



Original operating manual

Pneumatic pack top seed drill

Centaya 3000/3500/4000 Super 1600

Centaya 3000/3500/4000 Super 2000

Centaya 3000-C/3500-C/4000-C Super



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-D.1

1.1 Diagrams

CMS-T-005676-C.1

1.1.1 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.

1.1.2 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.

1.1.3 Instructions

CMS-T-00000473-B.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

1.1.3.1 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

1.1.3.2 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

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

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

1.1.4 Lists

CMS-T-000024-A.1

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

Example:

● Point 1

● Point 2

1.1.5 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 Other applicable documents

CMS-T-00000616-B.1

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

1.3 Your opinion is important

CMS-T-000059-C.1

Dear reader, our operating manuals are updated regularly. Your suggestions for improvement help us to create ever more user-friendly operating manuals. Please send us your suggestions by post, fax or email.

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Safety and responsibility

2

CMS-T-00004920-C.1

2.1 Basic safety instructions

CMS-T-00004921-C.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-C.1

2.1.2.1 Personnel qualification

CMS-T-00002306-A.1

2.1.2.1.1 Requirements for all persons working with the machine

CMS-T-00002310-A.1

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

the machine must meet the following minimum requirements:

- The person is physically and mentally capable of controlling the machine.
- 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-C.1

2.1.2.4.1 Perfect technical condition

CMS-T-00002314-C.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 implement.
- ▶ Immediately fix any damage that can affect safety.
- ▶ Fix the damage according to this operating manual.
- ▶ Any damage that you cannot fix yourself according to this operating manual must be fixed 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-00004922-A.1

2.1.3.1 Safety hazards on the machine

CMS-T-00004924-A.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 hydraulic hoses or check them 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-00004923-A.1

Dangers areas on the machine

The following basic dangers are encountered in the danger areas:

The implement and its work tools move during operation.

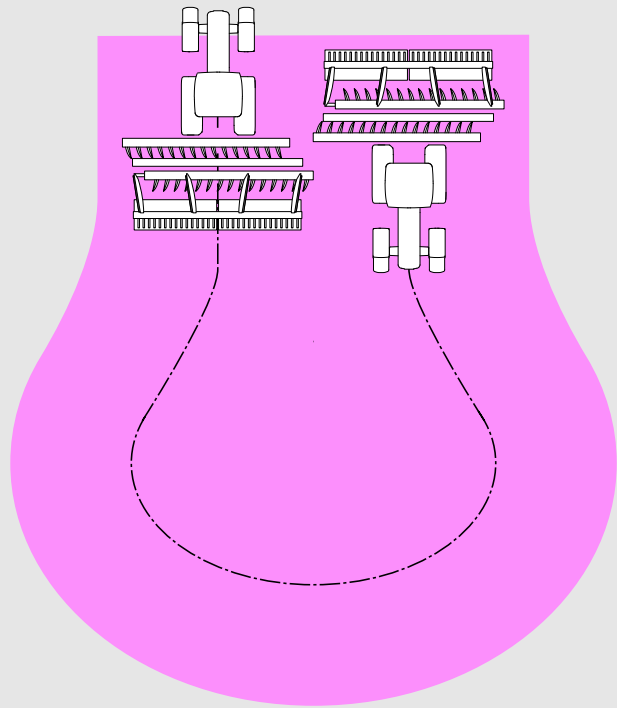
Hydraulically raised machine parts can descend unnoticed and slowly.

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 machine.
- ▶ *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-001131

2.1.4 Safe operation and handling of the machine

CMS-T-00002304-H.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-D.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 payload of 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-D.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-C.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.
- ▶ Maintenance work that is not described in this operating manual should only be performed by a qualified specialist workshop.
- ▶ Maintenance work on safety-related components should be performed only by a qualified specialist workshop.
- ▶ 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, drawbars, trailer support, trailer coupling, 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.*

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-00007168-A.1

- The implement is designed solely for professional use for the spreading of seed according to Good Agricultural Practices.
- The implement is an agricultural work machine for mounting on a carrying implement. The carrying implement has a special interface that meets the technical requirements.
- When driving on public roads, depending on the provisions of the applicable road traffic regulations, the implement can only be mounted and transported along with the carrying implement at the rear of a tractor that meets the technical requirements.
- The machine 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 machine. The machine is solely intended for use in compliance with this operating manual. Uses of the machine that are not described in this operating manual can lead to serious personal injuries or even death and to machine 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.

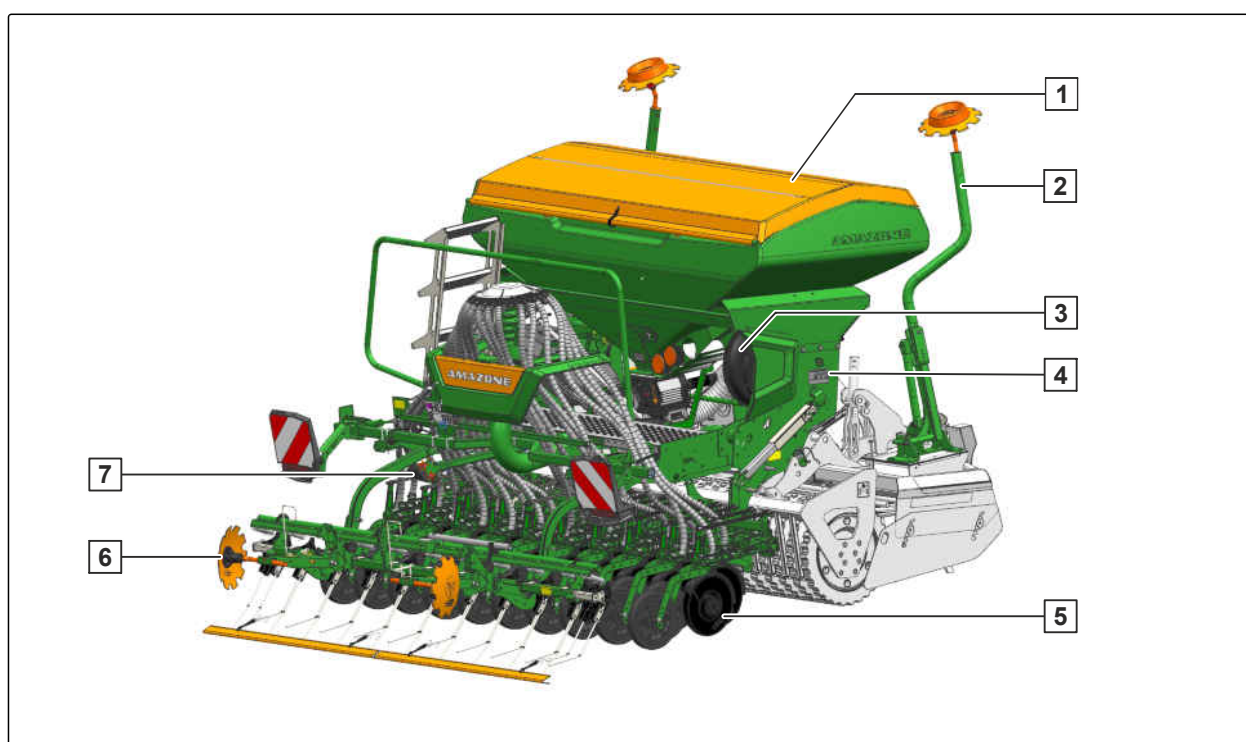
Product description

4

CMS-T-00007155-A.1

4.1 Implement overview

CMS-T-00007156-A.1



CMS-I-00005008

- | | |
|---|--|
| 1 Hopper with roller tarpaulin | 5 TwinTec double disc coulters, optionally RoTeC Control coulters |
| 2 Track marker on soil tillage implement | 6 Tramline marker |
| 3 Fan | 7 Radar sensor |
| 4 Rating plate on the implement | |



CMS-I-00005009

- | | |
|--|-----------------------------------|
| 1 Segment distributor head | 4 Loading board with steps |
| 2 Seed line hoses | 5 Seed metering unit |
| 3 Exact following harrow, optionally roller harrow. | |

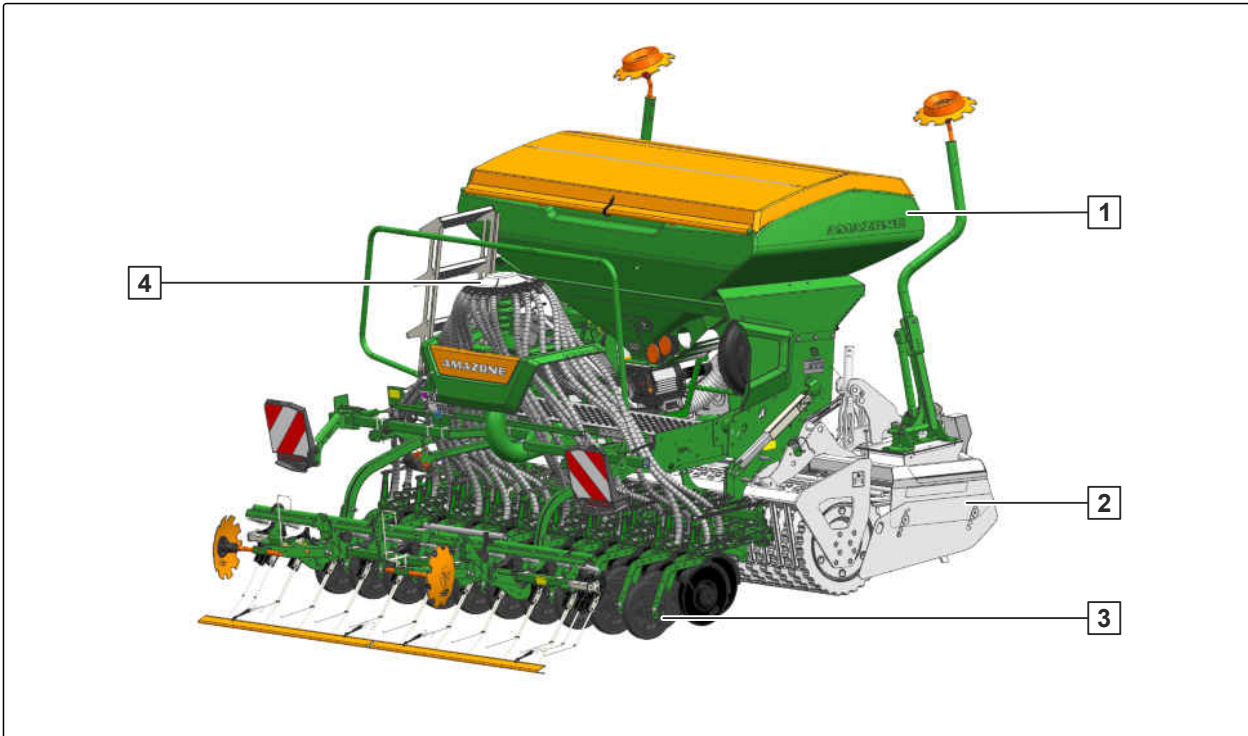


CMS-I-00005015

- | | |
|----------------------|---------------------------------------|
| 1 SmartCenter | 2 Cabinet for the supply lines |
|----------------------|---------------------------------------|

4.2 Function of the implement

CMS-T-00007181-A.1



CMS-I-00005034

The metered material is carried in the hopper **1** and is conveyed through the conveyor section and the distributor heads **4** to the seeding coulters **3**. The seeding coulter forms a seed furrow and deposits the metered material in the seedbed. The combination of pack top seed drill and soil tillage implement **2** enables seedbed preparation and seeding in one field pass.

4.3 Special equipment

CMS-T-00007185-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.

- Shelf for sacks
- Swivelling charging sieve
- Hand wash tank
- LED rear lighting for road travel
- Number plate holder with lighting for road travel
- LED work lights
- LED coulter array lighting

- Long mechanical top link
- Parking supports for TwinTeC coulters
- Mechanical one-sided switching
- Electric one-sided switching
- Tramline marker
- Mounting kit for second distributor head
- Mechanical coulters pressure display
- Harrow set on the TwinTeC coulter
- Exact following harrow
- Exact following harrow lift
- Hydraulic exact following harrow pressure adjustment
- Coulter pressure sensor for seed rate adjustment
- Seed tube monitoring
- Mounting kit with distributor tube
- GreenDrill hopper bracket
- Comfort hydraulic system incl. MinMax coulter pressure adjustment

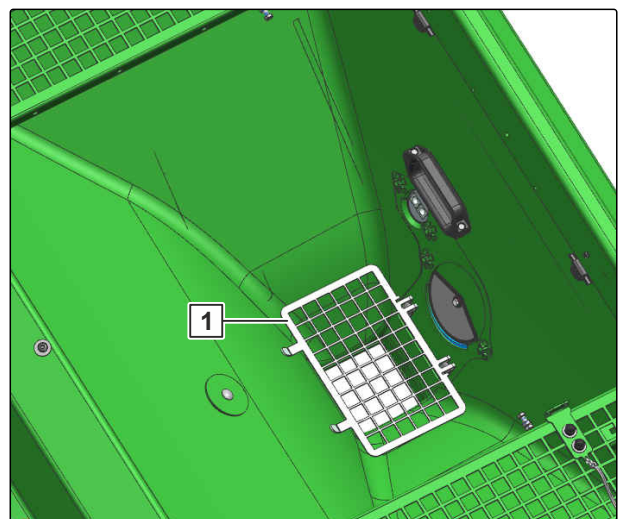
4.4 Protective equipment

CMS-T-00007657-A.1

4.4.1 Metering unit guard screen

The metering unit guard screen **1** on the hopper floor protects the user against injuries caused by rotating parts and the metering unit against foreign objects.

