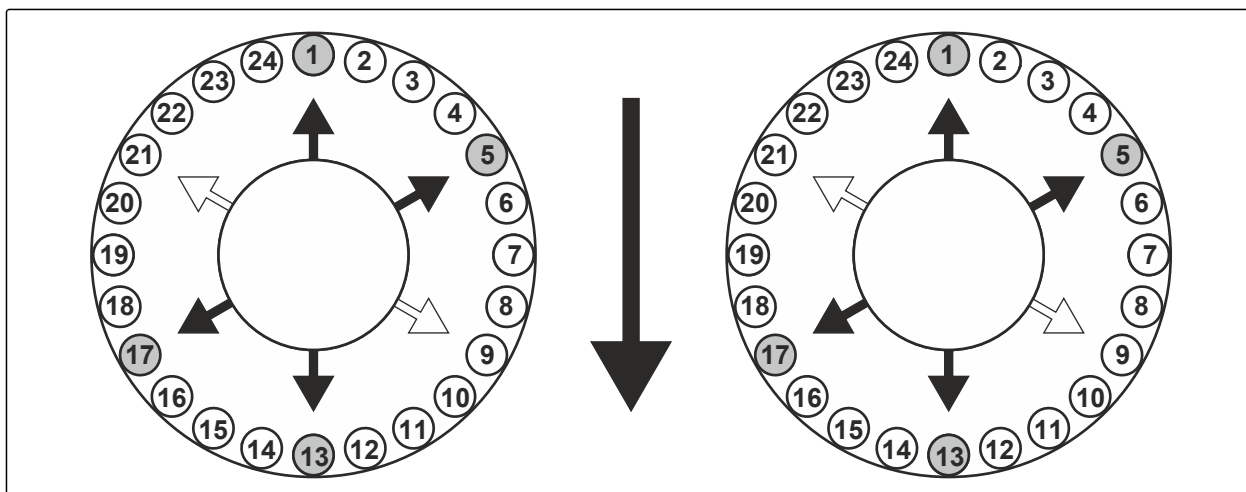
CMS-T-00012158-A.1

Outlets of the distributor heads for Primera DMC 3000:



CMS-I-00009328

Outlets of the distributor heads for Primera DMC 4500:



CMS-I-00009329

In the figures above, the black arrows show the outlets of the distributor heads that are set as a standard for the tramline control. The white arrows show the outlets that can be additionally activated for the tramline control, see also section *"Assignment of the coulters to the distributor heads"*.

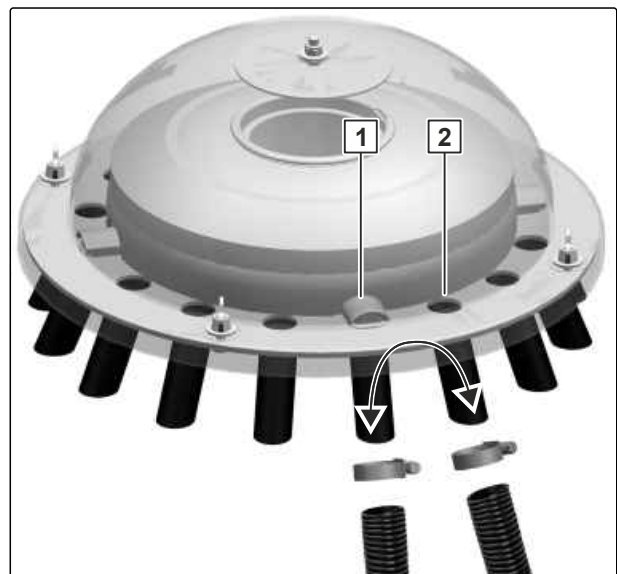
- Based on the figures above, determine which outlets on the distributor head must be activated for the tramline control.

6.3.17.3 Adjusting the tramlines to the track width

CMS-T-00012159-A.1

The seed lines of the coulters required for the tramlines must be installed on the outlets in the distributor head that can be closed by the shutters.

1. Secure the tractor and implement.
2. *To reach the distributor heads:*
Extend a ladder.
3. Climb on the service platform via the ladder.
4. Open the swivelling cover tarpaulin.
5. Step onto the charging sieve in the hopper.
6. Install the seed lines of the coulters required for the tramlines on the outlets on which the shutters **1** are installed.
7. Install the other seed lines on the outlets **2** on which there are no shutters.



CMS-I-00007834

6.3.17.4 Adjusting the tramline wheelmark width

CMS-T-00012290-A.1

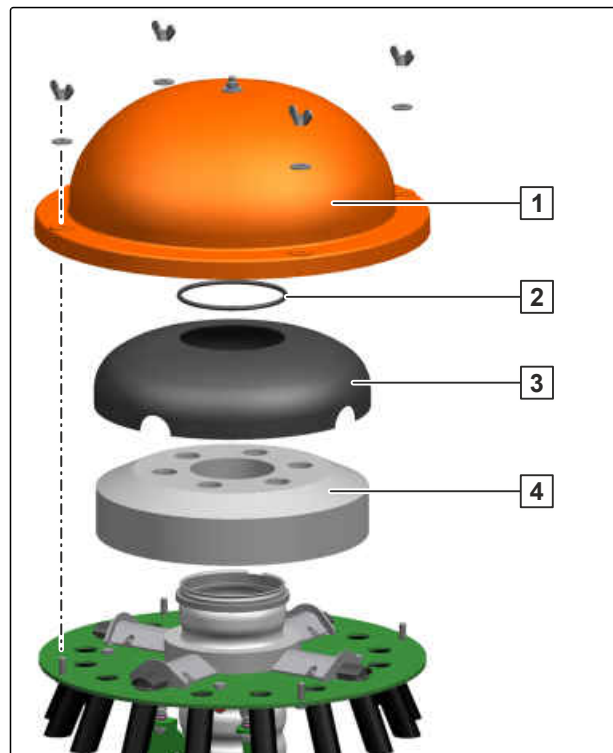
The shutters must be activated on the outlets that should be set for tramline control. The shutters must be deactivated on the other outlets.

6 | Preparing the machine

Preparing the implement for operation

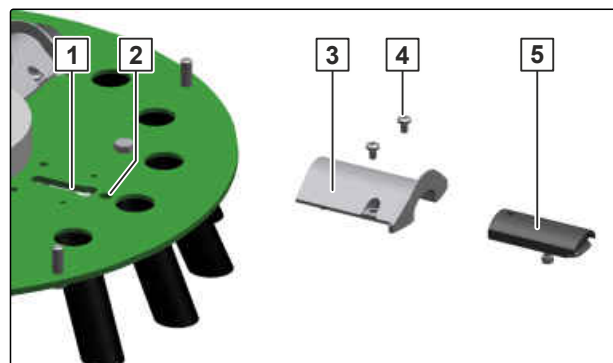
On the Primera DMC 3000, the wheelmark width cannot be adjusted.

1. Secure the tractor and implement.
2. *To reach the distributor heads:*
Extend a ladder.
3. Climb on the service platform via the ladder.
4. Open the swivelling cover tarpaulin.
5. Step onto the charging sieve in the hopper.
6. Remove the outer hood **1**.
7. Remove the ring **2**.
8. Remove the inner hood **3**.
9. Remove the foam insert **4**.



CMS-I-00007824

10. Remove the bolts **4**.
11. Take out the holder **3**.



CMS-I-00007831

12. *To activate the shutter:*

Insert the shutter **5** in the guide **1**.

or

To deactivate the shutter:

Turn the shutter **5** around and insert it into the hole **2**.

13. Insert the holder.

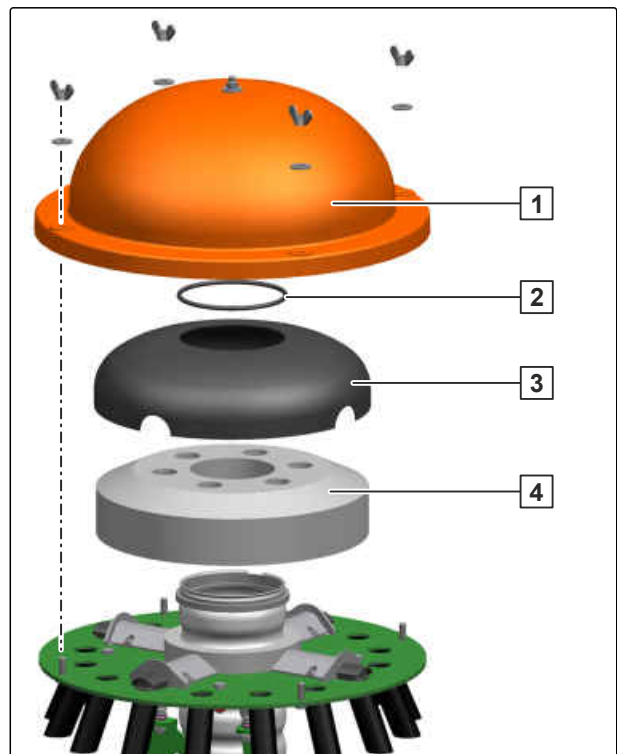
14. Install the bolts.

15. Install the foam insert **4**.

16. Install the inner hood **3**.

17. Install the ring **2**.

18. Install the outer hood **1**.



CMS-I-00007824

6.4 Preparing the machine for road travel

CMS-T-00010925-A.1

6.4.1 Adjusting the brake power of the dual-circuit pneumatic brake system

CMS-T-00012110-A.1

If the implement is equipped with a manually adjustable brake valve, the brake power can be adapted to the load status.

6 | Preparing the machine

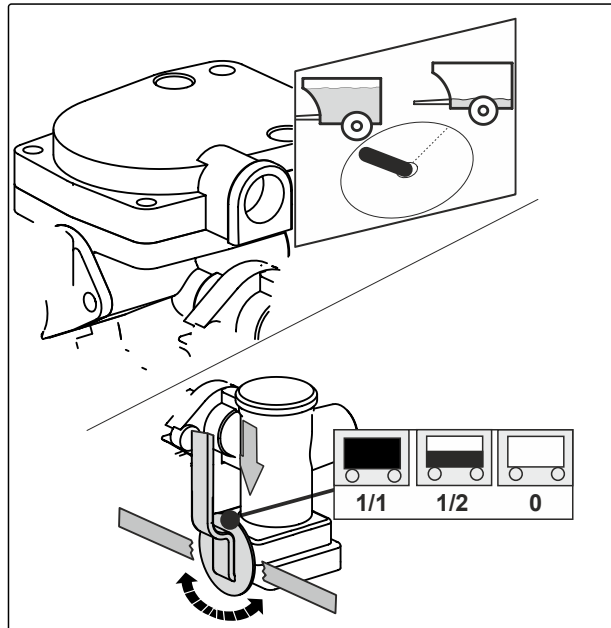
Preparing the machine for road travel

There are 2 different brake valves.

- Set the rotary knob to the symbol for the load status

or

Turn the hand lever so that the symbol for the load status is pointing to the arrow on the brake valve.

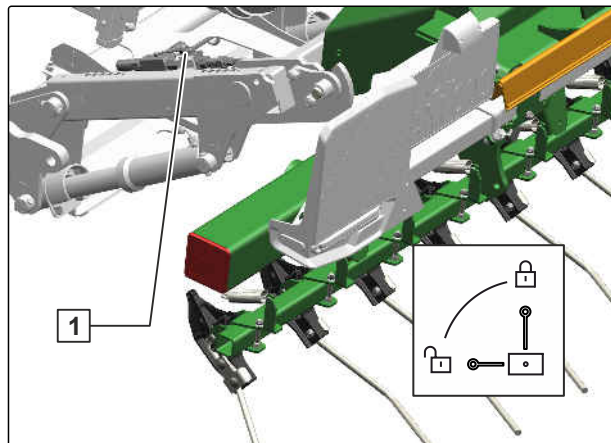


CMS-I-00007784

6.4.2 Moving the implement in the transport position

CMS-T-00010939-A.1

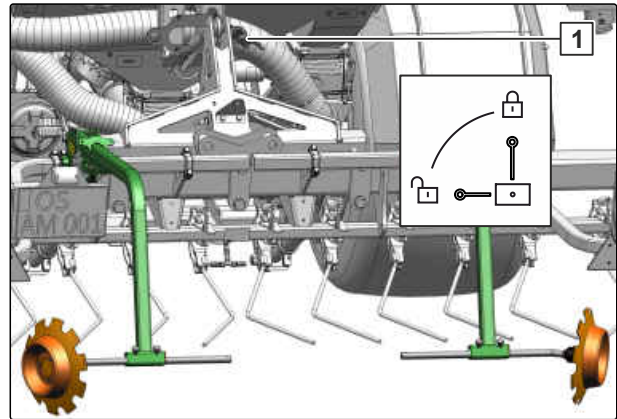
1. Move the track marker into transport position with the "green" tractor control unit.
2. Lift the coulter, the exact following harrow and the track markers with the "yellow" tractor control unit.
3. To secure the exact following harrow in transport position:
Close the stop tap **1**.



CMS-I-00007910

4. To secure the tramline marker in transport position:

Close the stop tap **1**.

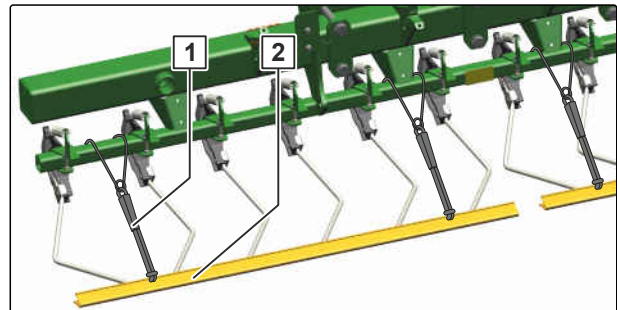


CMS-I-00007909

6.4.3 Putting the road safety bars on the exact following harrow

CMS-T-00012636-A.1

1. Remove coarse dirt from the tines.
2. Push the road safety bars **2** over the tines.
3. Secure the road safety bars with the tensioners **1**.
4. Check for firm seating.



CMS-I-00007554

6.4.4 Locking the tractor control units

CMS-T-00006337-D.1

- Depending on the equipment, the tractor control units are locked mechanically or electrically.

6.4.5 Aligning the implement horizontally with lower link hitch

CMS-T-00010989-A.1

1. Drive the tractor and implement onto a level surface.
2. Align the implement horizontally using the lower link.

Using the machine

7

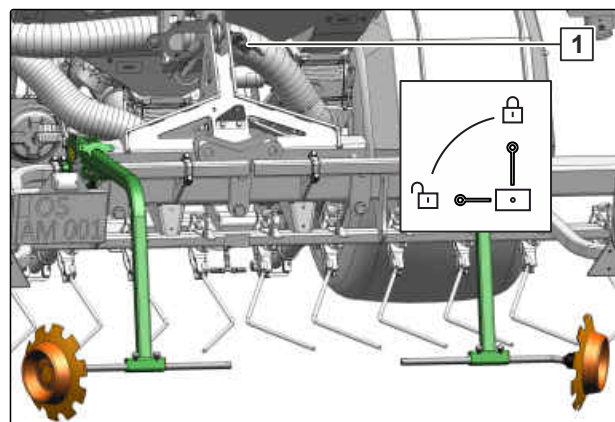
CMS-T-00011749-A.1

7.1 Moving the implement into working position

CMS-T-00011752-A.1

1. To release the transport lock of the tramline marker:

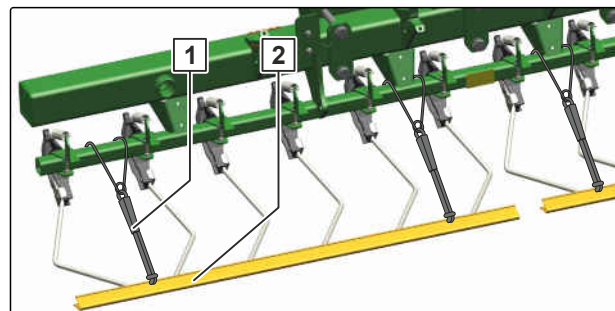
Open the stop tap **1**.



CMS-I-00007909

2. Release the tensioners **1** and remove the road safety bars **2** from the exact following harrow.

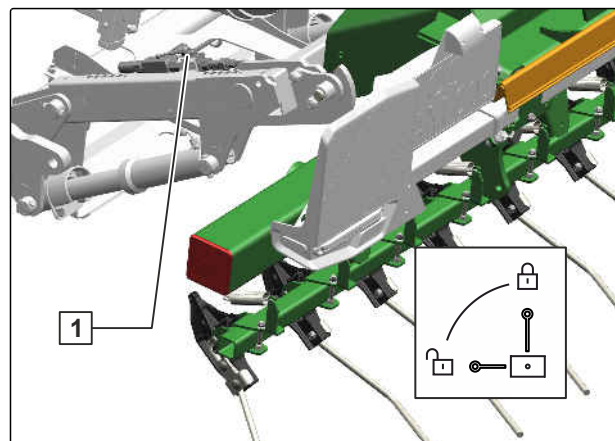
3. Place the road safety bars in the intended holder and fasten them.



CMS-I-00007554

4. To release the transport lock for the exact following harrow:

Open the stop tap **1**.



CMS-I-00007910

7.2 Using the implement

CMS-T-00011751-A.1



IMPORTANT

Premature wear of the coulter mounting bracket

If the coulters constantly deflect on stones, the coulter mounting brackets wear prematurely.

- ▶ *If the overload safety devices are triggered at short intervals:*
 - Reduce the working speed.
- ▶ Reduce the placement depth.
- ▶ Till the soil to a sufficient depth before seeding.
- ▶ Do not adjust the spring preload of the overload safety devices.

1. *To prevent accumulations in the metering units:*
Keep all of the shut-off flaps for the air supply open, even if a metering unit or the micropellet spreader is not being used.
2. Release the lateral locking of the tractor lower links.
3. Align the implement parallel to the ground.
4. Switch on the fan.
5. Lower the coulters, the exact following harrow and the track markers with the "yellow" tractor control unit.
6. Put the "yellow" tractor control unit in float position.
7. Move the desired track marker into working position with the "green" tractor control unit.
8. *To check the settings of the implement:*
Seed for 30 m at working speed and then check the work pattern.



NOTE

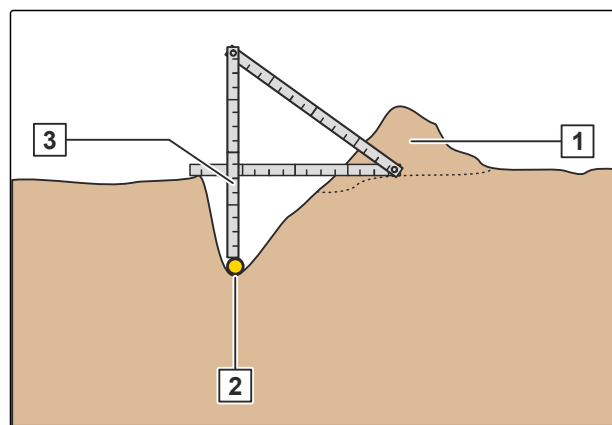
Make use of an implement standstill, e.g. after loading with seed, to make a visual check of the implement.

- Placement depth
- Coulters
- Tools
- Metering unit

7.3 Checking the placement depth

CMS-T-00004517-D.1

1. Remove the fine soil **1** over the seed **2**.
2. Determine the placement depth **3**.
3. Cover the seed with fine soil again.
4. Check the placement depth in several places in a longitudinal and transverse direction relative to the implement.

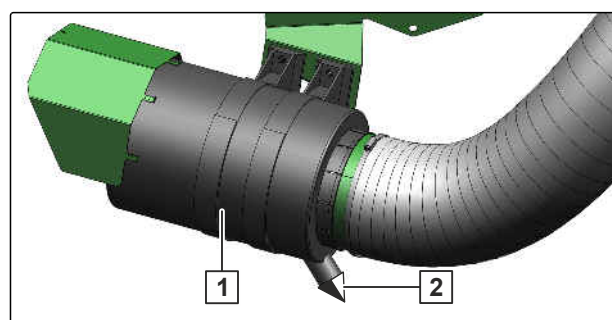


CMS-I-00003257

7.4 Cleaning the dust separator

CMS-T-00013037-A.1

Under dusty conditions, a dust separator **1** should be used.



CMS-I-00008300

- Open the valve **2** every 2 hours during operation to let out the dust.

7.5 Turning on the headlands

CMS-T-00011750-A.1

Lifting the tools causes the metering roller in the metering unit to stop. Depending on the implement

equipment, when the fan is running, seed emerges from the coulters until the conveyor section is empty.

1. Before turning, lift the coulters, the exact following harrow and the track markers with the "yellow" tractor control unit.
2. *To avoid damage to the implement:*
Pay attention to obstacles when turning.
3. After turning, lower the coulters, the exact following harrow and the track markers with the "yellow" tractor control unit.
4. Put the "yellow" tractor control unit in float position.

Eliminating faults

8

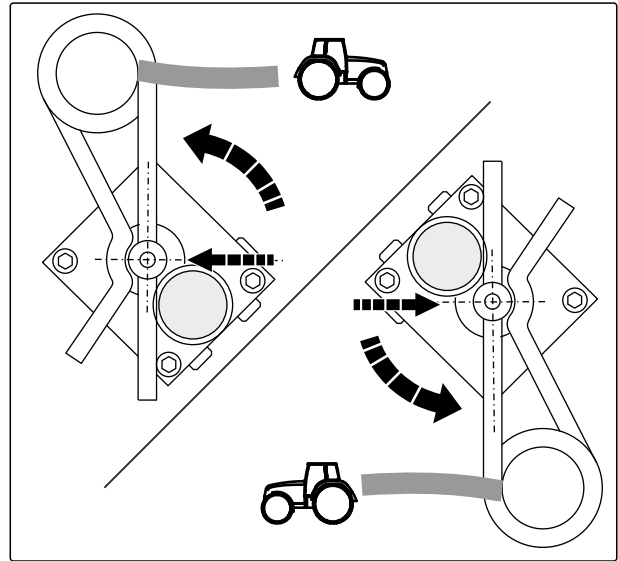
CMS-T-00014685-A.1

Errors	Cause	Solutions
Although the fan speed is correct, an alarm is issued.	The alarm limit is not correctly set.	► Change the alarm limit.
	The oil quantity is too high or too low.	► Adjust the oil quantity.
	The sensor for the fan is defective.	► Replace the sensor.
The fan speed cannot be reached.	Insufficient oil volume despite correct setting of the hydraulic oil supply on the tractor.	► See <i>"Adjusting the fan speed"</i> > <i>"Adjusting the pressure relief valve on the fan"</i> .
The lighting for road travel has a malfunction.	Lamp or lighting supply line is damaged.	► Replace the lamp. ► Replace the lighting supply line.
The tramline counter is not working.	The stop button is actuated.	► Switch off the stop button.
	An incorrect tramline rhythm is set.	► Set the required tramline rhythm.
	The working position sensor is defective.	► Replace the sensor.
The spread rate deviates from the setpoint.	Radar sensor not calibrated. The implement speed differs from the tractor GPS speed.	► Adjust the <i>"Pulses per 100 m"</i> calibration factor through the ISOBUS software.
	Moist seed	► Use dry seed.
An implement with single-circuit hydraulic brake system is braked by the emergency brake.	The spring cotter pin is in the horizontal brake position.	► see page 107
The track marker overload safety was triggered	The track marker has encountered a solid obstacle. The shear bolt is torn and the track marker folded to the rear.	► see page 107

An implement with single-circuit hydraulic brake system is braked by the emergency brake

CMS-T-00012111-A.1

1. Insert the spring cotter pin into the brake valve from the front.
2. Position the spring cotter pin vertically.
3. Relieve the brake pressure using the hand pump.



CMS-I-00007786

The track marker overload safety was triggered

CMS-T-00014686-A.1

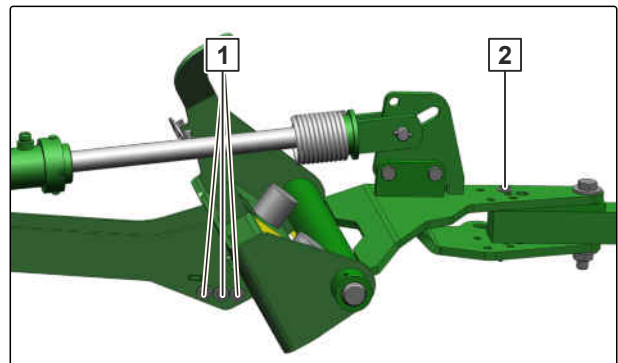
1. Take out one of the spare shear bolts **1** from the track marker holder.



NOTE

Only use original parts as a replacement.

2. Remove the damaged shear bolt **2**.
3. Fold the track marker into working position.
4. Install the spare shear bolt.



CMS-I-00009341

Parking the machine

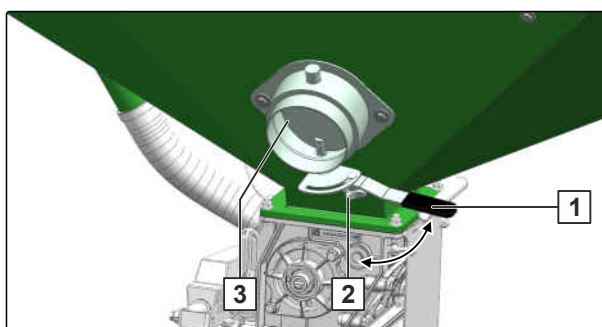
9

CMS-T-00010933-A.1

9.1 Emptying the hopper via the quick emptying

CMS-T-00003133-E.1

1. Switch off the fan.
2. Loosen the knurled screw **2**.
3. Open the quick emptying with the lever **1**.
- ➔ The flap will be opened **3**.
4. Collect the residual quantity in a collection bucket.
5. *When the hopper is empty,*
Close the quick emptying.
6. Tighten the knurled screw.

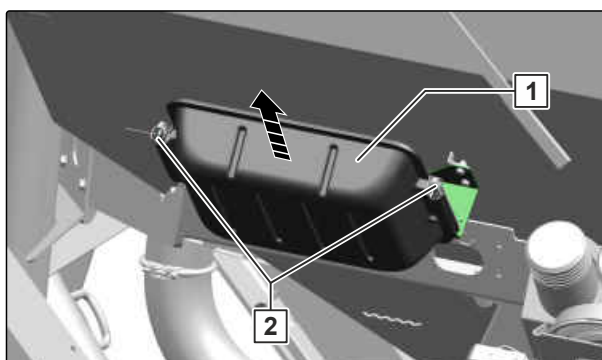


CMS-I-00009313

9.2 Emptying the hopper

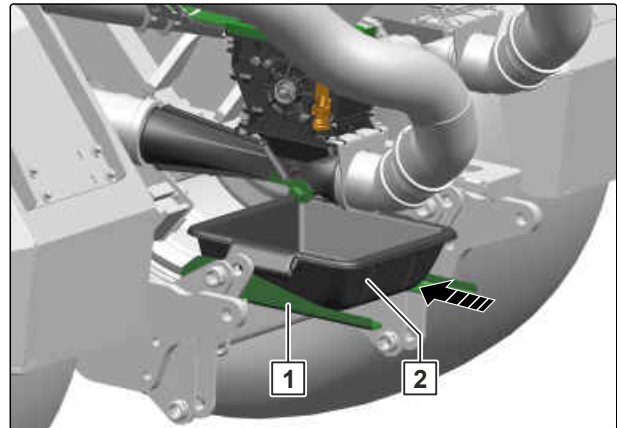
CMS-T-00012131-A.1

1. Switch off the fan.
2. Remove the linch pin **2** and take the calibration bucket **1** out of the parking position.



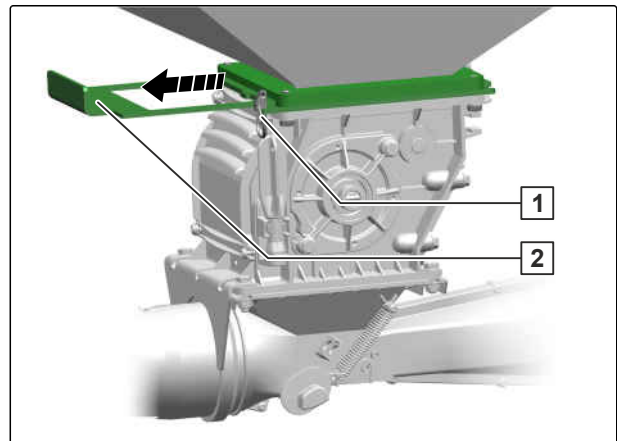
CMS-I-00007770

3. Slide the calibration bucket **2** into the holder **1** underneath the metering unit.



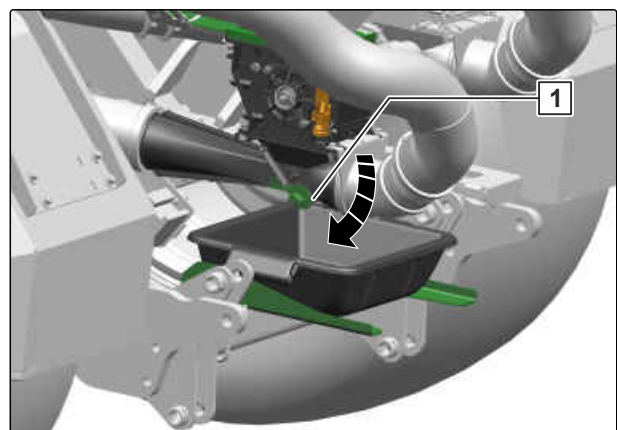
CMS-I-00007767

4. Switch off the control terminal and disconnect the power supply between the tractor and the implement.
5. *To close the sliding shutter:*
Remove the linch pin **1**.
6. Pull out the sliding shutter **2**.