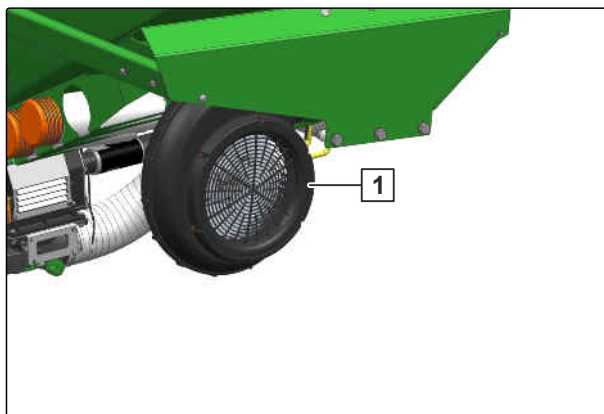
CMS-T-00007658-A.1



CMS-I-00005315

4.4.2 Fan guard screen

The fan guard screen **1** protects against injuries caused by rotating parts and damage due to foreign objects.

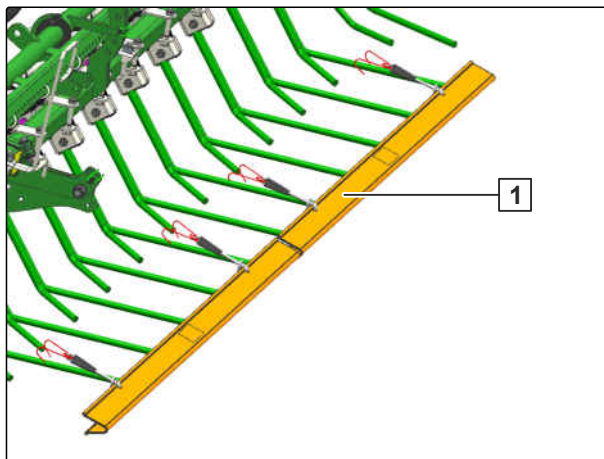


CMS-T-00007659-A.1

CMS-I-00005368

4.4.3 Road safety bar

The road safety bar **1** covers the tines of the exact following harrow to protect against injury and damage.



CMS-T-00007937-A.1

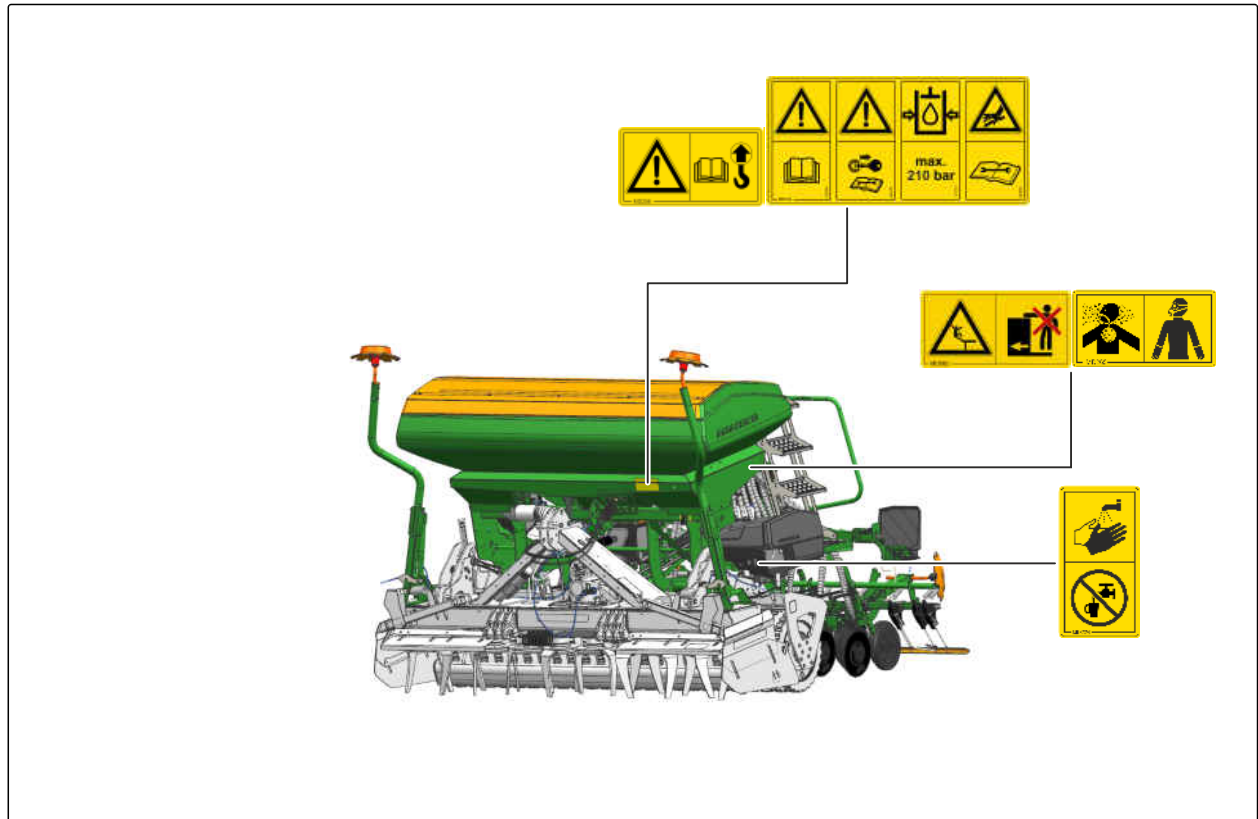
CMS-I-00005527

4.5 Warning symbols

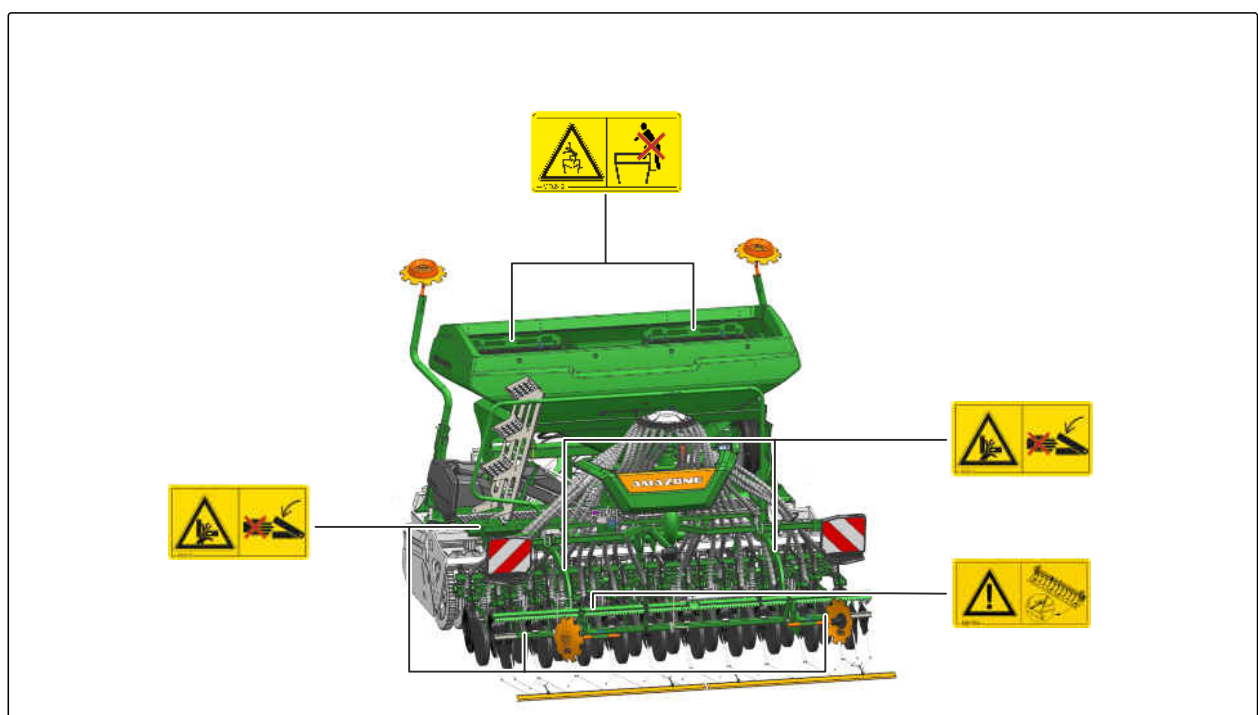
CMS-T-00007189-A.1

4.5.1 Positions of the warning symbols

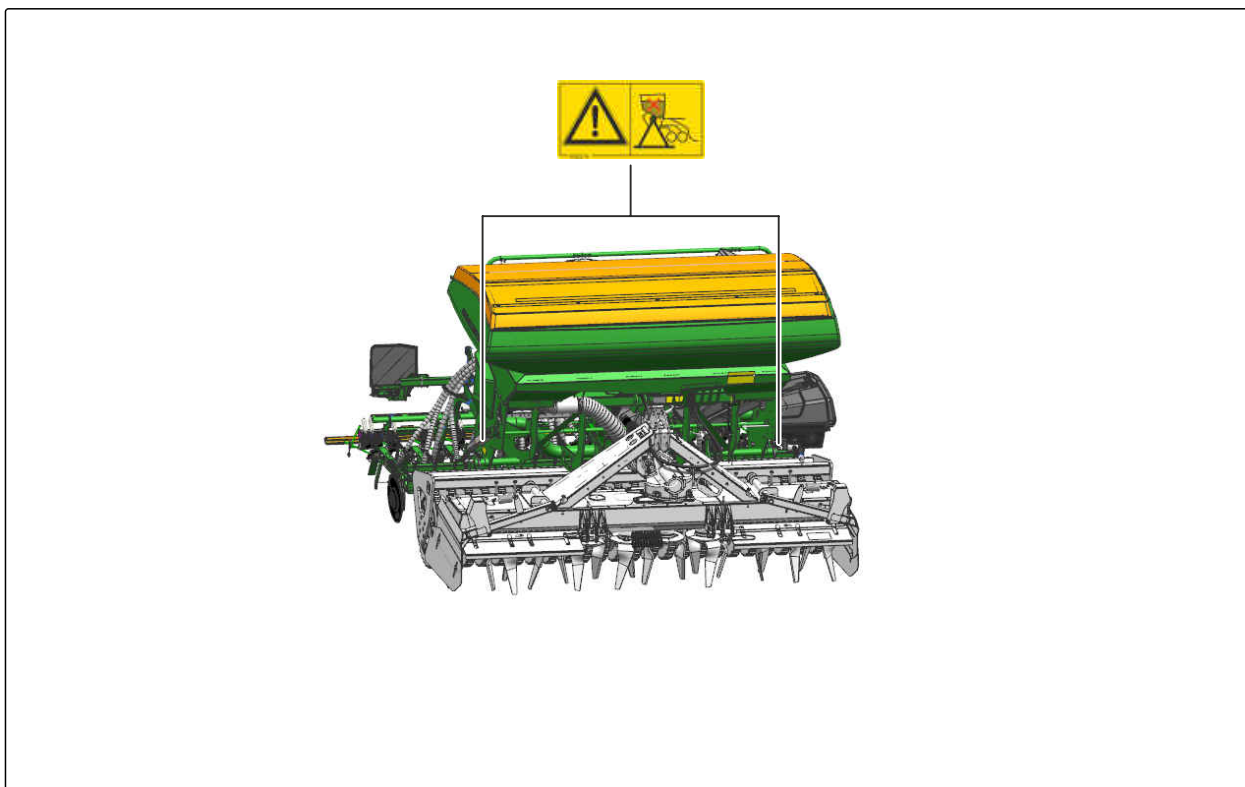
CMS-T-00007190-A.1



CMS-I-00005102



CMS-I-00005103



CMS-I-00005104

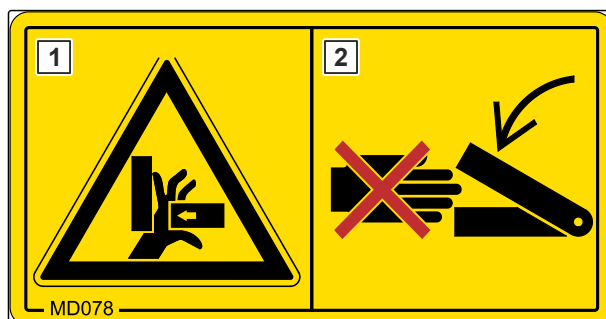
4.5.2 Layout of the warning symbols

CMS-T-000141-D.1

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.



CMS-I-00000416

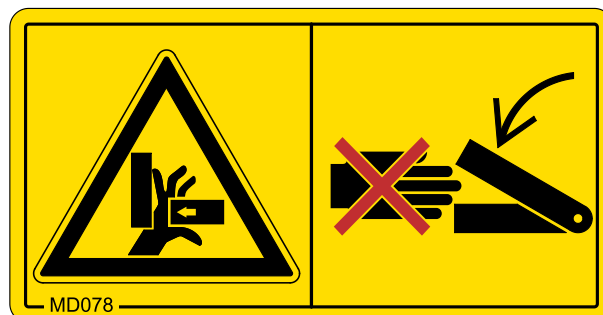
4.5.3 Description of the warning symbols

CMS-T-00007191-A.1

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.



CMS-I-000074

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

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 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.

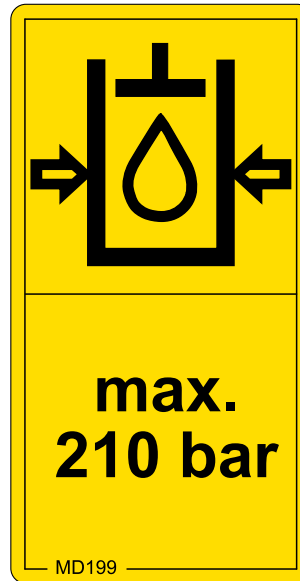


CMS-I-00002253

MD 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.

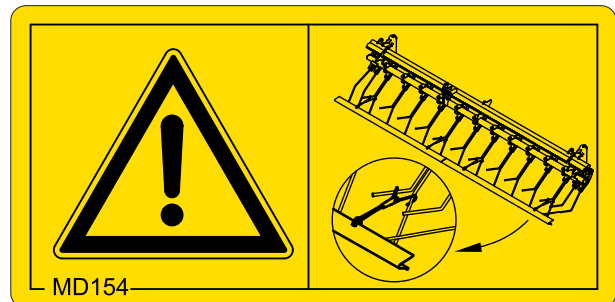


CMS-I-00000486

MD 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 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

MD 274

Risk of crushing due to the implement falling over

- ▶ Empty the seed hopper.
- ▶ *Before you park the empty pack top implement,* install the parking supports.



CMS-I-00004664

MD 224

Health hazard due to water from the hand wash tank

- ▶ Never use the water from the hand wash tank as drinking water.



CMS-I-00005073

MD 242

Risk of injury due to breaking charging sieve

- ▶ Never climb onto the charging sieve



CMS-I-00005074

MD 256

Risk of accidents due to improperly attached slings for lifting

If the slings are attached to unsuitable lashing points for lifting, the implement can be damaged during lifting and endanger safety.

- Only attach the slings for lifting at the suitable lashing points.
- The suitable lashing points can be found in the operating manual, see Transporting the implement.
- *To determine the required load-bearing capacity of the slings,* observe the specifications in the following table.



CMS-I-00005075

4.6 Rating plate on the implement

CMS-T-00004505-F.1

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

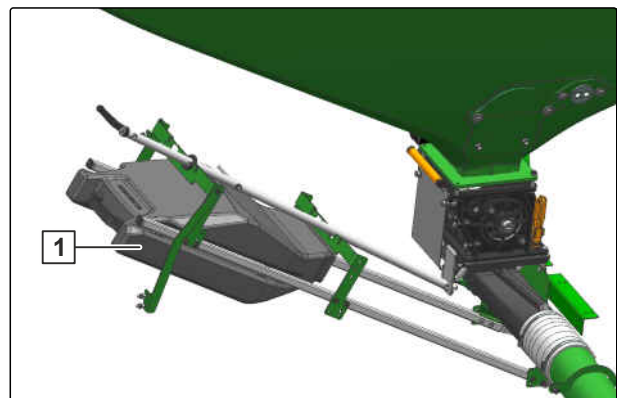


CMS-I-00004294

4.7 SmartCenter

CMS-T-00007517-A.1

The calibration bucket **1** collects the seed that runs through the metering unit during calibration.



CMS-I-00005265

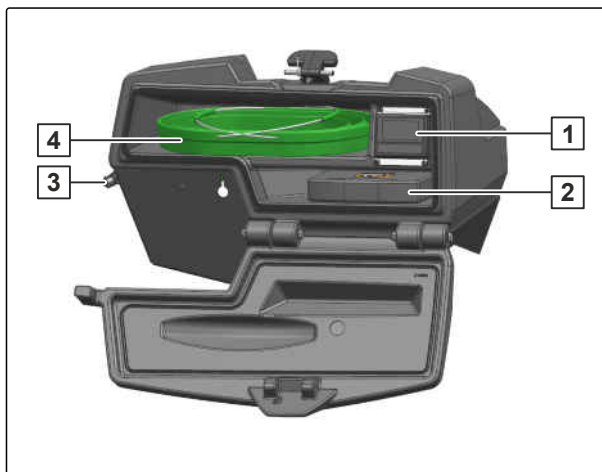
4 | Product description

Threaded cartridge

Depending on the equipment, the calibration can be started on the SmartCenter via the TwinTerminal **1** or with the calibration button.

The scale **2** and the collapsible bucket **4** are used to weigh the seed.

The folding bracket **3** is used to hang up the scale.



CMS-I-00005264

4.8 Threaded cartridge

CMS-T-00001776-D.1

The threaded cartridge contains the following items:

- Documents
- Aids



CMS-I-00002306

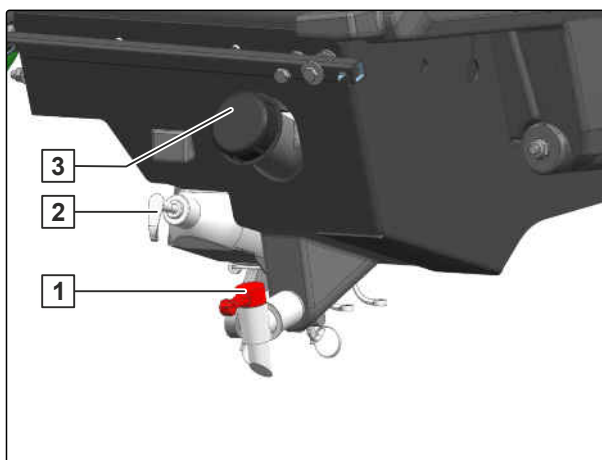
4.9 Hand wash tank

CMS-T-00007225-A.1

The hand wash tank is located on the front side of the implement.

The hand wash tank has a water tap **1** and a soap dispenser **2**.

The hand wash tank has a total volume of five litres and is fitted with a screw cap **3**.

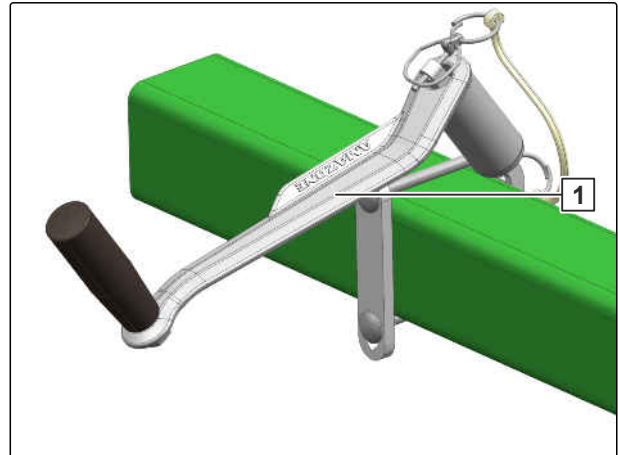


CMS-I-00005094

4.10 Universal operating tool

CMS-T-00001735-B.1

Setting work on the implement is performed with the universal operating tool **1**. The universal operating tool is parked in a holder on the implement frame.

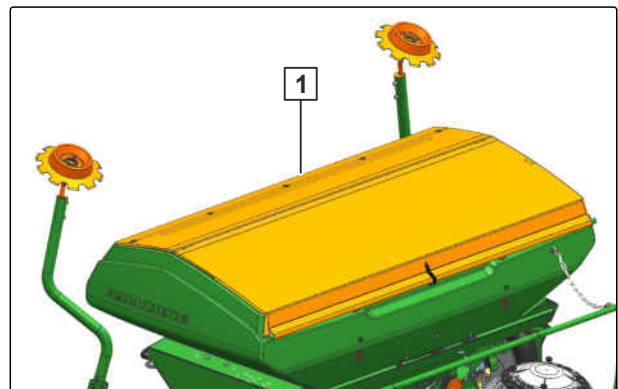


CMS-I-00001082

4.11 Hopper

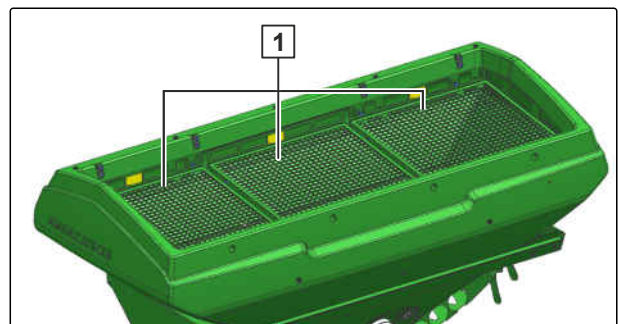
CMS-T-00007283-A.1

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



CMS-I-00005120

The hopper sieves **1** are used as a loading aid when filling.

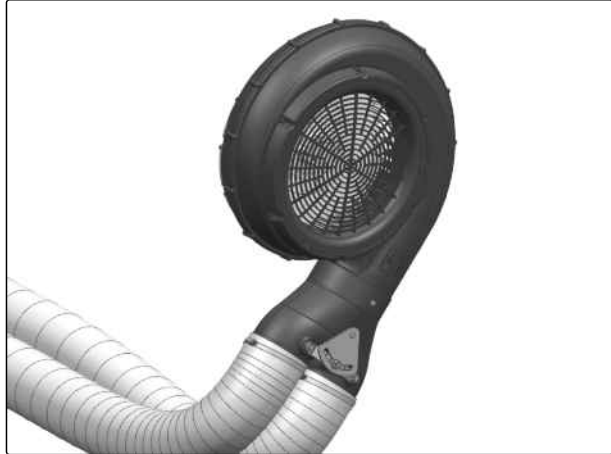


CMS-I-00005313

4.12 Conveyor fan

CMS-T-00003152-D.1

The conveyor fan produces an air current that carries the spreading material to the seed drill through the conveyor section. The conveyor fan is driven by a hydraulic motor. The fan guard screen protects the operator against injuries caused by rotating parts and the fan against foreign objects.



CMS-I-00002467

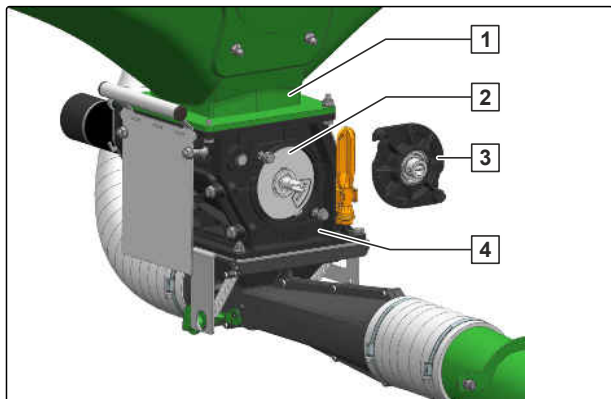
4.13 Metering system

CMS-T-00007207-A.1

4.13.1 Metering unit

- 1 Hopper tip
- 2 Metering roller
- 3 Metering unit housing cover
- 4 Metering unit housing

CMS-T-00007213-A.1



CMS-I-00005085

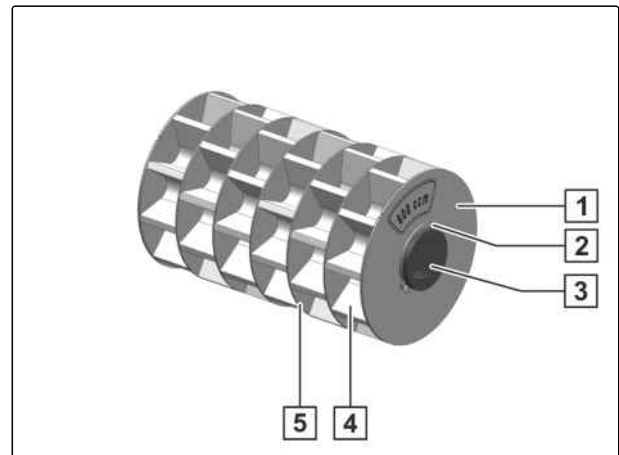
A metering unit is installed under each hopper tip. The metering roller is electrically driven and can be exchanged. The metered material falls into the sluice or injector and is directed by the air current to the distributor head and then on to the coulters. As soon as the implement is raised when turning at the end of a field, the electric motor switches off and the metering roller comes to a halt.