CMS-I-00007875

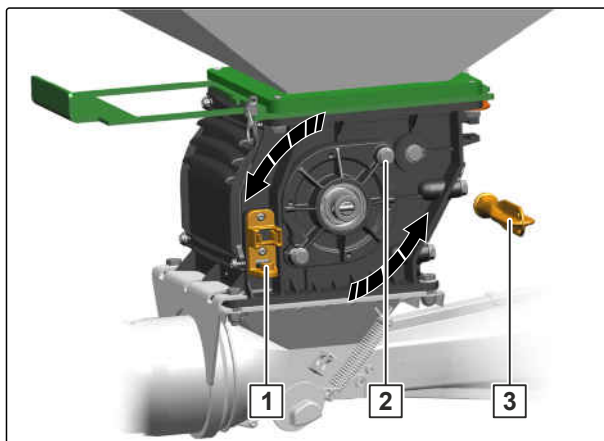
7. *To remove spreading material residues from the metering unit housing:*
Open the calibration flap **1**.
8. *To empty the metering unit and the metering roller:*
Refer to the ISOBUS software operating manual, "Emptying".



CMS-I-00007768

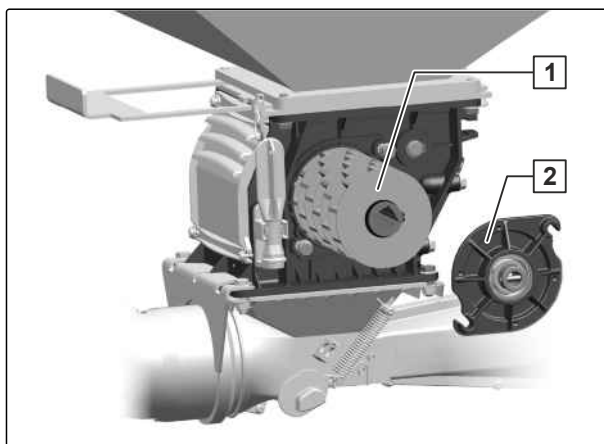
9 | Parking the machine Emptying the hopper

9. Loosen the bolts **2** with the spanner **3**.
10. Park the spanner in the holder **1**.
11. Unscrew the bearing cover.



CMS-I-00007876

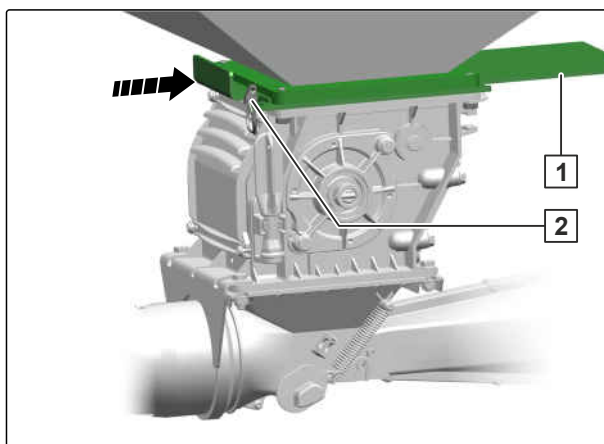
12. Pull off the bearing cover **2**.
13. Pull the metering roller **1** out of the metering unit.



CMS-I-00007877

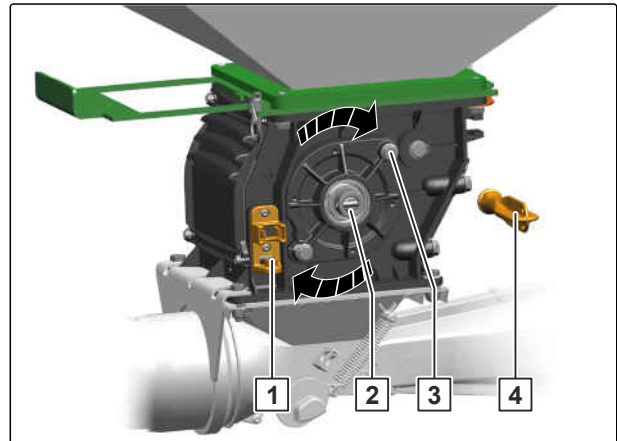
14. *If the hopper contains lots of spreading material:*
Remove the calibration bucket and place a mat to collect the spreading material.

15. Push in the sliding shutter **1**.
16. Collect the spreading material.
17. Insert the linch pin **2**.



CMS-I-00007879

18. *When the hopper is empty:*
Install the metering roller.
19. Align the catch **2** on the bearing cover with the drive shaft.
20. Put on the bearing cover and screw it on firmly.
21. Tighten the bolts **3** with the spanner **4**.
22. Park the spanner in the holder **1**.
23. Close the calibration flap.
24. Take the calibration bucket out of the holder under the metering unit.
25. Empty the calibration bucket.
26. Put the calibration bucket in parking position and secure with the linch pins.



CMS-I-00007878

9.3 Emptying the metering unit

CMS-T-00012132-A.1

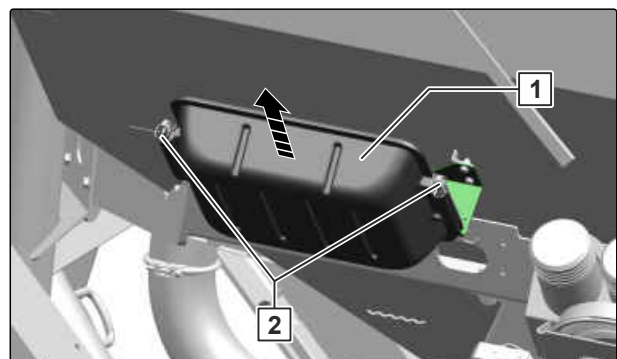


IMPORTANT

Risk of damage to the metering drive due to swelling fertiliser or germinating seed.

- Empty the metering unit after operation.
- Clean the metering unit after operation.

1. Switch off the fan.
2. Remove the linch pin **2** and take the calibration bucket **1** out of the parking position.

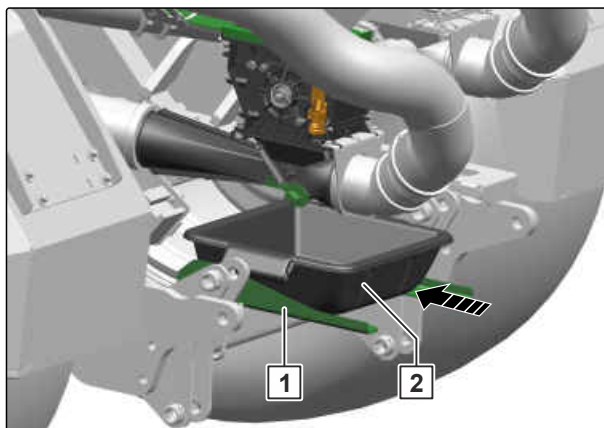


CMS-I-00007770

9 | Parking the machine

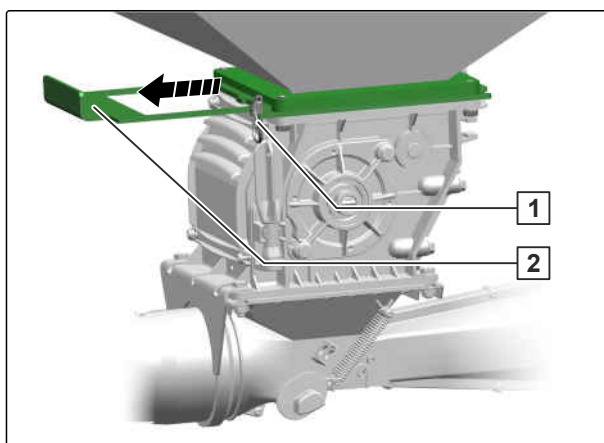
Emptying the metering unit

- Slide the calibration bucket **2** into the holder **1** underneath the metering unit.



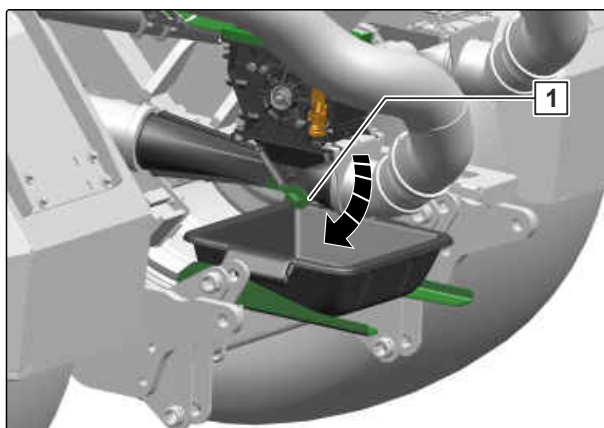
CMS-I-00007767

- Switch off the control terminal and disconnect the power supply between the tractor and the implement.
- To close the sliding shutter:*
Remove the linch pin **1**.
- Pull out the sliding shutter **2**.



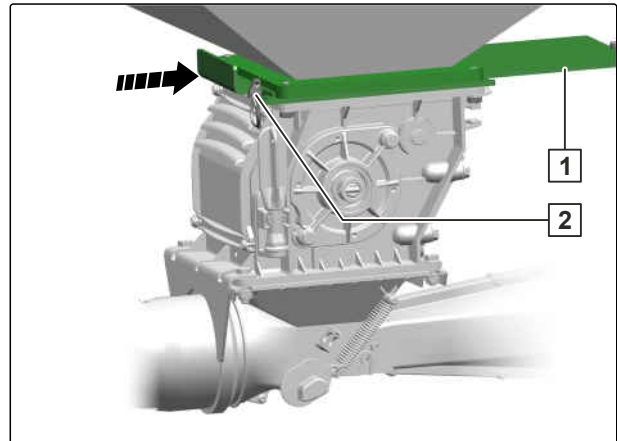
CMS-I-00007875

- To remove spreading material residues from the metering unit housing:*
Open the calibration flap **1**.
- To empty the metering unit and the metering roller:*
Refer to the ISOBUS software operating manual, "Emptying".



CMS-I-00007768

9. *Before work is started again:*
Push in the sliding shutter **1**.
10. Insert the linch pin **2**.
11. Close the calibration flap.
12. Take the calibration bucket out of the holder under the metering unit.
13. Empty the calibration bucket.
14. Put the calibration bucket in parking position and secure with the linch pins.

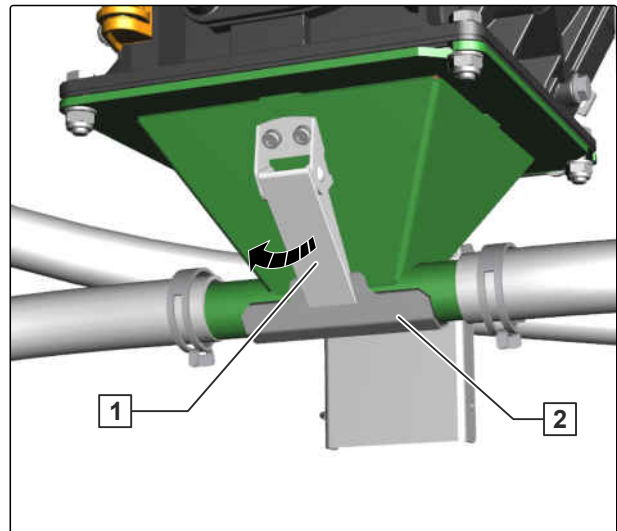


CMS-I-00007879

9.4 Emptying the metering unit and hopper of the micropellet spreader

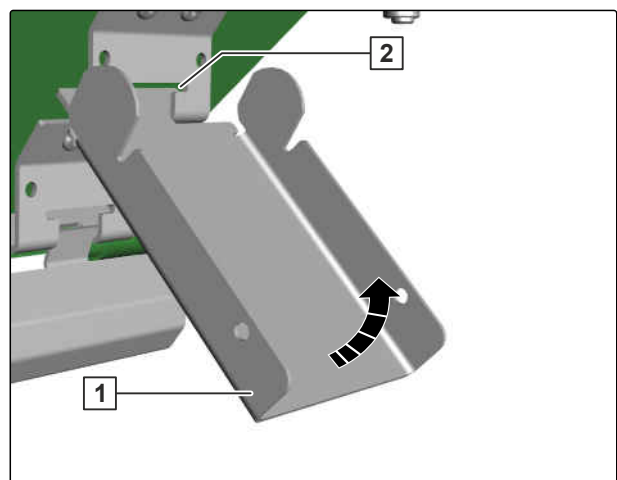
CMS-T-00012504-A.1

1. *To open the calibration flap **2**:*
Open the quick-release fastener **1**.



CMS-I-00007990

2. *To take the deflector plate **1** out of the holder:*
Turn the deflector plate up until it can be guided through the slot **2**.

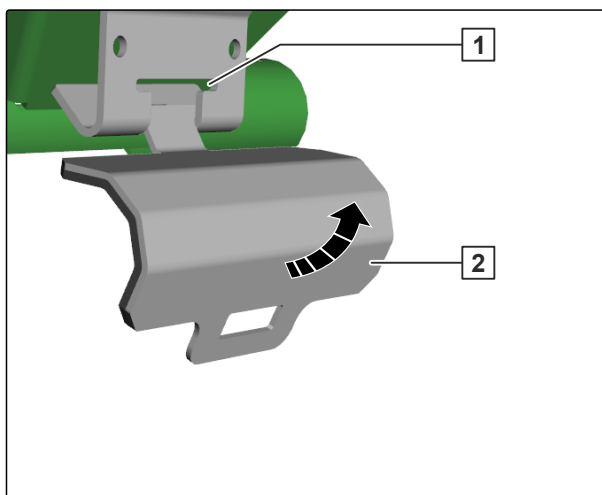


CMS-I-00007991

9 | Parking the machine

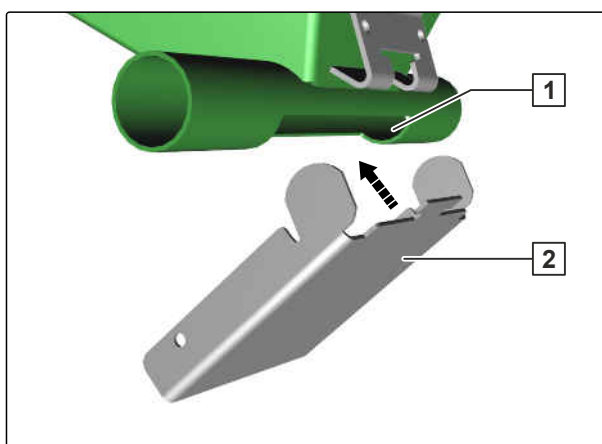
Emptying the metering unit and hopper of the micropellet spreader

3. To take the calibration flap **2** out of the holder:
Turn the calibration flap up until it can be guided through the slot **1**.