4.13.2 Metering roller

CMS-T-00003565-B.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



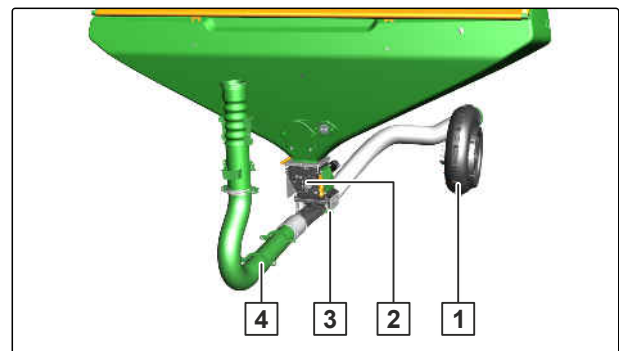
CMS-I-00002549

4.13.3 Conveyor sections

CMS-T-00009476-A.1

Single shoot, 1-chamber hopper

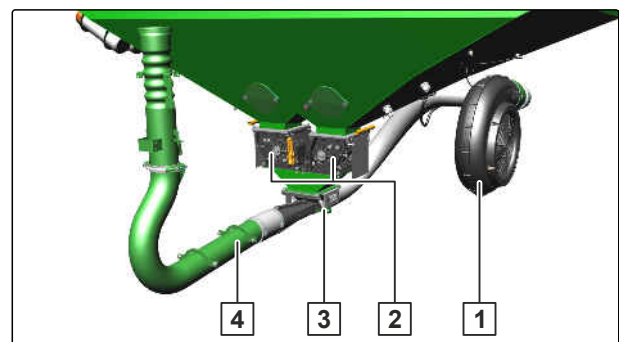
- 1 Fan
- 2 Metering unit
- 3 Calibration flap
- 4 Conveyor section



CMS-I-00006472

Single shoot, 2-chamber hopper

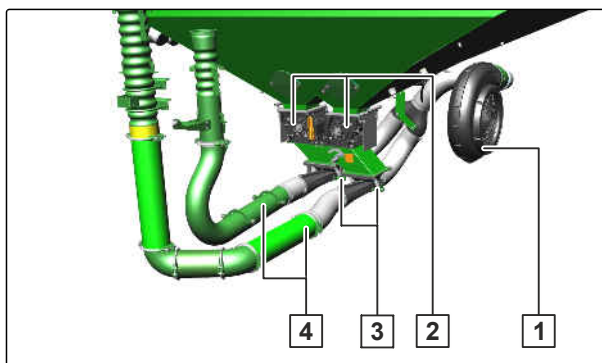
- 1 Fan
- 2 Metering unit
- 3 Calibration flap
- 4 Conveyor section



CMS-I-00006461

Single shoot via Y-piece / double shoot, 2-chamber hopper

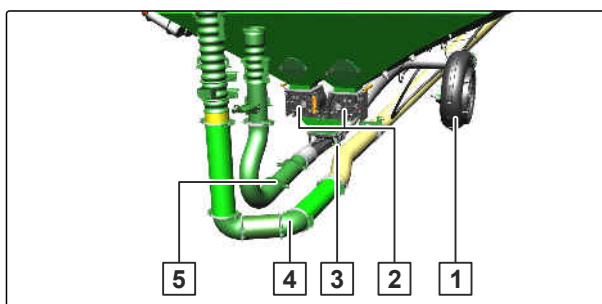
- 1** Fan
- 2** Metering unit
- 3** Calibration flaps
- 4** Conveyor sections



CMS-I-00006462

Single shoot / secondary distribution for FTender, 2-chamber hopper

- 1** Fan
- 2** Metering unit
- 3** Calibration flap
- 4** FTender conveyor section
- 5** 2-chamber hopper conveyor section



CMS-I-00006463

4.14 Cyclone separator

CMS-T-00005099-B.1

The cyclone separator **1** protects the fan and the implement under very dusty working conditions. The intake air **3** is rotated so strongly in the cyclone separator that the impurities are carried to the outer wall and escape through the opening **2**.

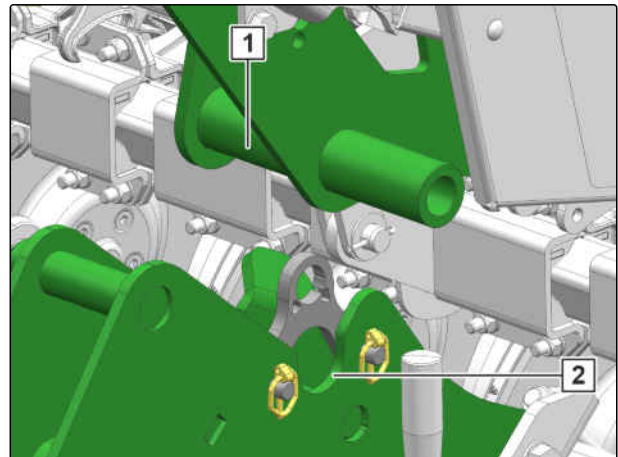


CMS-I-00002764

4.15 Mounting frame

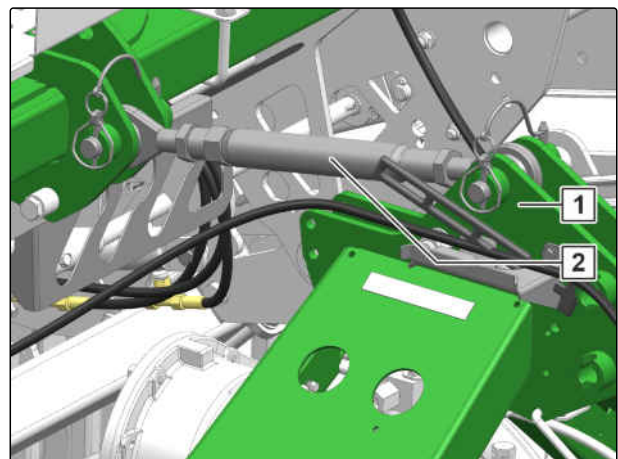
CMS-T-00004881-B.1

The pack top seed drill is fastened on the soil tillage implement **2** with two mounts **1**.



CMS-I-00003592

In addition, the pack top seed drill is connected to the soil tillage implement **2** with a top link **2**.



CMS-I-00004568

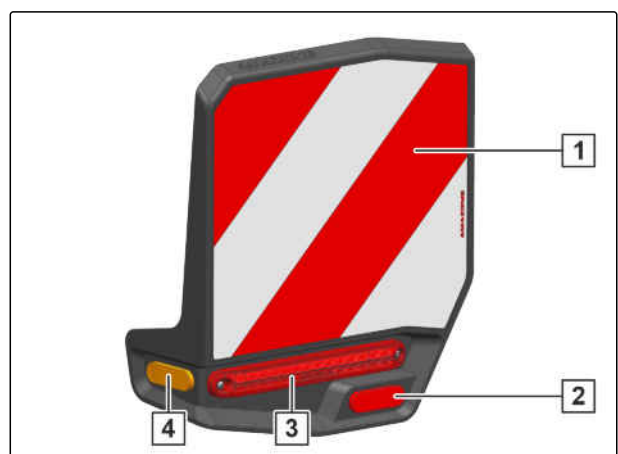
4.16 Lighting

CMS-T-00007661-A.1

4.16.1 Rear lighting and identification for road travel

CMS-T-00001498-E.1

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



CMS-I-00004545



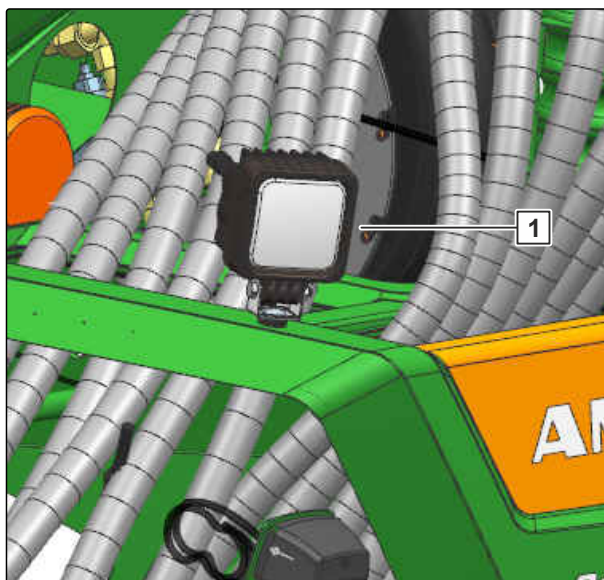
NOTE

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

4.16.2 Work lights

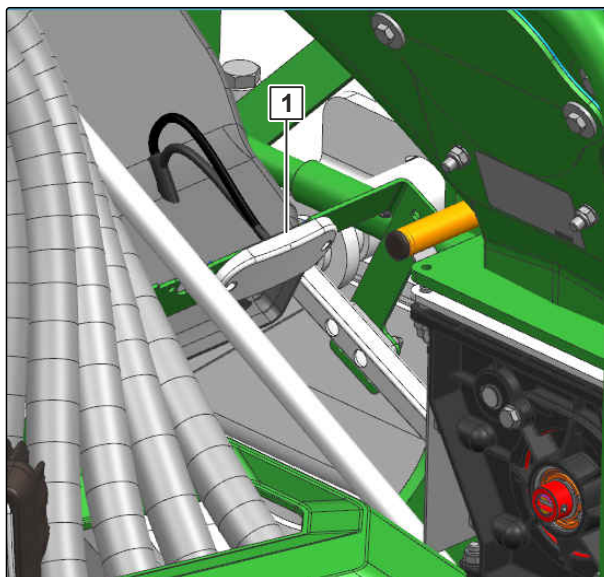
The work floodlights **1** make the working area more visible in the dark. The work floodlights are switched on and off via the control terminal.

CMS-T-00007278-A.1



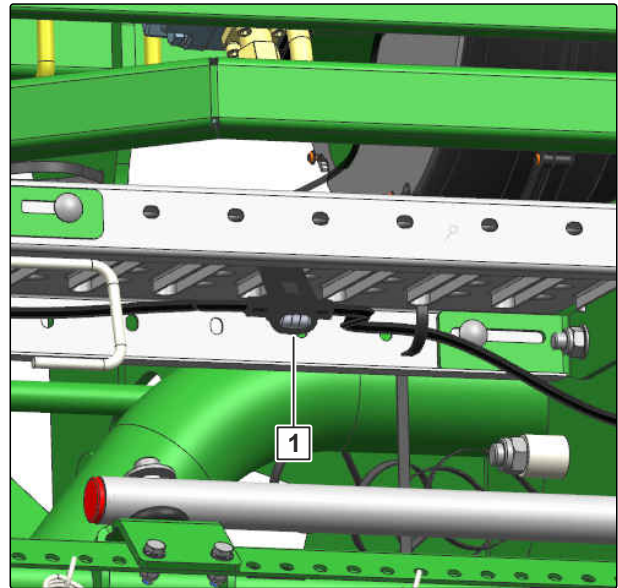
CMS-I-00005109

The work lights in the metering area **1** are switched on and off together with the work floodlights.



CMS-I-00005112

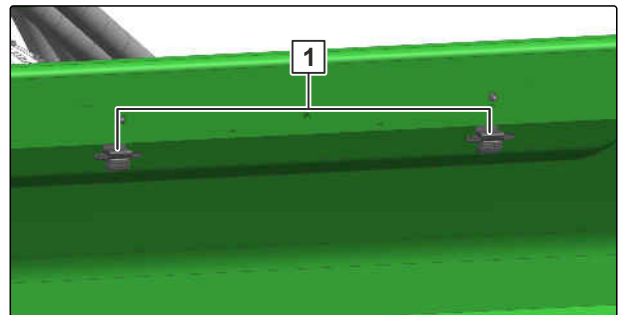
The coulter array lighting **1** enables better visibility of the seeding coulters in the dark. The coulter array lighting is switched on and off together with the work floodlights via the control terminal.



CMS-I-00005116

4.16.3 Hopper interior lighting

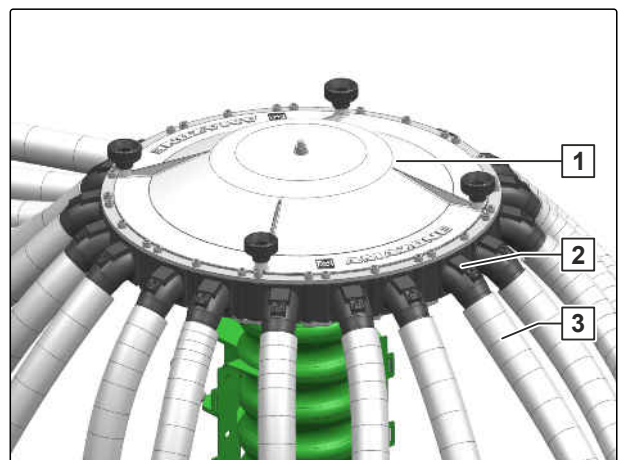
The hopper interior lighting **1** serves for better viewing inside the hopper and makes it easier to check the fill level. The hopper interior lighting is switched on and off via the lighting for road travel.



CMS-I-00005369

4.17 Segment distributor head

The metered material is distributed to all of the coulters in the segment distributor head **1**. The distributor head has outlets **2**, to which the seed line tubes **3** are connected.



CMS-I-00003164

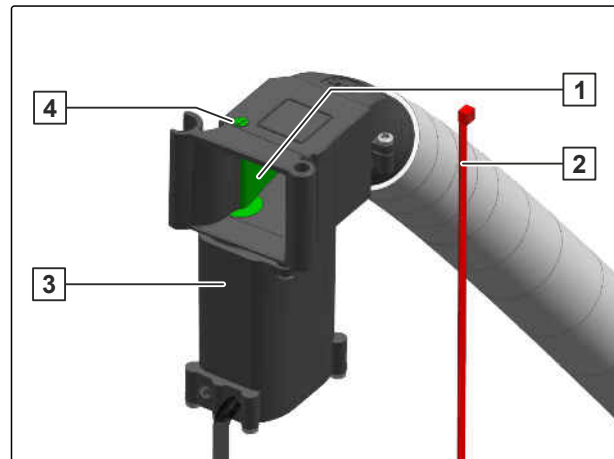
4 | Product description

One-sided switching

Depending on the equipment, the segment distributor head is equipped with tramline segments. The tramline segments close off the distributor head outlet with a setting motor **3**. The seed line tubes on the tramline segments are marked with a red cable tie. The arrow **4** shows whether the flap is closed or open.

The number of tramline segments can be adjusted for the track width. A maximum of twelve tramline segments can be controlled per distributor head.

The tramline segments in the segment distributor head can be expanded, repositioned or replaced with segments without flaps.



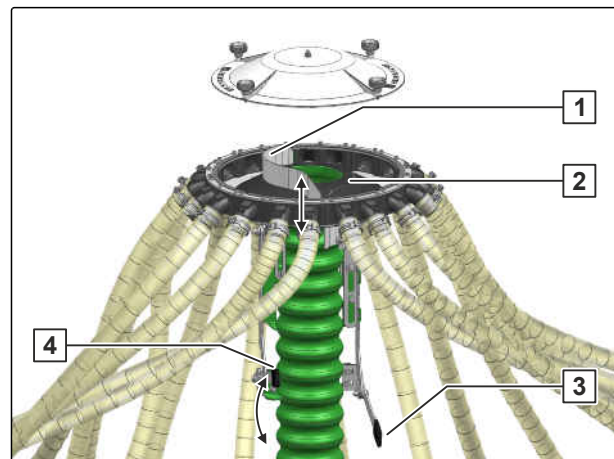
CMS-I-00003165

4.18 One-sided switching

CMS-T-00004976-C.1

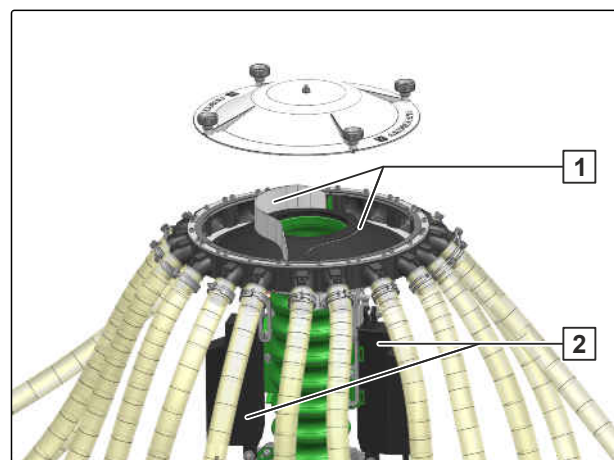
Some tramline rhythms require that the first field pass be done with half the working width.

The left control lever **3** actuates the left sliding shutter **2**, the right control lever **4** actuates the right sliding shutter **1**.



CMS-I-00003597

If the implement is equipped with electric one-sided switching, the sliding shutters **1** are actuated by setting motors **2**.



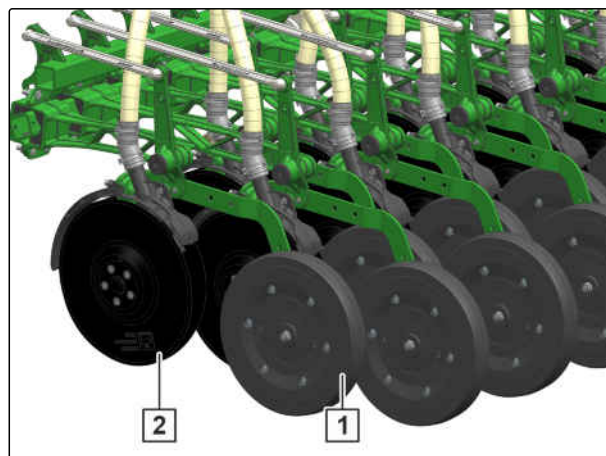
CMS-I-00003587

4.19 TwinTeC coulters

CMS-T-00004346-C.1

The TwinTeC coulters are a double disc coulters for ploughed or mulched soils. The concave discs **2** form the seed furrow. The metered material is guided between the concave discs and falls into the seed furrow. The depth control wheel **1** guides the double disc coulters at the set placement depth and ensures soil closure over the metered material. The coulters pressure and the placement depth can be adjusted.

For soil tillage without seeding, the coulters can be lifted.



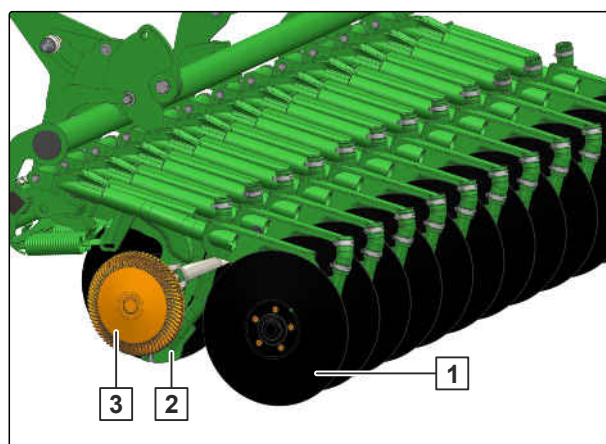
CMS-I-00003166

4.20 RoTeC coulters

CMS-T-00007307-A.1

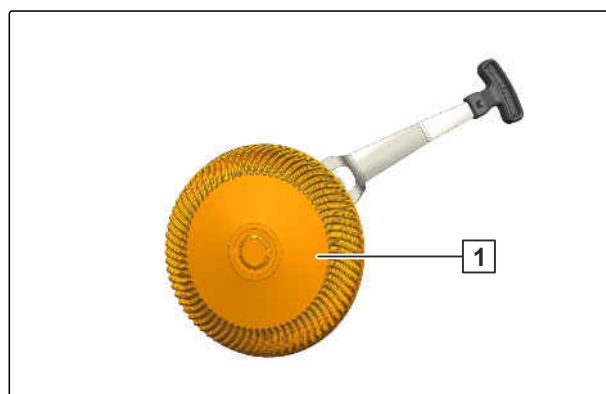
The RoTeC coulters are a single disc coulters for ploughed or mulched soils. The furrow former **2** and the cutting discs **1** shape the seed furrow, into which the metered material is dropped. The depth control discs or depth control wheel **3** limit the placement depth and clean the cutting discs. The coulters pressure and the placement depth can be adjusted.

For soil tillage without seeding, the coulters can be lifted.



CMS-I-00005194

The Control 25 depth control wheel **1** has a 25 mm-wide contact area and enables shallow seeding with increased coulters pressure on light soils.

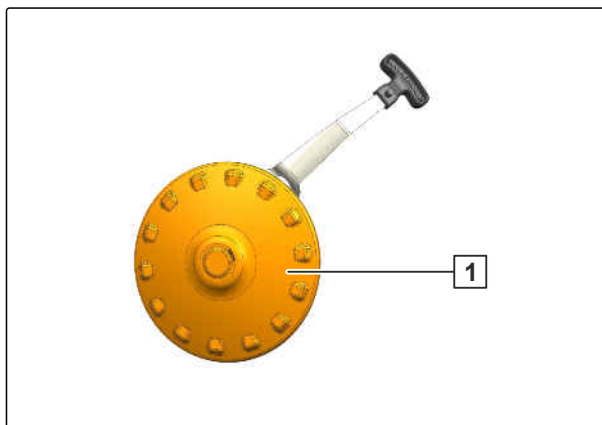


CMS-I-00005193

4 | Product description

Exact following harrow

The Control 10 depth control disc **1** has a 10 mm-wide contact area and is used on heavy soils.



CMS-I-00005195

4.21 Exact following harrow

CMS-T-00006330-A.1

The harrow tines **2** of the exact following harrow rest horizontally on the ground and cover the deposited metered material evenly with loose soil.

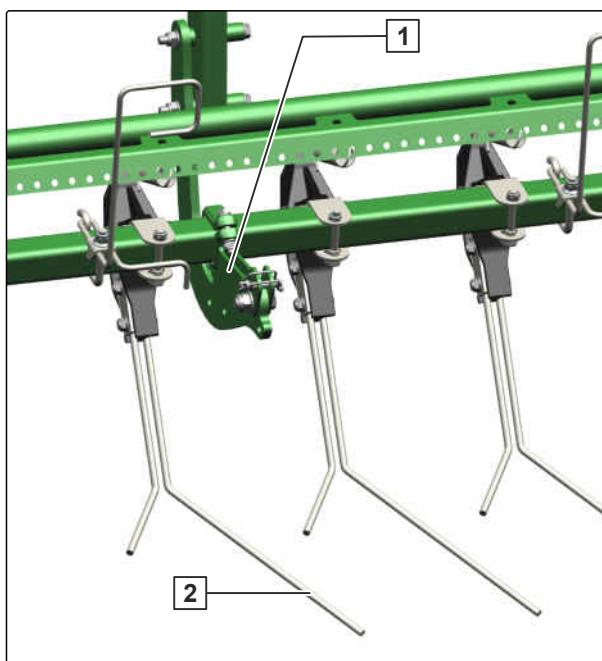
The position of the harrow tines can be adjusted.

The exact following harrow pressure determines the tillage intensity of the exact following harrow. The pressure can be adjusted mechanically or hydraulically. With hydraulic adjustment, the exact following harrow pressure is adjusted together with the coulter pressure.

For seed drills with exact following harrow lift, the exact following harrow can be lifted independently of the position of the coulters.

There is a bracket **1** that is secured with a linch pin on each side of the exact following harrow. The bracket prevents the harrow tines from folding over when driving in reverse and entering the coulters.

If a slight collision occurs when driving in reverse, the harrow tines deflect on the obstacle without being damaged. When driving forwards, the harrow tines return to working position.



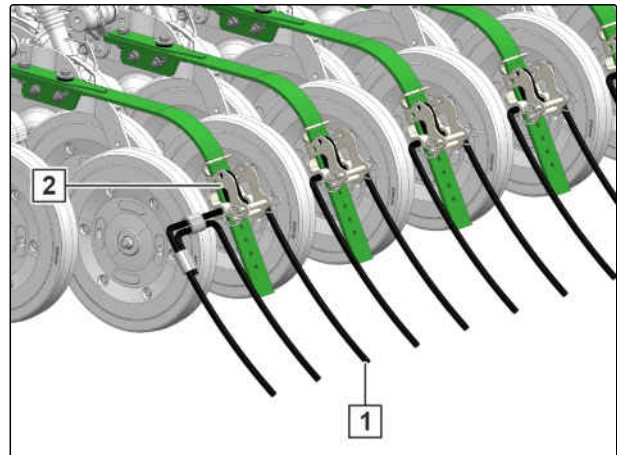
CMS-I-00004589

4.22 Coulter harrow

CMS-T-00006648-A.1

The harrow tines **1** of the coulter harrow cover the deposited metered material evenly with loose soil.

The pitch and the height of the harrow tines can be adjusted.



CMS-I-00004734

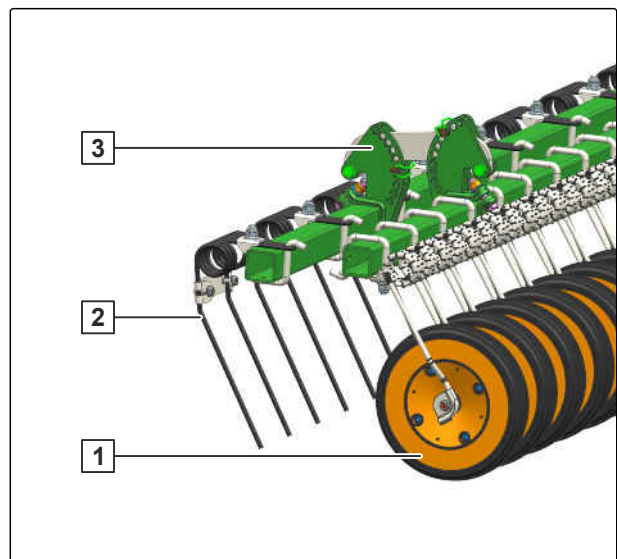
4.23 Roller harrow

CMS-T-00007215-A.1

The harrow tines **2** close the seed furrows.

The press rollers **1** press the seeds into the bottom of the furrows.

The adjuster segment **3** is used to set the pitch and the working depth of the harrow tines.



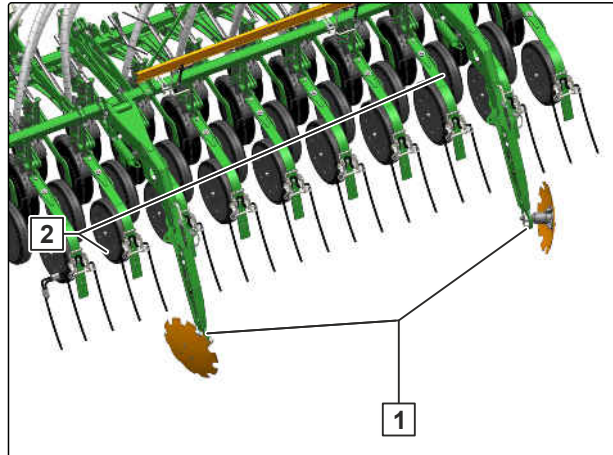
CMS-I-00005090

4.24 Tramline marker

CMS-T-00007275-A.1

When creating tramlines, the tramline marker automatically lowers the discs **1** and makes tracks. These tracks make the tramlines visible before the seed has germinated. The discs are raised if no tramline is created.

Depending on the implement equipment, the tramline marker can be mounted on the implement frame or on the exact following harrow. The track width and the pitch of the track discs can be adjusted.



CMS-I-00003167

4.25 Track marker

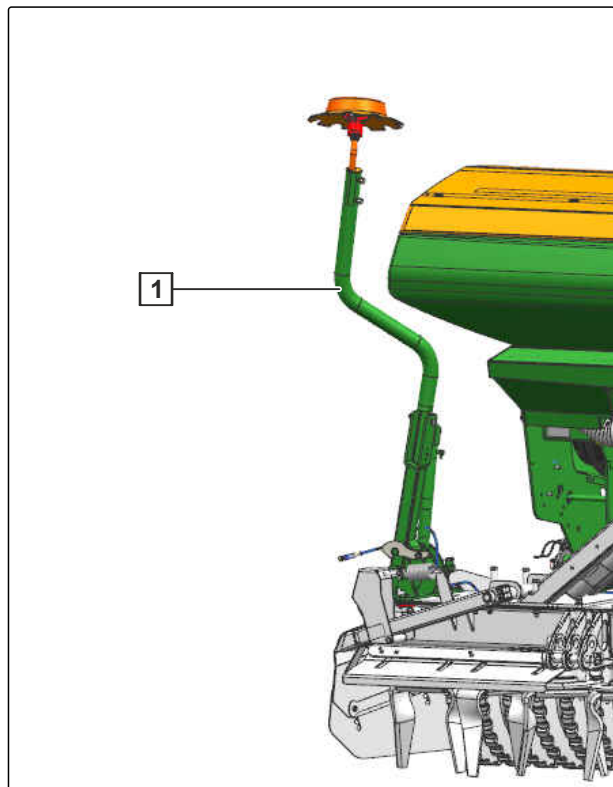
CMS-T-00007279-A.1

The track markers **1** dig into the ground alternately beside the implement.