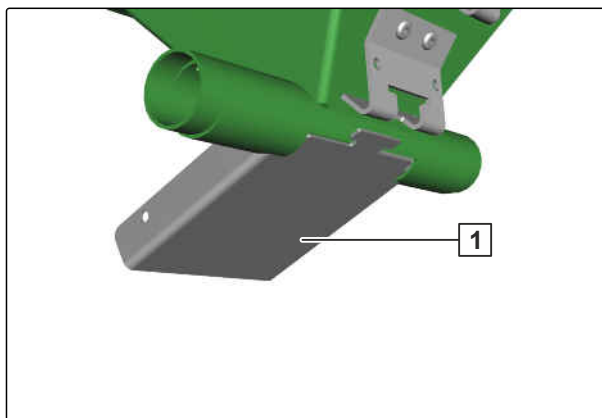
CMS-I-00007992

4. Attach the deflector plate **2** on the opening **1** of the tube.



CMS-I-00007998

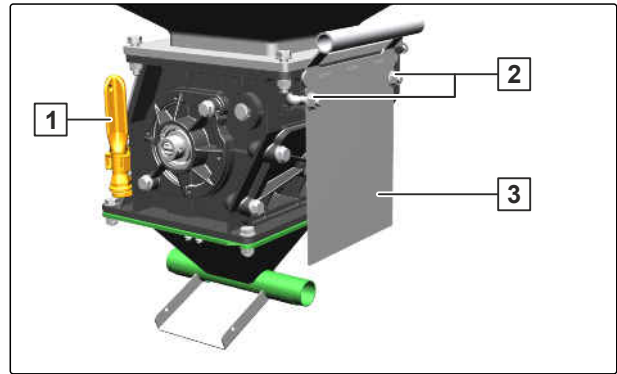
- ➔ The deflector plate **1** is in the calibration position.



CMS-I-00008002

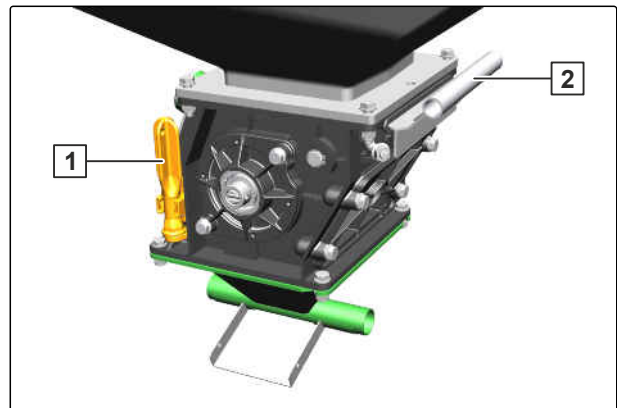
If you only want to empty the metering unit, the sliding shutter must be inserted in the metering unit housing.

5. Loosen the nuts **2** with the socket wrench **1**.
6. Swivel the bolts to the side.
7. Take the sliding shutter **3** from its parking position.



CMS-I-00008011

8. Push the sliding shutter **2** into the metering unit housing.
9. Park the socket wrench in the holder **1**.



CMS-I-00008029

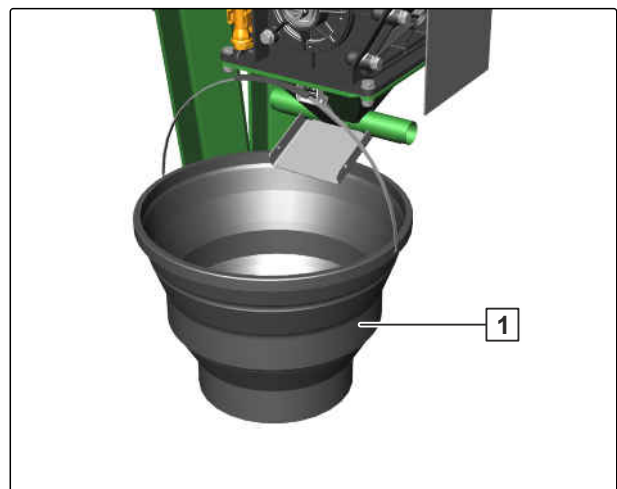
The design of the calibration bucket can vary depending on the implement equipment.

10. Take the calibration bucket **1** from the mount on the implement.
11. Place the calibration bucket under the deflector plate.
12. *To start the metering unit:*
Press the calibration button

or

Start the metering unit using the ISOBUS software.

13. Empty the calibration bucket.
14. repeat the procedure.



CMS-I-00008004

9.5 Preparing the implement for parking

CMS-T-00012128-A.1

To prevent moisture accumulations in the conveyor section and in the seed lines, the implement should be parked under a roof or as dry as possible.

9 | Parking the machine

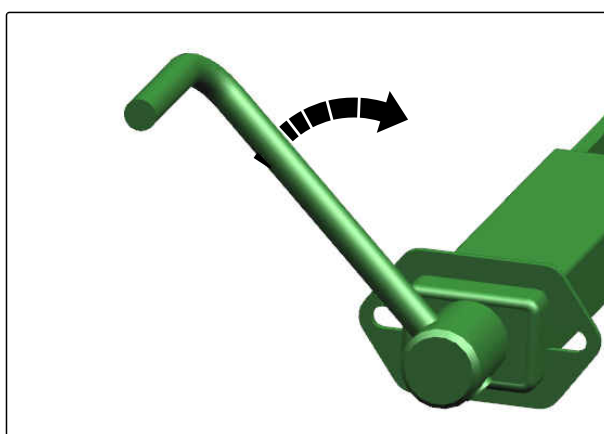
Applying the parking brake

1. Park the implement on a level surface with solid ground.
2. Lower the coulters with the "yellow" tractor control unit.
3. Switch off the control terminal.
4. Close the swivelling cover tarpaulin.
5. Open the calibration flaps.

9.6 Applying the parking brake

CMS-T-00012112-A.1

- Turn the hand crank clockwise until the brake cable is tensioned.

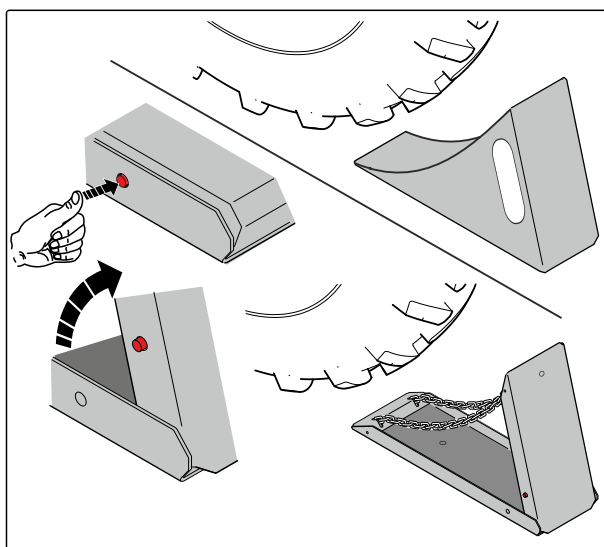


CMS-I-00007857

9.7 Placing the wheel chocks

CMS-T-00004316-C.1

1. Take the wheel chocks out from the holder.
2. For folding wheel chocks, actuate the press button and unfold the wheel chock.
3. Place the wheel chocks under the wheels.



CMS-I-00007809

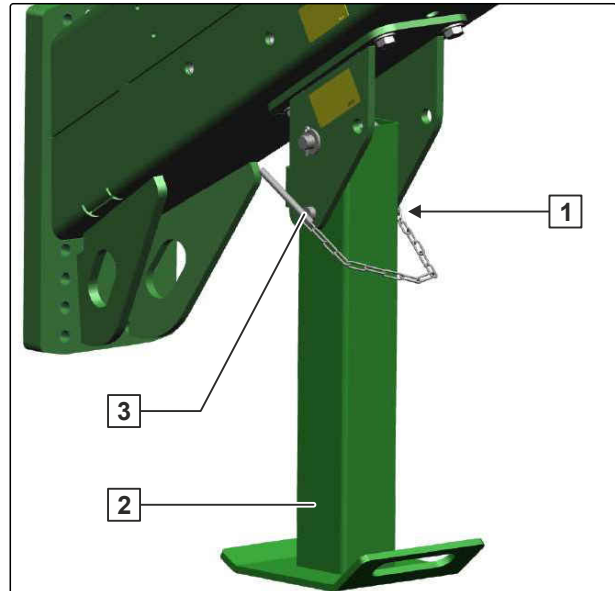
9.8 Uncoupling the lower link hitch

CMS-T-00011007-A.1

9.8.1 Swivelling down the jack

1. Lift the implement using the lower links.
2. Pull the linch pin **1** out of the pin.
3. Pull out the pin **3**.
4. Swivel down the jack **2**.
5. Insert the pin.
6. Secure the pin with the linch pin.

CMS-T-00011009-A.1

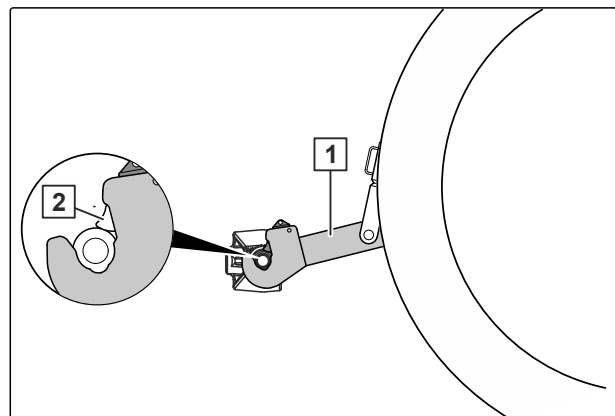


CMS-I-00007518

9.8.2 Uncoupling the tractor's lower link

1. Relieve the tractor's lower link **1**.
2. Release the lower link catch hook **2**.
3. Uncouple the tractor lower links from the implement from the tractor seat.

CMS-T-00004574-F.1



CMS-I-00003346

9.9 Uncoupling the ball coupling or drawbar eye

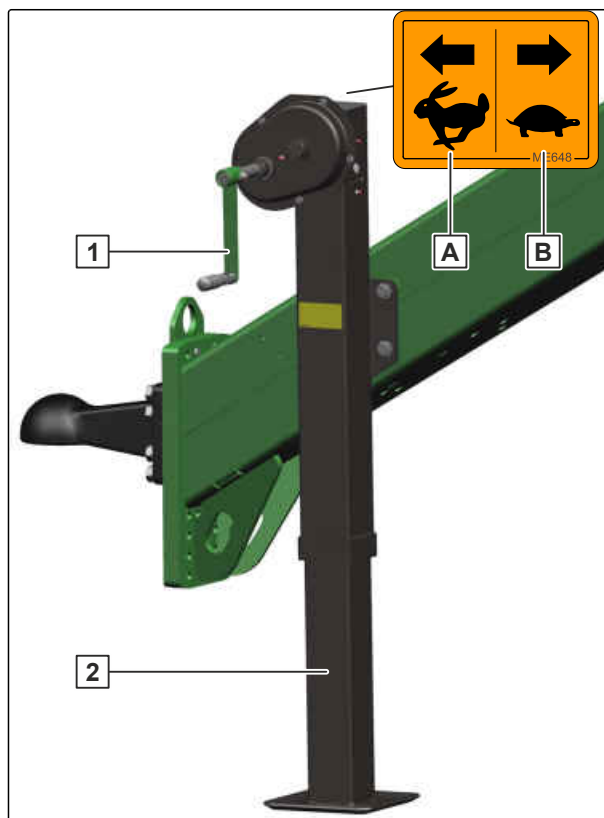
CMS-T-00010972-A.1

9.9.1 Lowering the jack

CMS-T-00010973-A.1

The jack can be moved in fast gear **A** without load with the hand crank pulled out. As soon as there is a load on the jack, the hand crank must be pressed in and the jack must be moved in slow gear **B**.

1. Unfold the handle of the hand crank **1**.
2. Turn the hand crank **1** to lower the jack **2** until it bears a load.
3. Press in the hand crank.
4. Turn the hand crank to lower the jack further until the clevis coupling is relieved.
5. Fold in the handle of the hand crank.

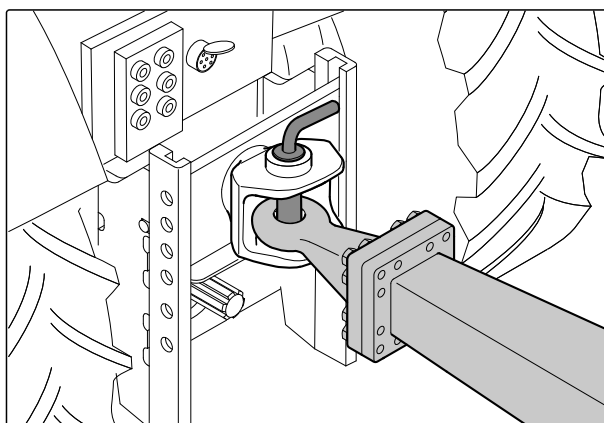


CMS-I-00007520

9.9.2 Uncoupling the drawbar eye

CMS-T-00010985-A.1

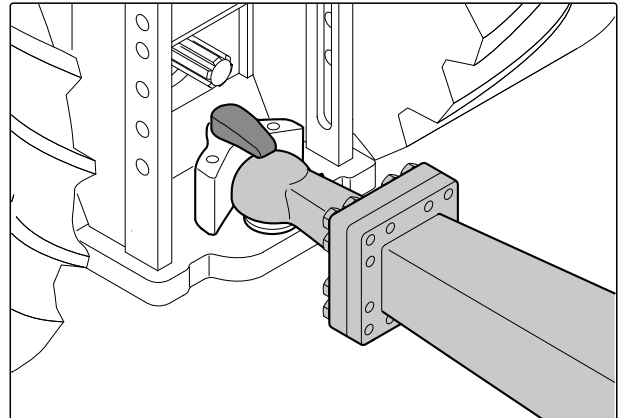
1. Adjust the height of the drawbar so that the drawbar eye is relieved.
2. Uncouple the drawbar eye from the clevis coupling of the tractor.
3. Drive the tractor forward.



CMS-I-00003557

9.9.3 Uncoupling the ball hitch coupling

1. Release the lock for the ball hitch coupling.
2. Lift the drawbar until the ball bracket is located above the ball hitch.
3. Drive the tractor forward.