The next bout is automatically connected when the tractor driver passes over the centre of the created track.

The length and scope of action of the track marker can be adjusted.

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



CMS-I-00005114

4.26 Camera system

CMS-T-00007276-A.1



CMS-I-00005107

The camera **1** at the rear of the pack top seed drill increases safety when manoeuvring.

The monitor can display several camera images simultaneously.

4.27 GreenDrill

CMS-T-00005046-B.1

The GreenDrill pack top seed drill enables the seeding of fine seeds and catch crops during soil tillage or the seeding of nurse crops while seeding.



CMS-I-00003609

4.28 Micropellet spreader

CMS-T-00009442-A.1

The micropellet spreader enables spreading of micropellets while seeding.



CMS-I-00006429

Technical data

5

CMS-T-00007309-A.1

5.1 Hopper volume

CMS-T-00007354-A.1

Implement versions	Hopper volume [l]
Centaya 3000 Super 1600	1600
Centaya 3500 Super 1600	1600
Centaya 4000 Super 1600	1600
Centaya 3000 Super 2000	2000
Centaya 3500 Super 2000	2000
Centaya 4000 Super 2000	2000

Implement version	Hopper volume [l]	2-chamber hopper
Centaya 3000-C/3500-C/4000-C Super	Total volume	2000 l
	Bulk volume	Division: 60:40
		Chamber 1: 1200 l
		Chamber 2: 800 l
		Division: 70:30
		Chamber 1: 1400 l
		Chamber 2: 600 l

5.2 Dimensions

CMS-T-00007355-A.1

Dimensions	Centaya 3000 Super 1600/2000	Centaya 3500 Super 1600/2000	Centaya 4000 Super 1600/2000	Centaya 3000-C Super	Centaya 3500-C Super	Centaya 4000-C Super
Transport width [m]	3.0	3.5	4.0	3.0	3.5	4.0
Working width [m]	3.0	3.5	4.0	3.0	3.5	4.0

5.3 QuickLink quick-coupling system

CMS-T-00003190-C.1

Working width of the implement	Distance of the QuickLink catching sockets
2.5 m	1529 ±3 mm
3 m	2029 ±3 mm
3.5 m	2529 ±3 mm
4 m	3029 ±3 mm

5.4 Optimal working speed

CMS-T-00007377-A.1

Seeding coulters	Working speed (dependent on the soil tillage implement)
TwinTeC coulters	8-12 km/h
RoTeC coulters	6-12 km/h

5.5 Soil tillage tools

CMS-T-00007356-A.1

Dimensions	Centaya with RoTeC coulters					
	3000		3500		4000	
Number of rows	24	20	28	24	32	26
Row spacing [cm]	12.5	15	12.5	14.6	12.5	15.4

Dimensions	Centaya with TwinTeC coulters					
	3000		3500		4000	
Number of rows	24	20	28	24	32	26
Row spacing [cm]	12.5	15	12.5	14.6	12.5	15.4

5.6 Permitted mounting categories

CMS-T-00007363-A.1

Type	Mounting frame for the seed drill	3-point mounting frame of the carrying implement
Centaya 3000 / 3500 / 4000 Super	QuickLink	Category 3
Centaya 3000-C / 3500-C / 4000-C Super	QuickLink	Category 3

5.7 Noise development data



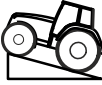
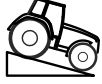
CMS-T-00007361-A.1

The workplace-related emission sound pressure level is lower than 73 dB(A), measured in operating condition at the ear of the tractor driver with the cab closed.

The emission sound pressure level is primarily dependent on the vehicle used.

5.8 Drivable slope inclination

CMS-T-00004990-A.1

Across the slope		
On left in direction of travel	10%	
On right in direction of travel	10%	
Up the slope and down the slope		
Up the slope	10%	
Down the slope	10%	

5.9 Performance characteristics of the tractor

CMS-T-00007362-A.1

Type	Engine rating
Centaya 3000 Super	Starting at 81 kW / 110 HP
Centaya 3500 Super	Starting at 103 kW / 140 HP
Centaya 4000 Super	Starting at 132 kW / 180 HP
Centaya 3000-C Super	Starting at 88 kW / 120 HP
Centaya 3500-C Super	Starting at 110 kW / 150 HP
Centaya 4000-C Super	Starting at 139 kW / 190 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 150 bar
Implement hydraulic oil	HLP68 DIN51524 The hydraulic oil is suitable for the combined hydraulic oil circuits of all standard tractor manufacturers.
Control units	Depending on the implement equipment

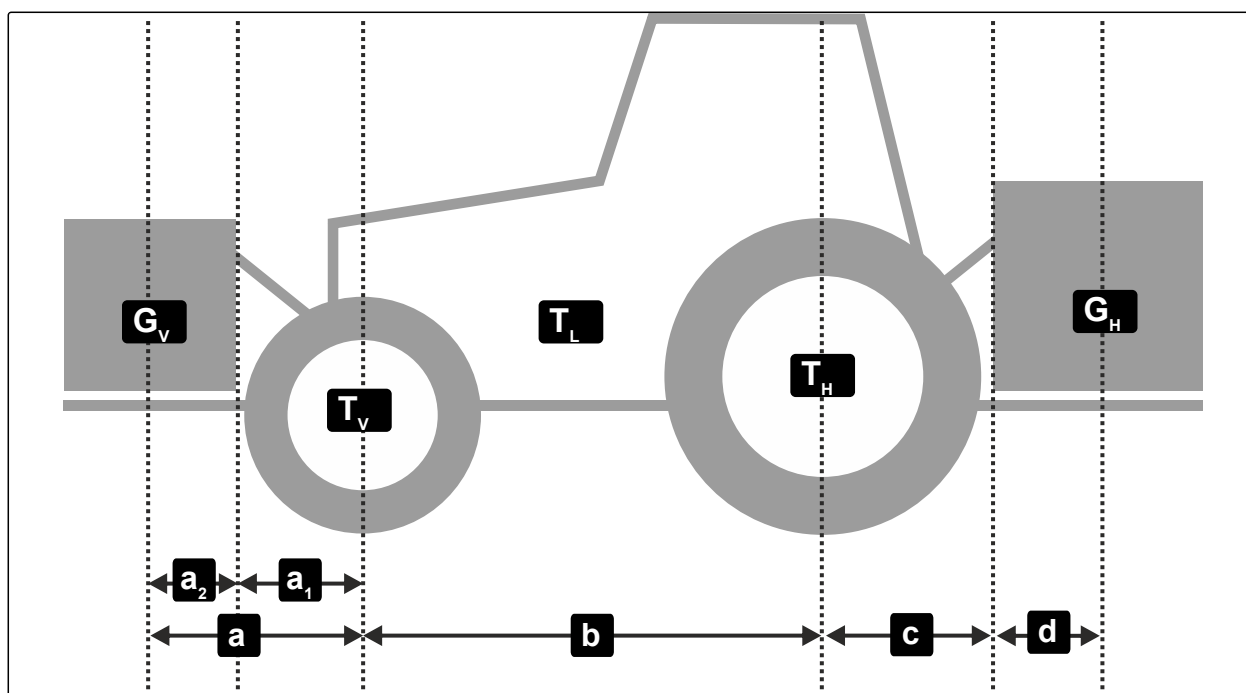
Preparing the implement

6

CMS-T-00007364-A.1

6.1 Calculating the required tractor characteristics

CMS-T-00000063-D.1



CMS-I-00000581

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	
G_H	kg	Permissible total weight of rear-mounted implement or rear ballast	
a	m	Distance between the centre of gravity of the front-mounted implement or the front ballast and the centre of the front axle	

6 | Preparing the implement

Calculating the required tractor characteristics

Designation	Unit	Description	Calculated values
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	
d	m	Centre of gravity distance: Distance between the centre of the lower link coupling point and centre of gravity of the rear-mounted implement or rear ballast.	

1. Calculate the minimum front ballasting.

$$G_{Vmin} = \frac{G_H \cdot (c + d) - T_V \cdot b + 0,2 \cdot T_L \cdot b}{a + b}$$

$$G_{Vmin} = \underline{\hspace{2cm}}$$

$$G_{Vmin} = \underline{\hspace{2cm}}$$

CMS-I-00000513

2. Calculate the actual front axle load.

$$T_{Vtat} = \frac{G_V \cdot (a + b) + T_V \cdot b - G_H \cdot (c + d)}{b}$$

$$T_{Vtat} = \underline{\hspace{2cm}}$$

$$T_{Vtat} = \underline{\hspace{2cm}}$$

CMS-I-00000516

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

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

$$G_{tat} =$$

$$G_{tat} =$$

CMS-I-00000515

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

6.2 Coupling the implement

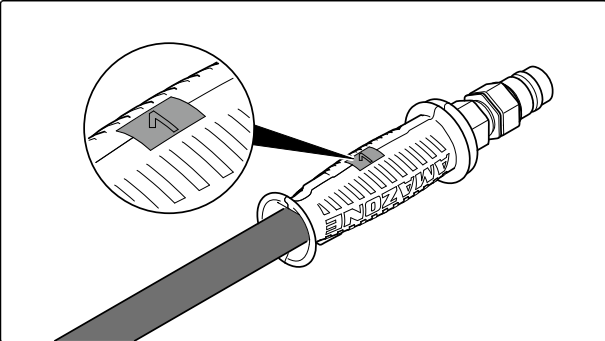
CMS-T-00007366-A.1

6.2.1 Coupling the hydraulic hose lines

CMS-T-00007365-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	
Green			Coulter pressure	Increase	Double-acting	
			Seed rate increase	Reduce		
			Coulter lift	Lowering	double-acting	
				Lifting		
Yellow			Tramline marker	Lifting	Single-acting	

Designation		Function			Tractor control unit	
Blue			Exact following harrow lift	Lowering	Double-acting	
			Roller harrow lift	Lifting		
Red			Fan hydraulic motor	Switching on and off	single-acting	
			Pressure relief through pressureless return flow.			



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

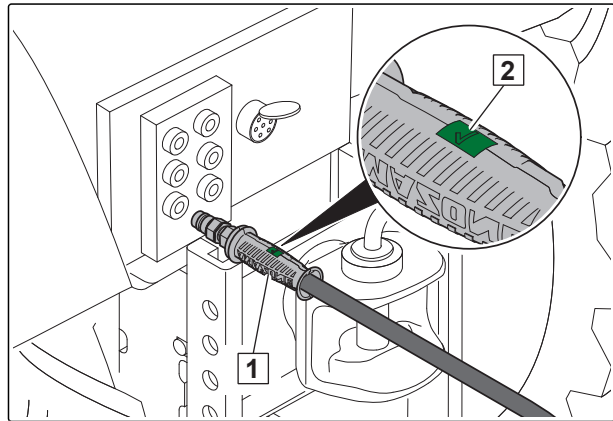
- ▶ Only use DN16 lines for the pressureless hydraulic oil return flow.
- ▶ Select short return paths.
- ▶ Connect the pressureless hydraulic return flow correctly.
- ▶ Install the supplied coupling sleeve on the pressureless hydraulic oil return.

1. Depressurise the hydraulic system between the tractor and the implement using the tractor control unit.
2. Clean the hydraulic plugs.

6 | Preparing the implement

Coupling the implement

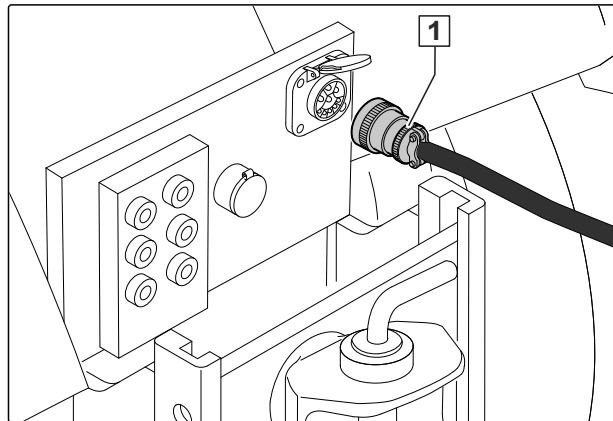
3. Couple the hydraulic hose lines **1** to the hydraulic sockets of the tractor according to the marking **2**.
- ➔ The hydraulic plugs lock perceptibly.
4. Route the hydraulic hose lines with sufficient freedom of movement and without chafing points.



CMS-I-00001045

6.2.2 Coupling the ISOBUS line

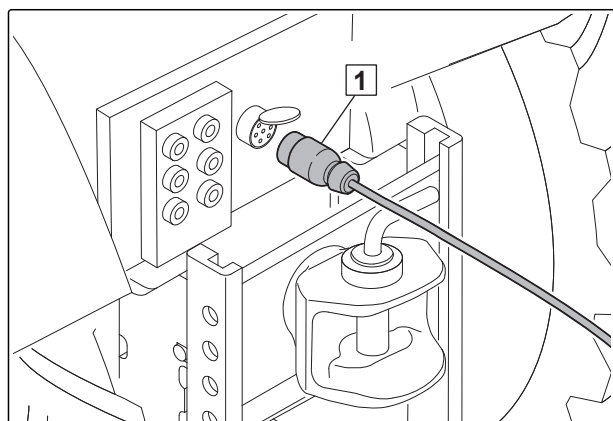
1. Insert the plug **1** of the ISOBUS line.
2. Route the ISOBUS line with sufficient freedom of movement and without chafing or pinching points.



CMS-I-00004333

6.2.3 Coupling the power supply

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.