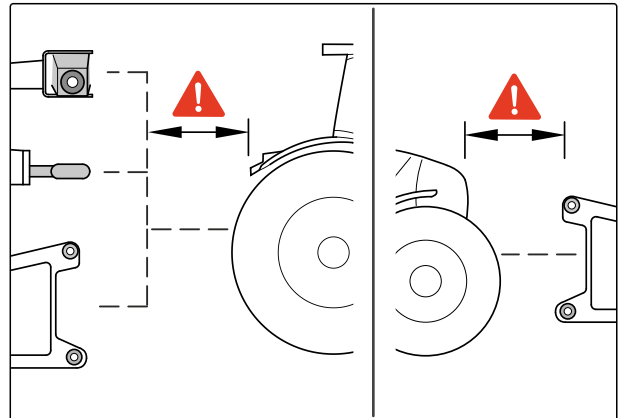
CMS-T-00010986-A.1

CMS-I-00003558

9.10 Driving the tractor away from the implement

There must be enough space between the tractor and implement so that the supply lines can be uncoupled without obstructions.

- Drive the tractor away from the implement, leaving a sufficient distance.

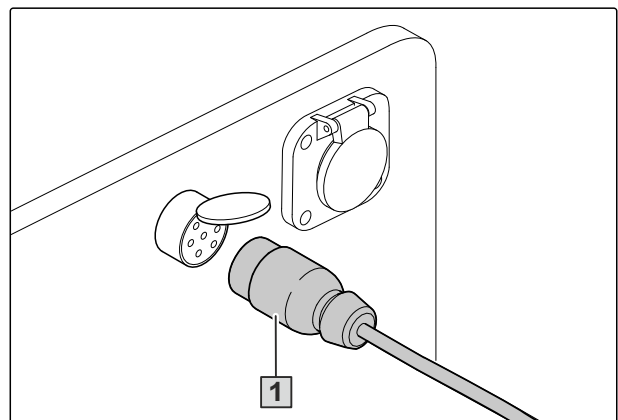


CMS-T-00005795-D.1

CMS-I-00004045

9.11 Uncoupling the power supply

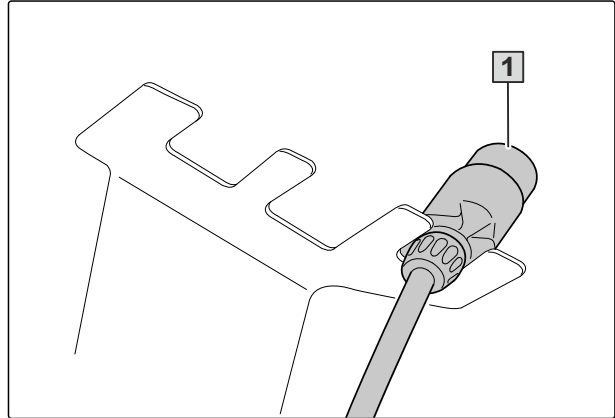
1. Pull out the plug **1** for the power supply.



CMS-T-00001402-H.1

CMS-I-00001048

2. Hang the plugs **1** in the hose cabinet.

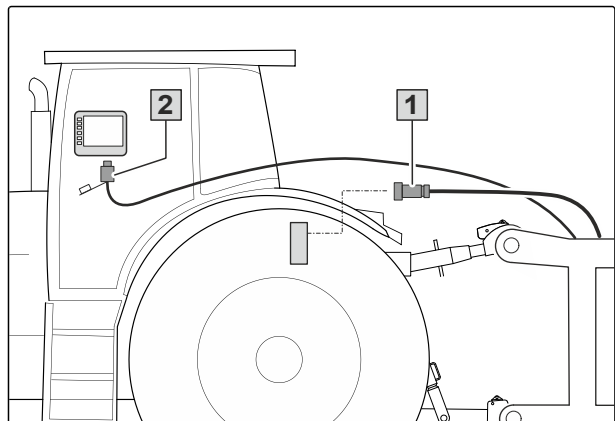


CMS-I-00001248

9.12 Uncoupling the ISOBUS or control computer

CMS-T-00006174-D.1

1. Unplug the connector of the ISOBUS line **1** or the control computer line **2**.
2. Protect the plug with a dust cap.
3. Hang the plug in the hose cabinet.



CMS-I-00006891

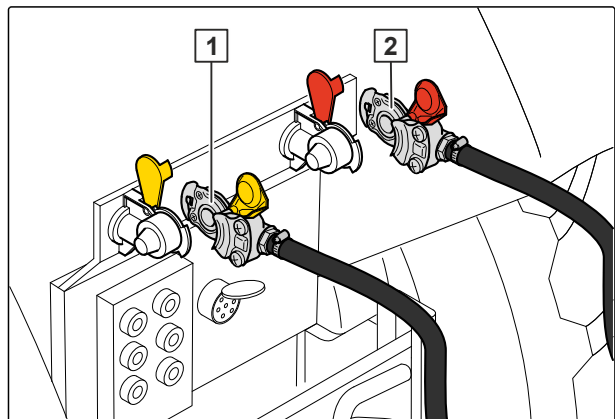
9.13 Uncoupling the brake system

CMS-T-00004569-E.1

9.13.1 Uncoupling the dual-circuit pneumatic brake system

CMS-T-00004570-D.1

1. Uncouple the red coupling head of the brake line **2** from the tractor.
2. Couple the red coupling head with the empty coupling on the implement.
3. Uncouple the yellow coupling head of the brake line **1** from the tractor.
4. Couple the yellow coupling head with the empty coupling on the implement.
5. Close the tractor coupling head caps.

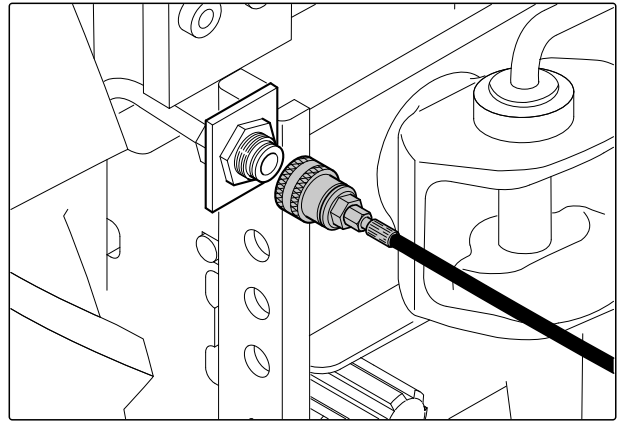


CMS-I-00003559

9.13.2 Uncoupling the single-circuit hydraulic brake system

CMS-T-00004571-D.1

1. Disconnect the ripcord of the emergency brake from the tractor.
2. Uncouple the hydraulic plug from the hydraulic socket.

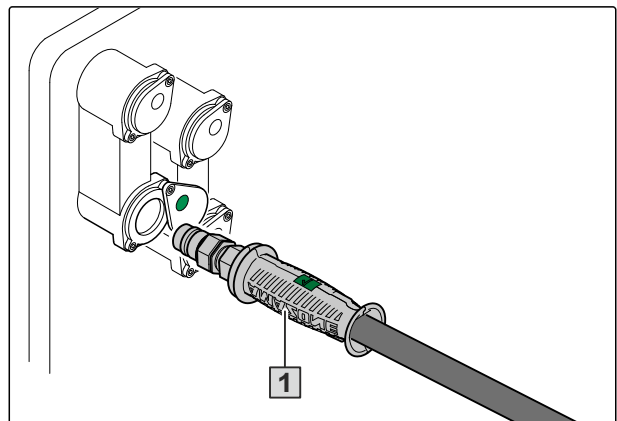


CMS-I-00003560

9.14 Disconnecting the hydraulic hose lines

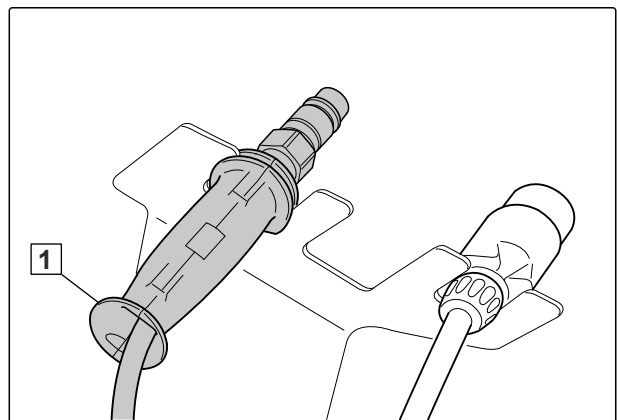
CMS-T-00000277-F.1

1. Secure the tractor and implement.
2. Put the control lever on the tractor control unit in float position.
3. Disconnect the hydraulic hose lines **1**.
4. Put the dust caps on the hydraulic sockets.



CMS-I-00001065

5. Hang the hydraulic hose lines **1** in the hose cabinet.

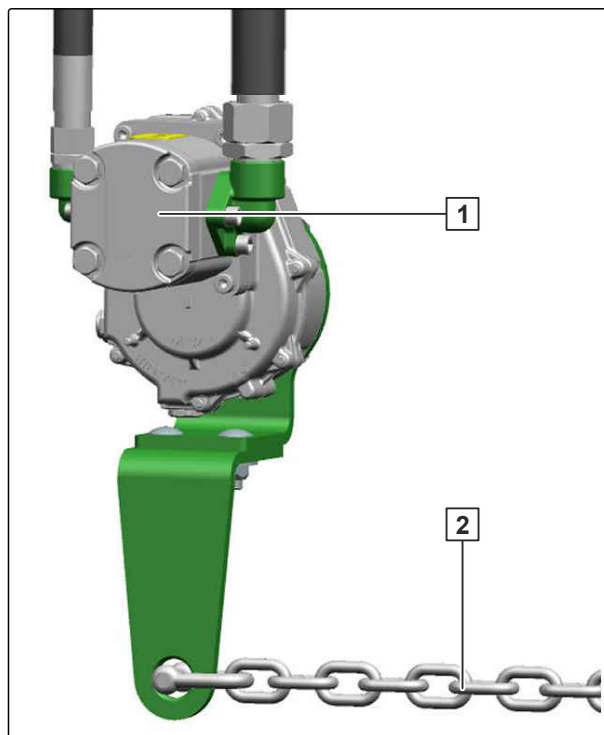


CMS-I-00001250

9.15 Uncoupling the hydraulic pump

CMS-T-00010899-A.1

1. Disconnect the chain **2**.
2. Depending on the design, unscrew the bolts or pull out the lock pin.
3. Pull the hydraulic pump **1** off of the tractor PTO shaft.

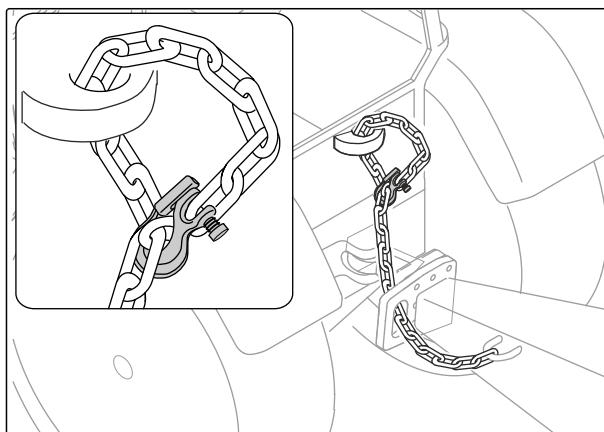


CMS-I-00007516

9.16 Releasing the safety chain

CMS-T-00004315-C.1

- Release the safety chain from the tractor.

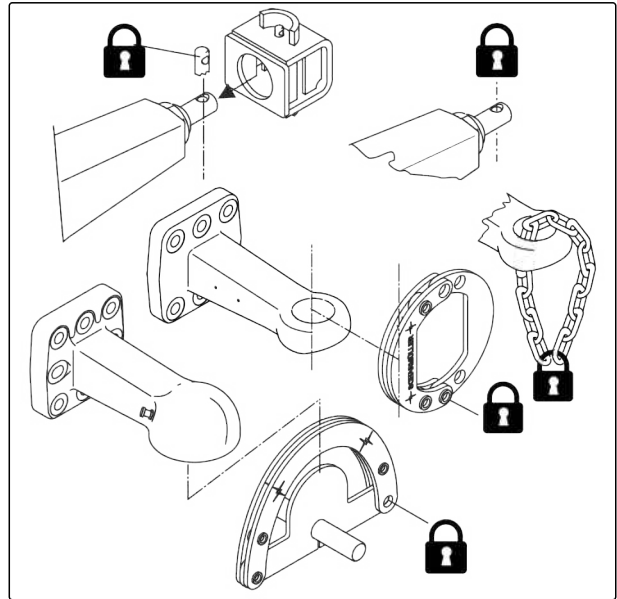


CMS-I-00007814

9.17 Putting on the safety device against unauthorised use

CMS-T-00005090-B.1

1. Put the safety device against unauthorised use on the hitch device.
2. Put on the padlock.



CMS-I-00003534

Repairing the machine

10

CMS-T-00011766-B.1

10.1 Maintaining the implement

CMS-T-00011767-B.1

10.1.1 Maintenance schedule

After initial operation	
Checking the hydraulic hose lines	see page 125
Checking the tightening torque of the wheel nuts	see page 131
Checking the hydraulic oil filter for soiling on implements without on-board hydraulic system	see page 134
Checking the oil filter of the on-board hydraulic system for soiling	see page 134
Checking the oil level of the on-board hydraulic system	see page 135
Checking the tightening torque for the radar sensor bolts	see page 137

daily	
Checking the compressed air tank	see page 126
Draining the compressed air tank	see page 127

Every 12 months	
Checking the tightening torque for the radar sensor bolts	see page 137

Every 50 operating hours	
Checking the lower link hitch	see page 132
Checking the ball hitch coupling	see page 132
Checking the drawbar eye	see page 133

Every 10 operating hours / daily	
Checking the lower link pins	see page 131

Every 50 operating hours / weekly	
Checking the hydraulic hose lines	see page 125
Checking the tyre inflation pressure	see page 130
Checking the tightening torque of the wheel nuts	see page 131
Checking the hydraulic oil filter for soiling on implements without on-board hydraulic system	see page 134
Checking the oil filter of the on-board hydraulic system for soiling	see page 134

Every 100 operating hours / weekly	
Checking the oil level of the on-board hydraulic system	see page 135

Every 200 operating hours / Every 3 months	
Checking the pneumatic brake system	see page 126
Cleaning the compressed air line filter	see page 128
Checking the brake pads	see page 129

Every 2000 operating hours / Every 2 years	
Changing the oil and filter for the on-board hydraulic system	see page 136

10.1.2 Checking the hydraulic hose lines

CMS-T-00002331-F.1



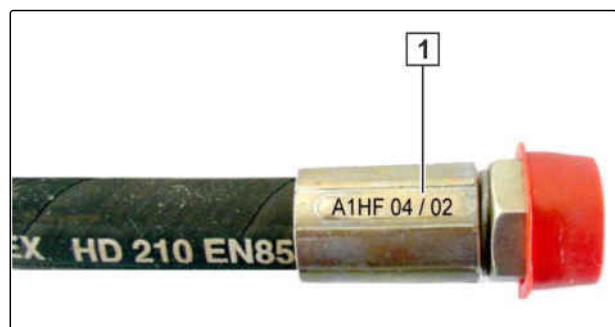
INTERVAL

- After initial operation
- Every 50 operating hours
or
weekly

1. Check the hydraulic hose lines for damage, such as chafing point, cuts, tears and deformation.
2. Check the hydraulic hose lines for leaks.
3. Retighten loose bolted connections.