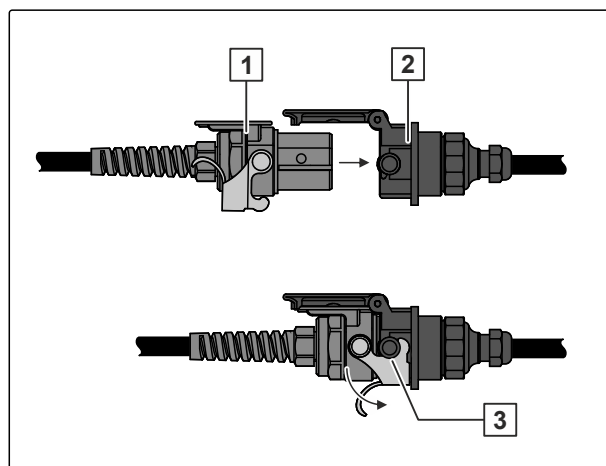


CMS-I-00001048

6.2.4 Connecting the camera system

CMS-T-00007677-A.1

1. Route the camera system cable with sufficient freedom of movement and without chafing or pinching points.
2. Insert the connector **1** for the monitor into the socket coupling **2** of the camera system.
3. Close the safety clip **3**.

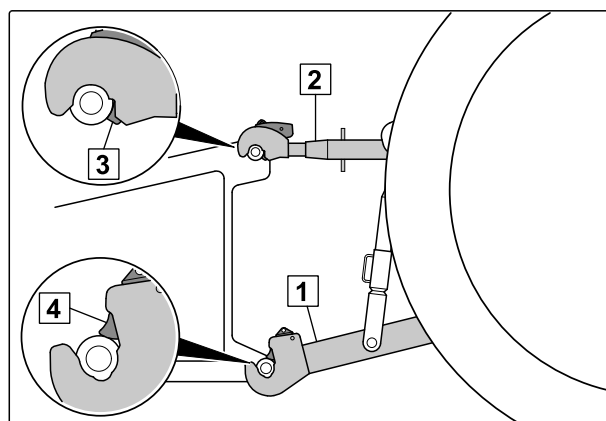


CMS-I-00005143

6.2.5 Coupling the 3-point mounting frame

CMS-T-00001400-F.1

1. Set the tractor lower links **1** to the same height.
2. Couple the lower links **1** from the tractor seat.
3. Couple the top link **2**.
4. Check whether the top link catch hooks **3** and lower link catch hooks **4** are correctly locked.

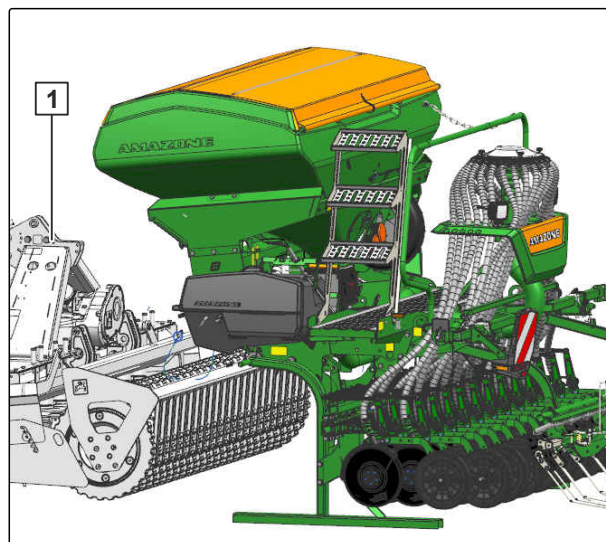


CMS-I-00001225

6.2.6 Coupling the Centaya pack top seed drill

CMS-T-00007369-A.1

1. Slowly drive the tractor with the coupled soil tillage implement **1** under the pack top seed drill.
- ➔ The QuickLink pins for the pack top seed drill are lined up with the QuickLink catching sockets of the soil tillage implement.

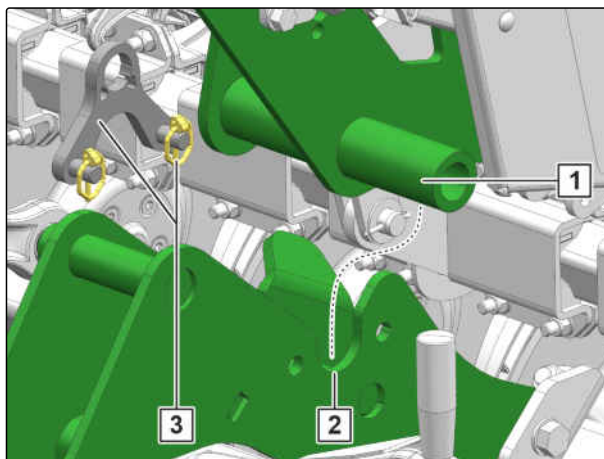


CMS-I-00005145

6 | Preparing the implement

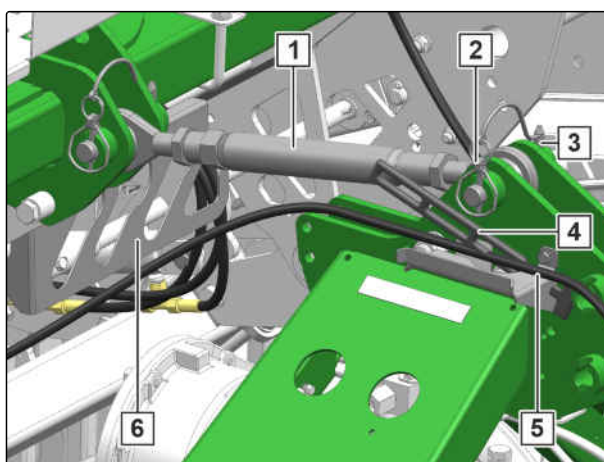
Coupling the implement

2. Remove the safety clip **3**.
 3. Slowly lift the soil tillage implement.
- ➔ The pack top seed drill **1** rests in the catching sockets **2** of the soil tillage implement.



CMS-I-00003590

4. Attach the top link **1** with the pin **3**.
5. Secure the pin with the linch pin **2**.
6. Place the hydraulic hose lines from the hose cabinet **6** in the guide **5**.
7. Place the supply line for the job computer in the guide.
8. Fasten the hydraulic hose lines and supply line with the holder **4**.

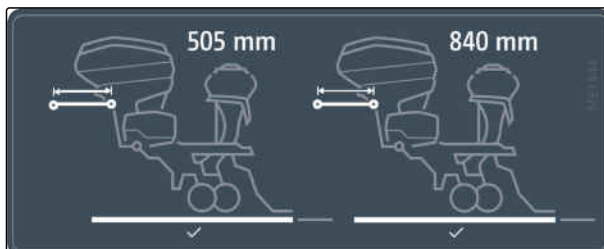


CMS-I-00004526

On the CombiDisc compact disc harrow, the top link is adjusted to a length of 840 mm.

On the KE/KX/KG rotary cultivator, the top link is adjusted to a length of 505 mm.

9. Adjust the top link to the desired length.



CMS-I-00005150

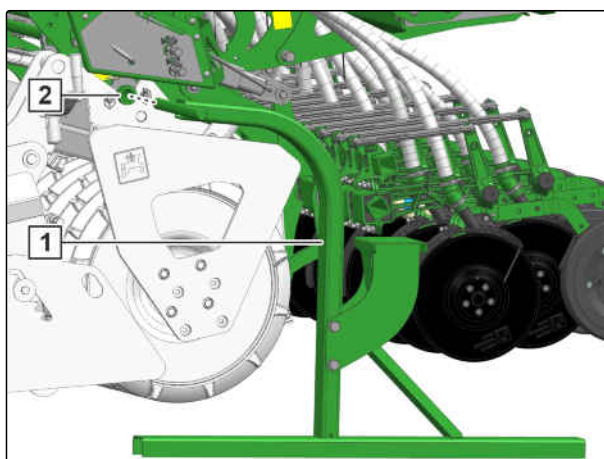
10. Lift the soil tillage implement with the coupled seed drill.



IMPORTANT The parking supports do not have a locking device.

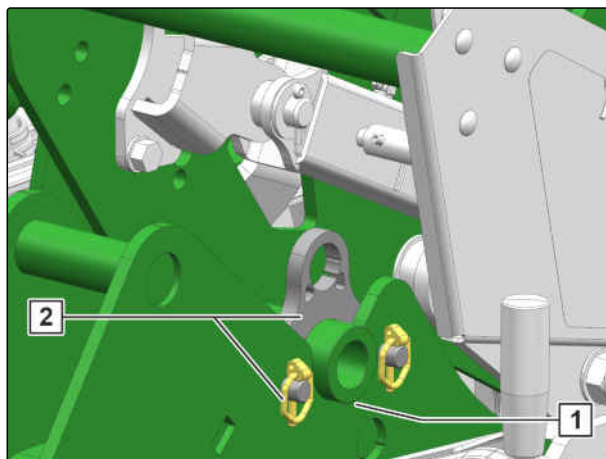
- To prevent the parking supports from falling out of the mount while driving, remove the parking supports.

11. Remove the parking supports **1** from the implement **2** on both sides.



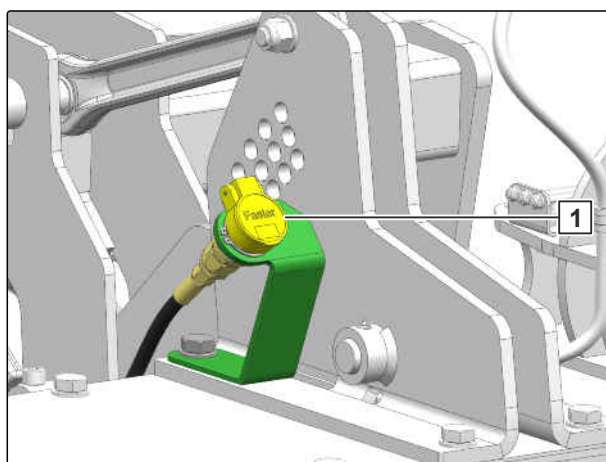
CMS-I-00004938

12. Install the safety clips **2** on all of the brackets **1**.



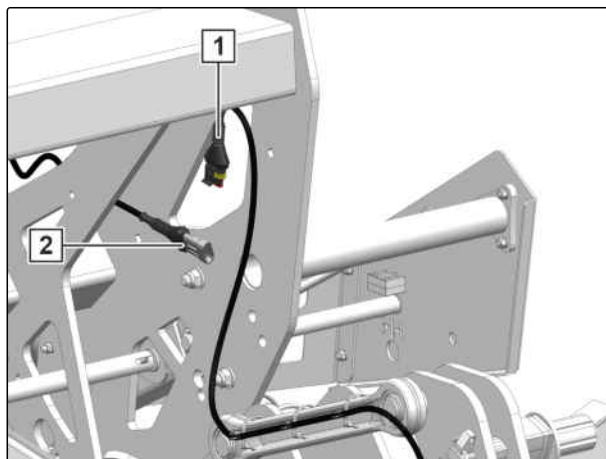
CMS-I-00003593

13. *If the seed drill has a tramline marker,* connect the supply line of the seed drill to the soil tillage implement **1**.



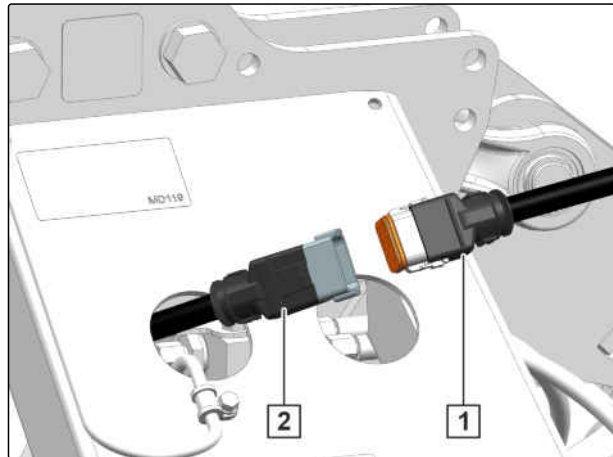
CMS-I-00003485

14. Connect the supply line **2** for the rear lighting and identification for road travel to the soil tillage implement **1**.



CMS-I-00004527

15. Connect the supply line **1** for monitoring the soil tillage implement **2**.

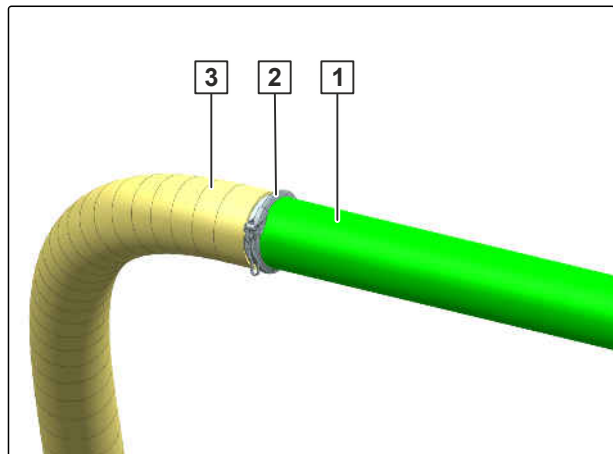


CMS-I-00004528

6.2.7 Coupling the FTender conveyor line

CMS-T-00007678-A.1

1. Connect the connector **3** to the conveyor line **1**.
2. Close the clamp **2**.



CMS-I-00005374

6.3 Preparing the implement for operation

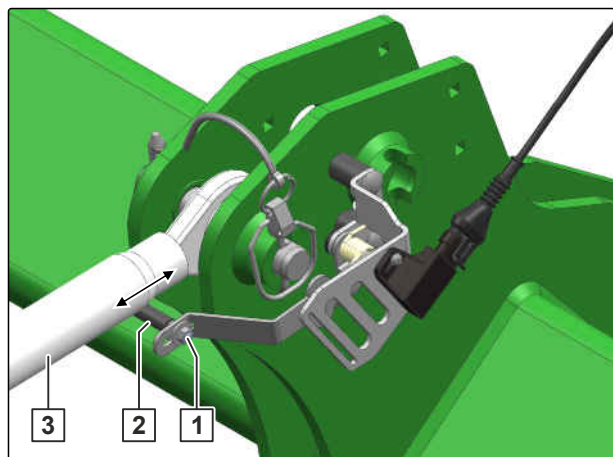
CMS-T-00007373-A.1

6.3.1 Adjusting the working position sensor

CMS-T-00003625-D.1

The working position sensor monitors the implement position in the three-point hydraulic system and switches the metering drives. The length of the actuation lever can be adjusted.