Hydraulic hose lines must not be more than 6 years old.

4. Check the manufacturing date **1**.



CMS-I-00000532



WORKSHOP WORK

5. Replace worn, damaged or aged hydraulic hose lines.

10.1.3 Checking the pneumatic brake system

CMS-T-00004985-F.1



INTERVAL

- Every 200 operating hours
or
Every 3 months

1. Check the compressed air lines and bellows for damage.



WORKSHOP WORK

2. Replace damaged components.

Test criteria	Setpoints
Pressure drop in the pneumatic brake system	maximum of 0.15 bar in 10 minutes
Air pressure in the compressed air tank	6 bar-8.2 bar
Brake cylinder pressure	0 bar when the brake is not actuated

3. Check the specified test criteria.

10.1.4 Checking the compressed air tank

CMS-T-00004589-D.1



INTERVAL

- daily

1. Check the compressed air tank for damage and corrosion.
2. Check the tensioning belts of the compressed air tank.
3. *If the tensioning belts are loose,*
tighten the tensioning belts with nuts.



WORKSHOP WORK

4. Replace the compressed air tank if damaged or corroded.
5. *If the tensioning belts are damaged or cannot be tightened,*
replace the tensioning belts.

10.1.5 Draining the compressed air tank

CMS-T-00004588-E.1



INTERVAL

- daily
1. *To fill the compressed air tank,*
run the tractor engine for 3 minutes.
 2. Switch off the tractor engine.
 3. *To drain the water,*
Pull the drainage valve to the side using the ring.



CMS-I-00003555

10.1.6 Cleaning the compressed air line filter

CMS-T-00004590-D.1



INTERVAL

- Every 200 operating hours
or
Every 3 months



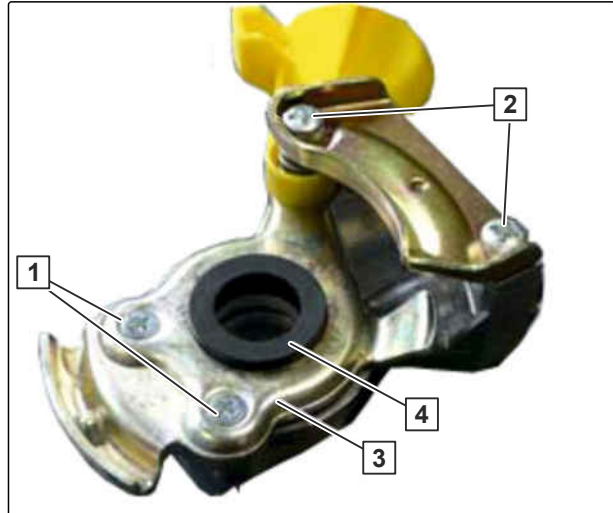
NOTE

The coupling head contains a tensioned spring.

Bolt tightening torques:

- **1** 2.5 Nm
- **2** 7 Nm

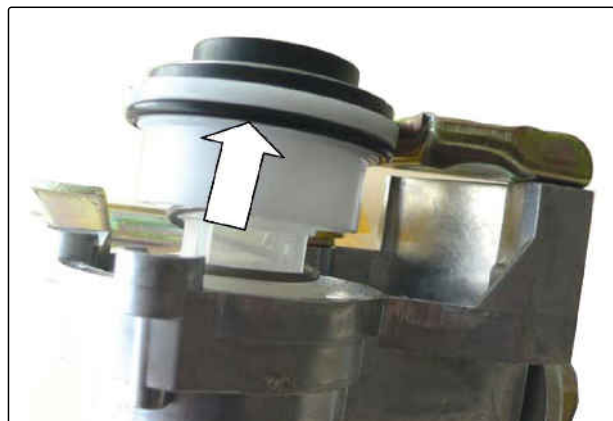
1. Unscrew the bolts **1**.
2. Loosen the bolts **2** by a few turns.
3. Lift the housing plate **3** and turn it to the side over the rubber seal **4**.
4. Remove the rubber seal.
5. Replace damaged parts.
6. Clean the sealing surfaces, seal ring and compressed air line filter.
7. Grease the sealing surfaces, seal ring and compressed air line filter.
8. Check the position of the seal ring.
9. Reassemble in the reverse sequence.



CMS-I-00003574



CMS-I-00003573



CMS-I-00003572

10.1 Checking the hydraulic accumulator

CMS-T-00013879-A.1



WORKSHOP WORK

- Every 1000 operating hours
or
Every 12 months
1. Check the hydraulic accumulator and connections for leaks and tight fit. Check the fastening elements.
 2. For refillable hydraulic accumulators, check the pre-charge pressure.

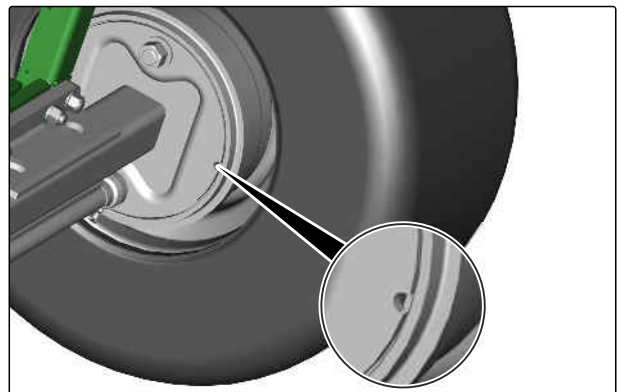
10.1.7 Checking the brake pads

CMS-T-00004984-D.1



INTERVAL

- Every 200 operating hours
or
Every 3 months
- Test criteria:**
- Wear limit: 2 mm
 - Damage
 - Coarse dirt
1. Check the brake pads through the inspection holes.



CMS-I-00003599



WORKSHOP WORK

2. Replace the brake pads if they are worn, damaged or soiled.

10.1 Checking the brake drum

CMS-T-00013875-A.1



WORKSHOP WORK

- Every 1000 operating hours
or
Every 12 months

1. Check the brake drum for soiling. Remove any soiling.
2. Then check the brake pads.

10.1 Checking the slack adjuster

CMS-T-00013876-A.1



WORKSHOP WORK

- Every 200 operating hours
or
Every 3 months

- Check the setting and function of the slack adjuster.

10.1 Checking the parking brake

CMS-T-00013877-A.1



WORKSHOP WORK

- Every 200 operating hours
or
Every 3 months

- Check the setting and function of the parking brake.

10.1.8 Checking the tyre inflation pressure

CMS-T-00004972-D.1



INTERVAL

- Every 50 operating hours
or
weekly

There are stickers attached in the rims of the wheels, which specify the required tyre inflation pressure.

- Check the tyre inflation pressure according to the specifications on the stickers.

10.1.9 Checking the tightening torque of the wheel nuts

CMS-T-00011790-A.1



INTERVAL

- After initial operation
- Every 50 operating hours
- or
- weekly

The required tightening torque for the wheel nuts is 450 Nm.

- Check the tightening torque of the wheel nuts. Retighten the wheel nuts if necessary.

10.1 Checking the wheel bearing

CMS-T-00013878-A.1



WORKSHOP WORK

- Every 200 operating hours
- or
- Every 3 months

1. Check bearing clearance.
2. Replace the grease in the wheel bearings.

10.1.10 Checking the lower link pins

CMS-T-00004233-C.1



INTERVAL

- Every 10 operating hours
- or
- daily

Criteria for visual inspection of the lower link pins:

- Cracks
- Fractures
- Permanent deformations
- Permissible wear: 2 mm

1. Check the lower link pins for the listed criteria.
2. Replace worn pins.

10.1.11 Checking the lower link hitch

CMS-T-00004973-F.1



INTERVAL

- Every 50 operating hours

Lower link hitch	Wear dimension	Fixing bolts	Quantity	Bolt tightening torques
Category 3	34.5 mm	M20 8.8	8	420 Nm
Category 4	48 mm	M20 8.8	8	420 Nm
Category 4 N	48 mm	M20 8.8	8	420 Nm
Category K700	56 mm	M20 8.8	8	420 Nm

1. Check the bolt tightening torques.
2. Check the lower link hitch for damage, deformation, cracks and wear.



WORKSHOP WORK

3. Replace the lower link hitch if damaged.

10.1.12 Checking the ball hitch coupling

CMS-T-00006968-G.1



INTERVAL

- Every 50 operating hours

Ball hitch coupling	Wear dimension	Fixing bolts	Quantity	Bolt tightening torque
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

1. Check the bolt tightening torques.
2. Check the ball hitch coupling for damage, deformation, cracks and wear.



WORKSHOP WORK

3. Replace the ball hitch coupling if damaged.

10.1.13 Checking the drawbar eye

CMS-T-00006969-F.1



INTERVAL

- Every 50 operating hours

Drawbar eye	Wear dimension	Fixing bolts	Quantity	Bolt tightening torque
D35 (LI038)	42 mm	M16 12.9	6	340 Nm
D40 (LI017)	41.5 mm	M16 10.9	6	300 Nm
D40 (LI006)	42.5 mm	M20 8.8	8	395 Nm
D46 (LI034)	48 mm	M20 10.9	12	550 Nm
D50 (LI037)	60 mm	M16 12.9	4	340 Nm
D50 (LI010)	51.5 mm	M16 10.9	8	300 Nm
D50 (LI059)	51.5 mm	M20 10.9	4	560 Nm
D50 (LI011)	51.5 mm	M20 8.8	8	410 Nm
D50 (LI060)	52.5 mm	M20 10.9	8	560 Nm
D51 (LI039)	53 mm	M20 10.9	12	600 Nm
D51 (LI059)	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

1. Check the bolt tightening torques.
2. Check the drawbar eye for damage, deformation, cracks and wear.



WORKSHOP WORK

3. Replace the drawbar eye if damaged.

10.1.14 Checking the hydraulic oil filter for soiling on implements without on-board hydraulic system

CMS-T-00012098-A.1

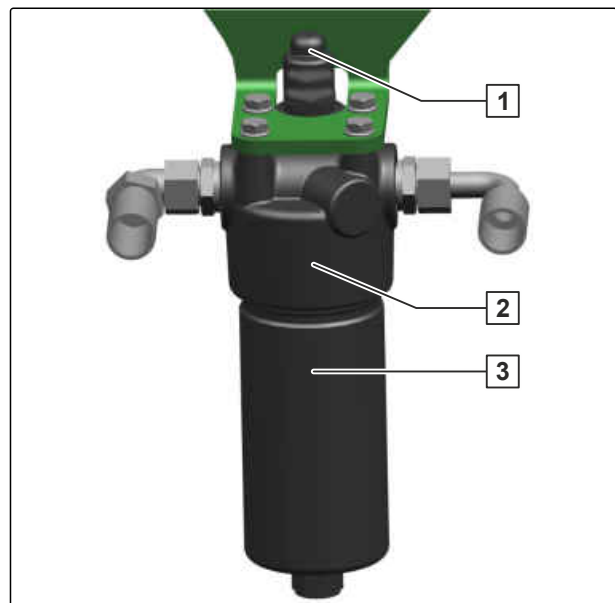


INTERVAL

- After initial operation
 - Every 50 operating hours
- or
- weekly

The hydraulic oil filter can only be checked while oil is circulating. If the contamination indicator is red, the filter needs to be changed.

1. Check the contamination indicator **1** on the oil filter.
2. *If the contamination indicator is red:*
Remove the housing **3** of the filter insert from the cover **2**.
3. Change the filter insert.
4. Install the oil filter.
5. Press the contamination indicator in so that the green ring becomes visible.



CMS-I-00007823

10.1.15 Checking the oil filter of the on-board hydraulic system for soiling

CMS-T-00012221-A.1

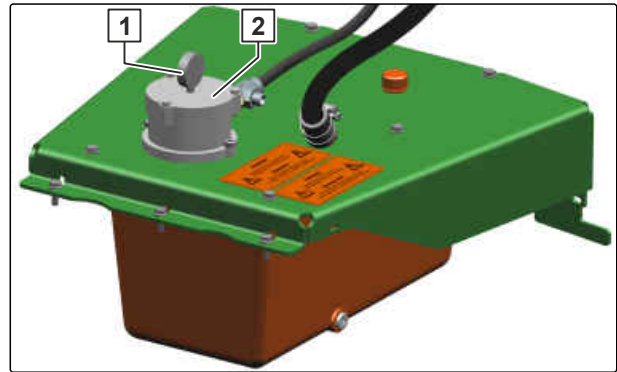


INTERVAL

- After initial operation
 - Every 50 operating hours
- or
- weekly

The oil filter can only be checked while oil is circulating. If the contamination indicator is red, the filter needs to be changed.

1. Check the contamination indicator **1** on the oil tank.
2. *If the contamination indicator is red:*
Unscrew the three bolts on the cover **2** for the oil filter.
3. Remove the oil filter.
4. Change the filter insert.
5. Install the oil filter.
6. Install the three bolts on the cover.



CMS-I-00007791

10.1.16 Checking the oil level of the on-board hydraulic system

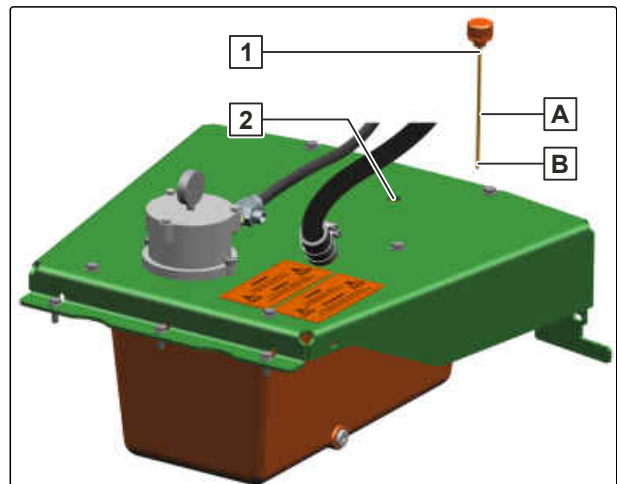
CMS-T-00012044-A.1



INTERVAL

- After initial operation
- Every 100 operating hours
or
weekly

1. Position the implement on a horizontal surface.
2. Remove the oil dipstick **1**.
3. Read the oil level from the dipstick. The oil level must be between the markings **A** and **B**.
4. *If the oil level is too low:*
Refill the hydraulic oil through the opening **2** of the oil dipstick according to the technical data.



CMS-I-00007775

10.1.17 Changing the oil and filter for the on-board hydraulic system

CMS-T-00012047-B.1



INTERVAL

- Every 2000 operating hours
or
Every 2 years

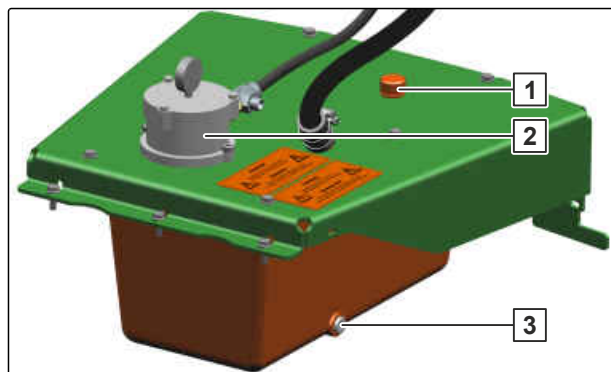


ENVIRONMENTAL INFORMATION

Danger due to escaping oil

- ▶ Collect any escaping oil.
- ▶ Dispose of cleaning agents for removing oil in an environmentally friendly manner.

1. Position the implement on a horizontal surface.
2. Place a suitable container with a capacity of at least 35 l under the drain plug **3**.
3. Remove the oil dipstick **1**.
4. Remove the drain plug **3**.
5. Allow the hydraulic oil to drain into the container.
6. Check the gasket on the drain plug. Replace if necessary.
7. Install the drain plug.
8. Remove the 3 bolts on the cover for the oil filter **2**.
9. Remove the oil filter.
10. Change the filter insert.
11. Install the oil filter.
12. Install the 3 bolts on the cover.
13. Fill 32 l to 35 l of hydraulic oil according to the technical data through the opening of the oil dipstick.
14. Install the oil dipstick **1**.
15. Check the oil level with the oil dipstick. Correct if necessary.



CMS-I-00007776

10.1.18 Checking the tightening torque for the radar sensor bolts

CMS-T-00002383-H.1



INTERVAL

- After initial operation
- Every 12 months

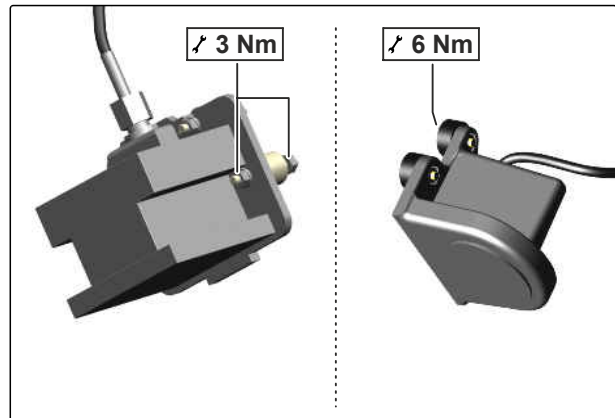


NOTE

When the tightening torque is too high, the spring-suspended sensor mount is warped. As a result, the radar sensor does not work properly.

Depending on the equipment of the implement, different radar sensors can be installed.

- Check the tightening torque on the radar sensor.



CMS-I-00002600

10.2 Lubricating the implement

CMS-T-00011768-A.1



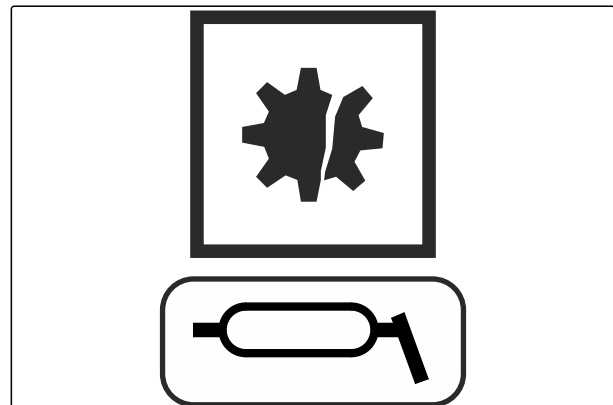
IMPORTANT

Implement damage due to improper lubrication

- ▶ Grease the implement at the marked lubrication points according to the lubrication schedule.
- ▶ *To ensure that dirt is not pressed into the lubrication points,* thoroughly clean the grease nipples and the grease gun.
- ▶ Only grease the implement with the lubricants listed in the technical data.
- ▶ *If the bearing point is not sealed:* Press the dirty grease completely out of the bearings.
- ▶ *To avoid damaging the seals on sealed bearing points:* Grease the bearing marked with the adjacent symbol very carefully.



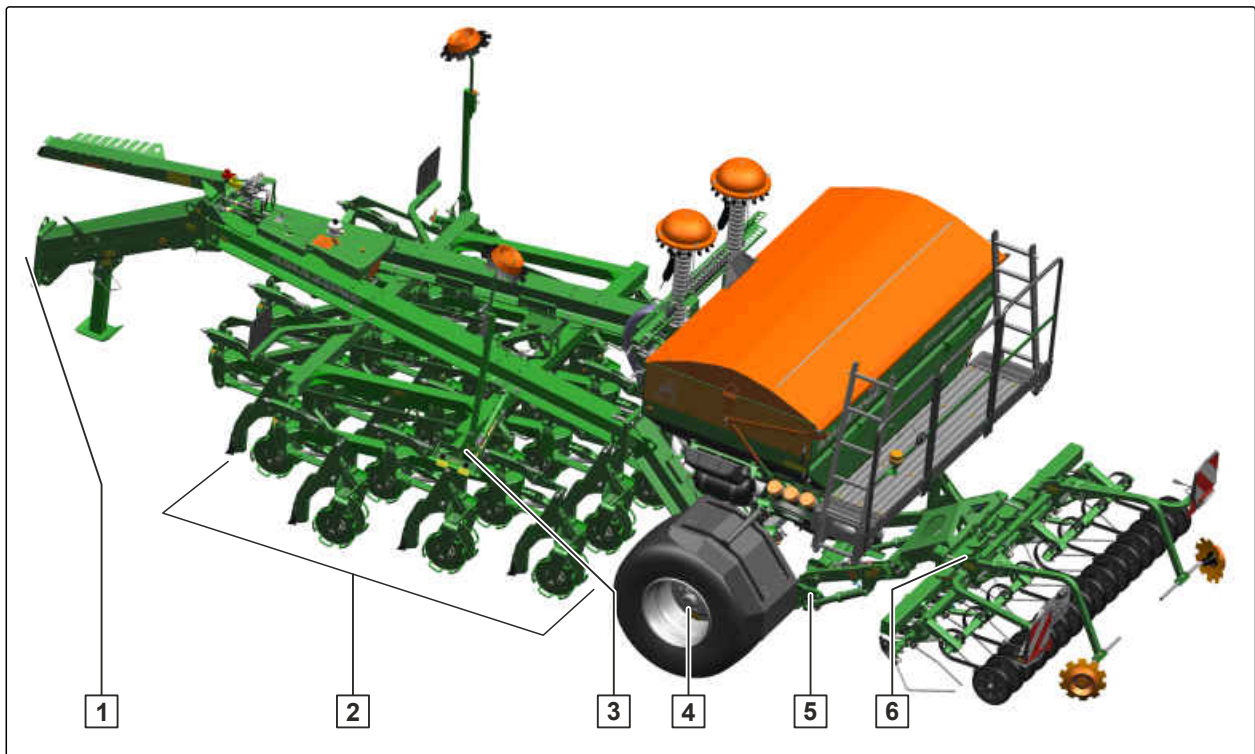
CMS-I-00002270



CMS-I-00008446

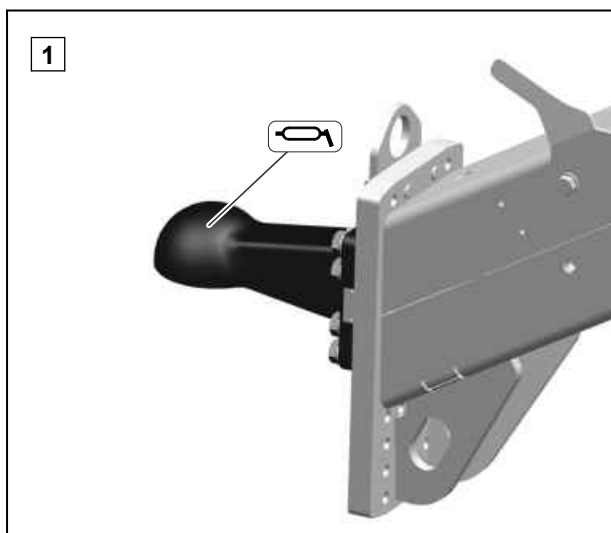
10.2.1 Overview of lubrication points

CMS-T-00011769-A.1

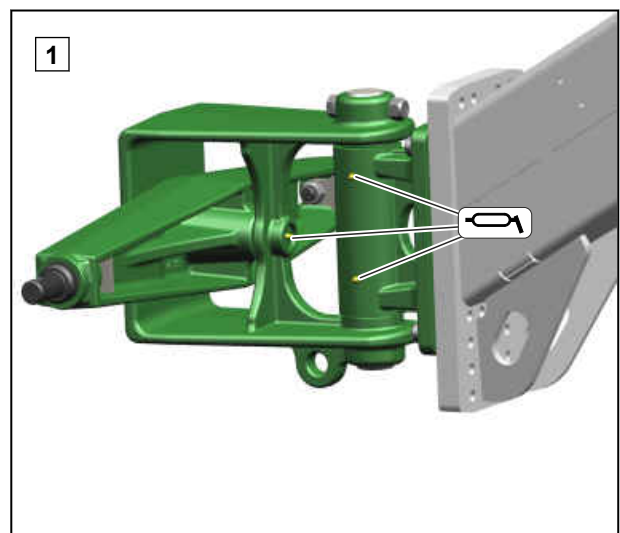


CMS-I-00007778

Every 50 operating hours

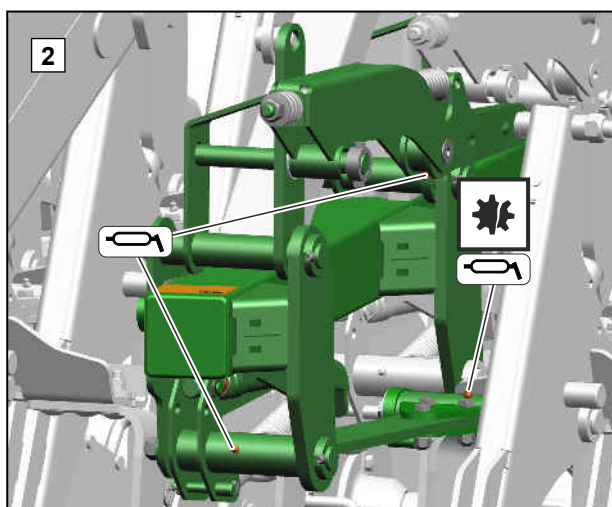


CMS-I-00007793



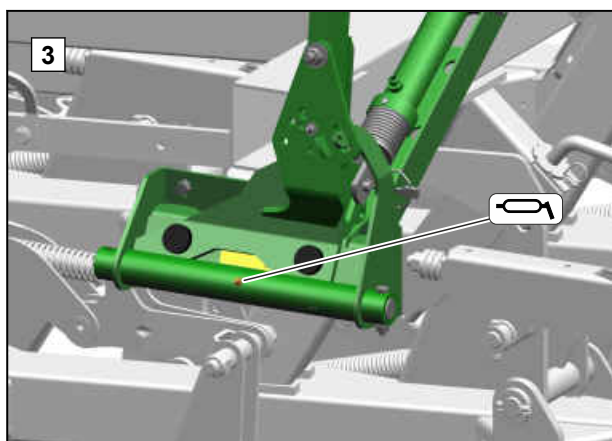
CMS-I-00007782

Every 100 operating hours

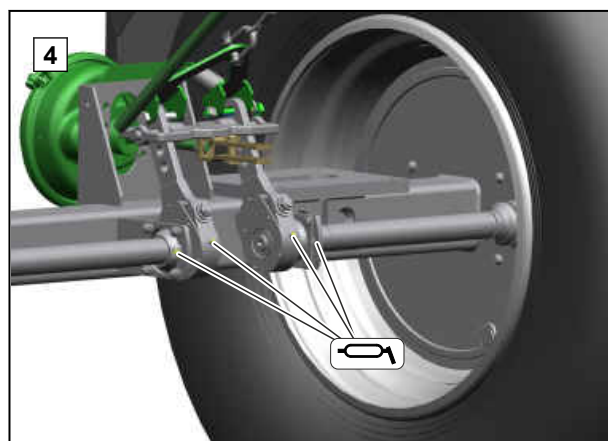


CMS-I-00008445

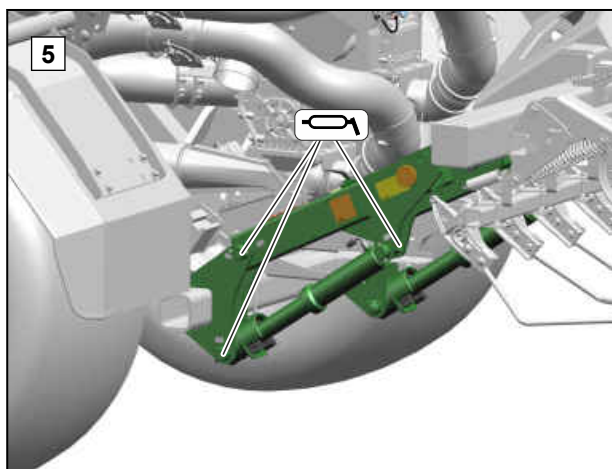
Every 250 operating hours



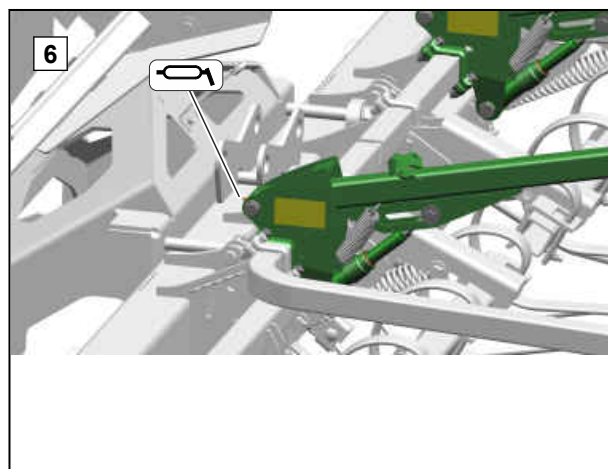
CMS-I-00007781



CMS-I-00007780



CMS-I-00007779



CMS-I-00007792

10.3 Cleaning the implement

CMS-T-00012227-A.1

10.3.1 Cleaning the implement

CMS-T-00000593-F.1



IMPORTANT

Risk of machine damage due to cleaning jet of the high-pressure nozzle

- ▶ Never direct the cleaning jet of the high-pressure cleaner or hot water high-pressure cleaner onto the marked components.
- ▶ Never aim the cleaning jet of high-pressure cleaners or hot water high-pressure cleaners on electrical or electronic components.
- ▶ Never aim the cleaning jet of the high pressure cleaner directly on lubrication points, bearings, rating plates, warning signs, and stickers.
- ▶ Always maintain a minimum distance of 30 cm between the high-pressure nozzle and the implement.
- ▶ Do not exceed a water pressure of 120 bar.



CMS-I-00002692

- ▶ Clean the machine with a high-pressure cleaner or a hot water high-pressure cleaner.

10.3.2 Cleaning the distributor head

CMS-T-00012239-A.1



NOTE

Immediately clean the distributor heads if they are soiled. The soiling can influence the seed rate.



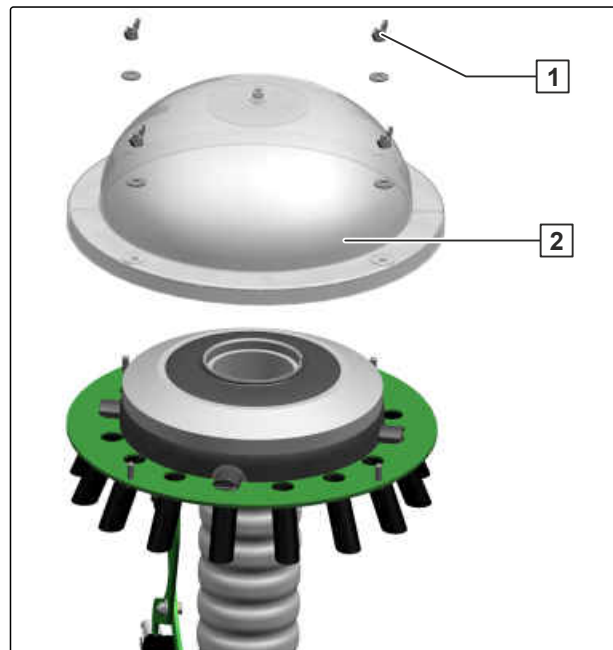
WARNING

Risk of chemical burns by dressing dust

- ▶ Before working with hazardous materials, put on the protective clothing recommended by the manufacturer.

1. Secure the tractor and implement.
2. Extend the ladder.
3. Climb on the service platform via the ladder.

4. Open the swivelling cover tarpaulin.
5. Step onto the charging sieve in the hopper.
6. Remove the 4 nuts **1**.
7. Take off the hood **2**.
8. Remove coarse impurities with a broom.
9. Wipe out the distributor head and the hood with a dry cloth.
10. Put on the hood.
11. Install the 4 nuts.



CMS-I-00007868

10.3.3 Cleaning the hopper

CMS-T-00012228-A.1

If necessary, e.g. when changing the spreading material, the hopper must be cleaned.

1. Secure the tractor and implement.
2. Remove the metering roller on all of the metering units.
3. Open the calibration flap on all of the metering units.
4. Extend the ladder.
5. Climb on the service platform via the ladder.
6. Open the swivelling cover tarpaulin.
7. Clean the interior of the hopper, the charging sieves and the guard screen over the metering units with water.
8. Close the calibration flaps.
9. *To dry the conveyor section:*
Run the fan for about 5 minutes.

Manoeuvring the implement

11

CMS-T-00012147-A.1

11.1

Manoeuvring the implement with dual-circuit pneumatic brake system

CMS-T-00006898-D.1

If the implement is uncoupled from the tractor, the compressed air from the compressed air tank acts on the brakes and the wheels are blocked. To be able to move the uncoupled implement, the compressed air must be vented with the release valve on the brake valve.



WARNING

Risk of accident due to unbraked implement

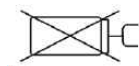
- ▶ *To manoeuvre the implement:*
Couple the implement to a suitable tractor using the coupling device.
- ▶ Manoeuvre the implement only at walking speed.

There are two versions of brake valves.

1. Press in the control knob **1** of the release valve up to the stop

or

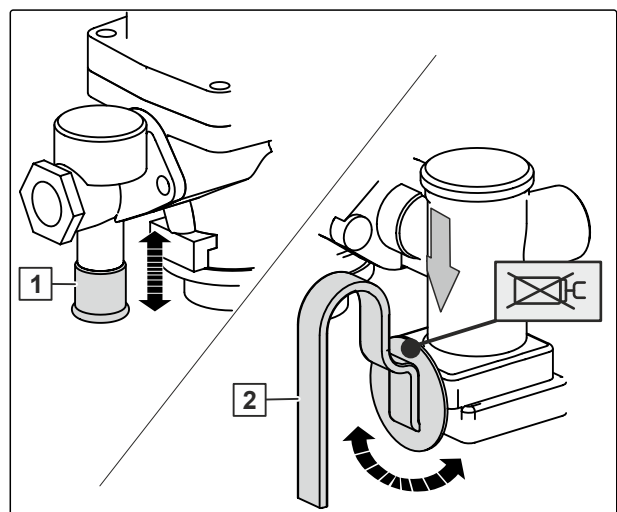
Turn the hand lever **2** of the brake valve to the



position.

- ➔ The compressed air that acts on the brakes escapes.

2. Manoeuvre the implement.



CMS-I-00007826

3. Pull out the control knob of the release valve up to the stop

or

Adjust the hand lever of the brake valve to the load status.

- ➔ Compressed air flows back out of the compressed air tank to the brakes. The wheels are blocked again.



NOTE

To brake the implement again, there must be enough compressed air in the compressed air tank.

4. *If there is not enough compressed air:*
Couple the dual-circuit pneumatic brake system to a tractor.

11.2

Manoeuvring an implement with single-circuit hydraulic brake system

CMS-T-00005208-C.1



WARNING

Risk of accident due to unbraked implement

- ▶ *To manoeuvre the implement:*
Couple the implement to a suitable tractor using the coupling device.
- ▶ Manoeuvre the implement only at walking speed.

The single-circuit hydraulic brake system can block the uncoupled implement.

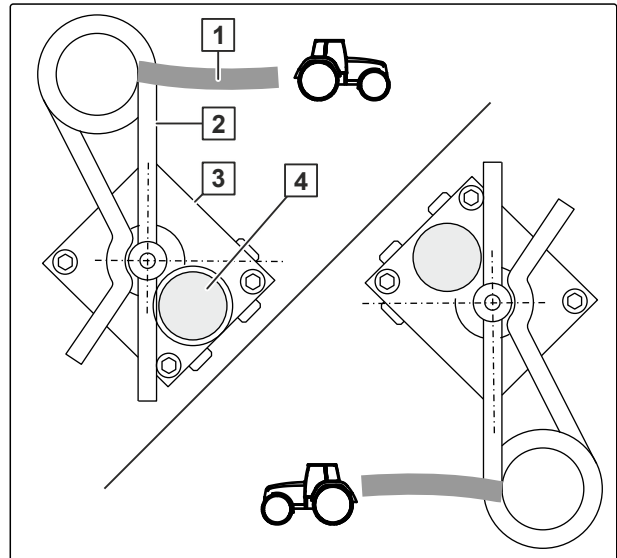
1. *When the single-circuit hydraulic brake system blocks the implement:*
Relieve the pressure in the brake system using the hand pump **4** on the brake valve **3**.



NOTE

The hydraulic cylinders of the hydraulic brakes must be completely retracted. The required pumping time is several minutes.

2. Manoeuvre the implement.



CMS-I-00007787

Loading the implement

12

CMS-T-00010957-A.1

12.1 Lashing the implement

CMS-T-00012180-A.1



NOTE

A marshalling person is required for the loading and unloading the implement.

The implement has 4 lashing points for lashing straps on each side.



WARNING

Risk of accidents due to improperly attached lashing straps

If the lashing straps are not attached at the marked lashing points, the implement can be damaged during lashing and endanger safety.

- Attach the lashing straps only at the marked lashing points.



CMS-I-00007867

1. Couple the implement onto a tractor that meets the technical requirements.
2. Pull the implement onto the transport vehicle with the aid of a marshalling person.
3. Secure the implement and apply the parking brake.
4. Uncouple the implement from the tractor.
5. Attach the lashing straps at the marked points.
6. Lash down the implement in compliance with the national regulations for load securing.

Disposing of the implement

13

CMS-T-00010906-B.1

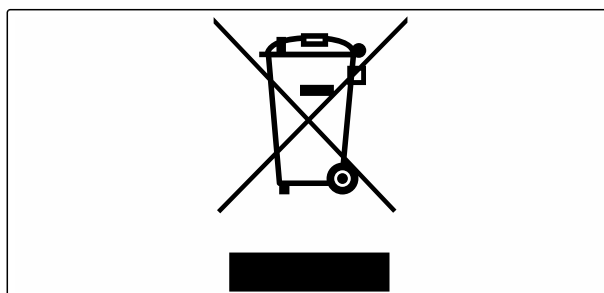


ENVIRONMENTAL INFORMATION

Environmental damage due to improper disposal

- ▶ Observe the regulations of the local authorities.
- ▶ Observe the symbols on the implement regarding disposal.
- ▶ Observe the following instructions.

1. Components with this symbol should not be disposed of with household waste.



CMS-I-00007999

2. Return batteries to the distributor
or
Dispose of batteries at a collection point.
3. Put recyclable materials in the recycling.
4. Treat operating materials like hazardous waste.



WORKSHOP WORK

5. Dispose of the coolant.

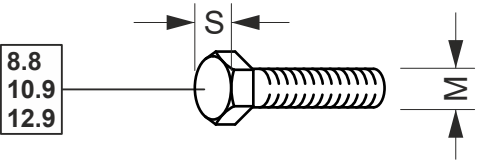
Appendix

14

CMS-T-00013139-A.1

14.1 Bolt tightening torques

CMS-T-00000373-E.1



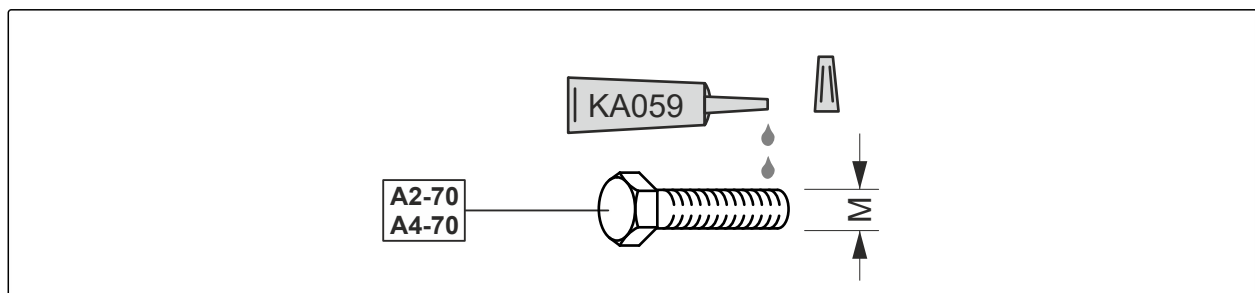
CMS-I-000260

NOTE

Unless specified otherwise, the bolt tightening torques listed in the table apply.

M	S	Strength classes		
		8.8	10.9	12.9
M8	13 mm	25 Nm	35 Nm	41 Nm
M8x1		27 Nm	38 Nm	41 Nm
M10	16(17) mm	49 Nm	69 Nm	83 Nm
M10x1		52 Nm	73 Nm	88 Nm
M12	18(19) mm	86 Nm	120 Nm	145 Nm
M12x1.5		90 Nm	125 Nm	150 Nm
M14	22 mm	135 Nm	190 Nm	230 Nm
M 14x1.5		150 Nm	210 Nm	250 Nm
M16	24 mm	210 Nm	300 Nm	355 Nm
M16x1.5		225 Nm	315 Nm	380 Nm
M18	27 mm	290 Nm	405 Nm	485 Nm
M18x1.5		325 Nm	460 Nm	550 Nm
M20	30 mm	410 Nm	580 Nm	690 Nm
M20x1.5		460 Nm	640 Nm	770 Nm

M	S	Strength classes		
		8.8	10.9	12.9
M22	32 mm	550 Nm	780 Nm	930 Nm
M22x1.5		610 Nm	860 Nm	1,050 Nm
M24	36 mm	710 Nm	1,000 Nm	1,200 Nm
M24x2		780 Nm	1,100 Nm	1,300 Nm
M27	41 mm	1,050 Nm	1,500 Nm	1,800 Nm
M27x2		1,150 Nm	1,600 Nm	1,950 Nm
M30	46 mm	1,450 Nm	2,000 Nm	2,400 Nm
M30x2		1,600 Nm	2,250 Nm	2,700 Nm



CMS-I-00000065

M	Tightening torque	M	Tightening torque
M4	2.4 Nm	M14	112 Nm
M5	4.9 Nm	M16	174 Nm
M6	8.4 Nm	M18	242 Nm
M8	20.4 Nm	M20	342 Nm
M10	40.7 Nm	M22	470 Nm
M12	70.5 Nm	M24	589 Nm

14.2 Other applicable documents

CMS-T-00003776-A.1

- Tractor operating manual
- Soil tillage implement operating manual
- ISOBUS software operating manual
- Control terminal operating manual

Directories

15

15.1 Glossary

CMS-T-00013809-A.1

M

Machine

Mounted implements are accessory parts of the tractor. However, mounted implements are always referred to as the implement in this operating manual.

O

Operating materials

Operating materials serve to ensure operational readiness. Operating materials include e.g. cleaning agents and lubricants such as lubricating oil, greases or cleaners.

S

Service platform

Service and maintenance tasks can be performed on the implement from the service platform. It is forbidden to carry loaded goods onto the implement via the service platform. If the loaded goods are carried by a lifting device, the implement can be loaded from the service platform.

T

Tractor

In this operating manual, the designation tractor is always used, even for other agricultural tractor units. Implements are mounted on the tractor or towed by the tractor.

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