1. loosen the nut **1**.
2. Place the actuation lever **2** on an level contact surface on the top link **3**.
3. Tighten the nut.



CMS-I-00002608

4. *To ensure that the working position sensor is resting on a level surface,*
completely lift and lower the implement.
5. *To configure the working position sensor,*
refer to the ISOBUS software operating manual,
"Configuring the working position sensor"

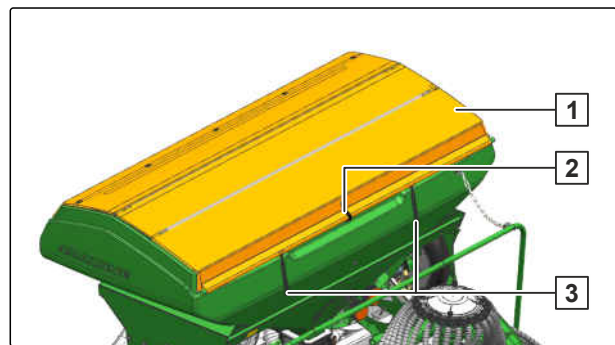
or

see "control computer" operating manual.

6.3.2 Opening and closing the roller tarpaulin

CMS-T-00007507-A.1

1. Hold onto the belt **2**.
2. Release the straps **3** from the studs.
3. *To open the roller tarpaulin* **1**,
let go of the belt.
4. *To close the roller tarpaulin,*
pull on the belt until the roller tarpaulin completely
covers the hopper opening.
5. Fasten the straps on the studs.



CMS-I-00005275

6.3.3 Setting the fill level sensor

CMS-T-00009418-A.1

6.3.3.1 Setting the fill level sensor in the 1-chamber hopper

CMS-T-00007526-A.1

The fill level sensor monitors the seed level in the hopper.

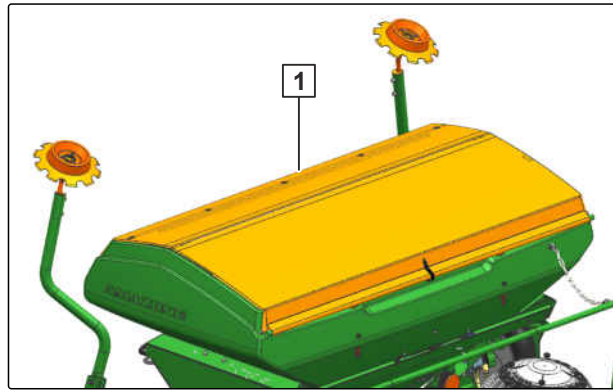
At lower spread rates, the fill level sensor must be attached in the lower area of the hopper.

At higher spread rates, the fill level sensor must be attached in the upper area of the hopper.

6 | Preparing the implement

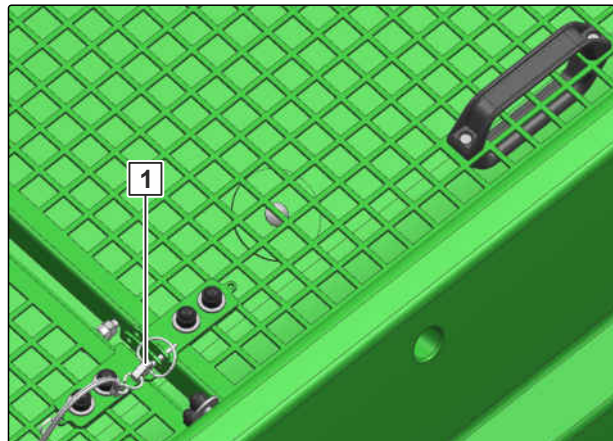
Preparing the implement for operation

1. Open the roller tarpaulin **1**.



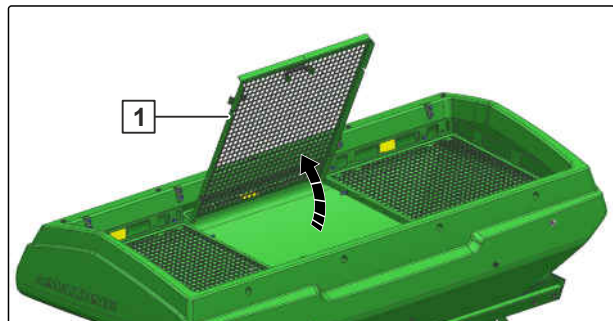
CMS-I-00005120

2. Remove the linch pin **1**.



CMS-I-00005314

3. Open the hopper sieve **1**.



CMS-I-00005311

4. Loosen the wing nut **5**.

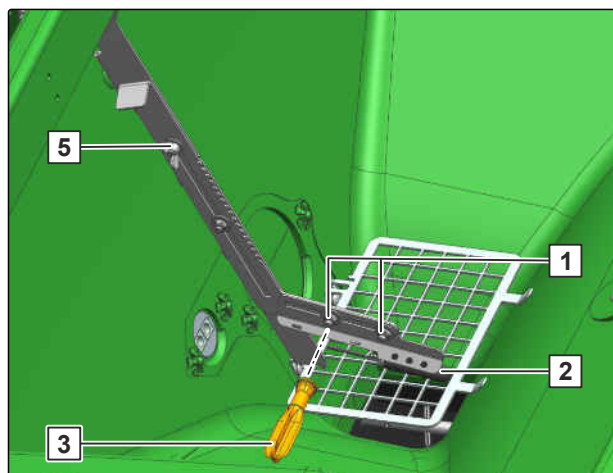
➔ The fill level sensor **2** can be set vertically.

For seeds with high seed rates, the fill level sensor can be installed closer to the front wall to prevent the fill level alarm from reacting too early.

5. Loosen the nuts **1** with the socket wrench **3**.

➔ The fill level sensor **2** can be set horizontally.

6. *When the fill level sensor is set,*
tighten the wing nut and nuts.



CMS-I-00005301



NOTE

As soon as the fill level sensor is no longer covered, a warning message appears on the control terminal or control computer.

When the low level sensor is installed in the lower area, the warning message appears very late.

6.3.3.2 Setting the fill level sensor in the 2-chamber hopper

CMS-T-00009419-A.1

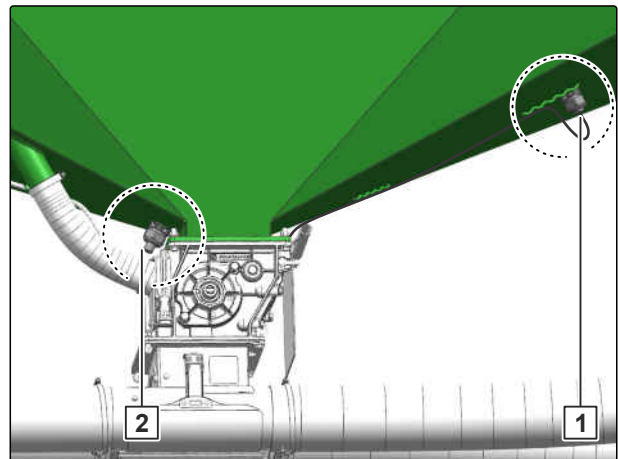
1. *If low spread rates should be metered,* insert the fill level sensor in the lower mount **2**.
2. *If high spread rates should be metered,* insert the fill level sensor in the upper mount **1**.



NOTE

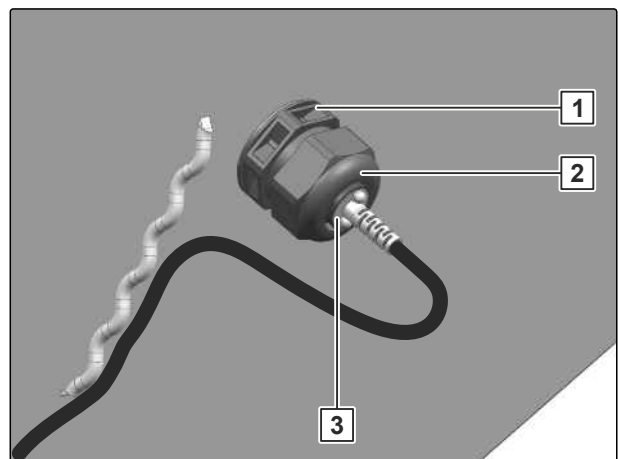
As soon as the fill level sensor is no longer covered, a warning message appears on the control terminal or control computer.

When the fill level level sensor is inserted in the lower mount, the warning message appears very late.



CMS-I-00003675

3. Empty the hopper.
4. Loosen the nuts on both sensor mounts **2**.
5. Pull the fill level sensor out of the fill level sensor mount **1**.
6. Pull the sealing plug out of another fill level sensor mount.
7. Insert the fill level sensor flush in the desired fill level sensor mount.
8. Insert the sealing plug in the empty fill level sensor mount.
9. Tighten the nuts on both sensor mounts.



CMS-I-00002513

6.3.4 Adjusting the volume division of the 2-chamber hopper

CMS-T-00009443-A.1

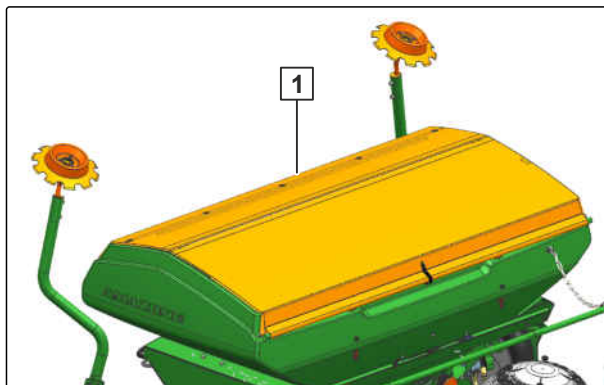
On implements with a 2-chamber hopper, the hopper volume of the hopper chambers can be adjusted.

6 | Preparing the implement

Preparing the implement for operation

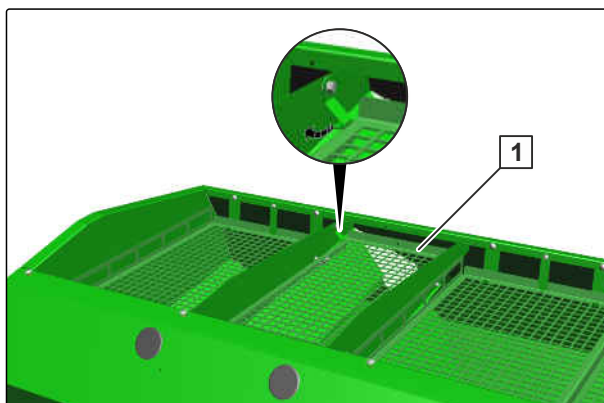
Depending on the size of the seed and desired spread rate, the division of the volumes can be increased or reduced.

1. Open the roller tarpaulin **1**.



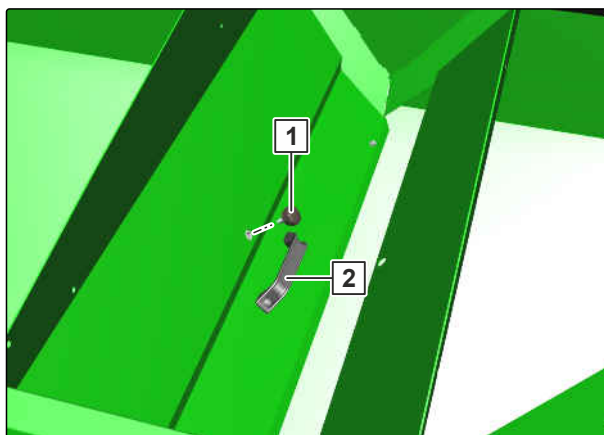
CMS-I-00005120

2. *To be able to remove the charging sieve **1** from the hopper chamber to increase the volume, fold up the fastener.*
3. Take out the charging sieves.



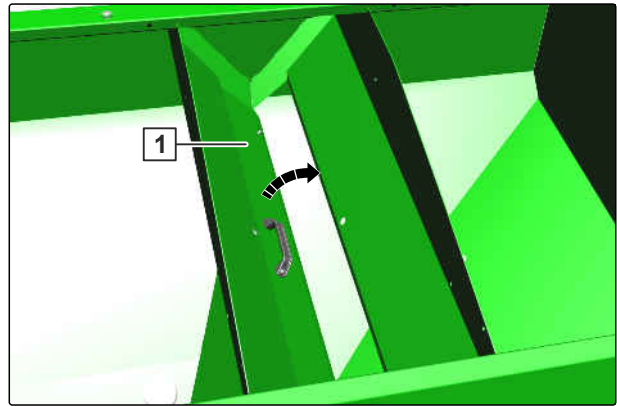
CMS-I-00006420

4. Hold the partition wall by the handle **1**.
5. Loosen and remove the knurled screw **2**.



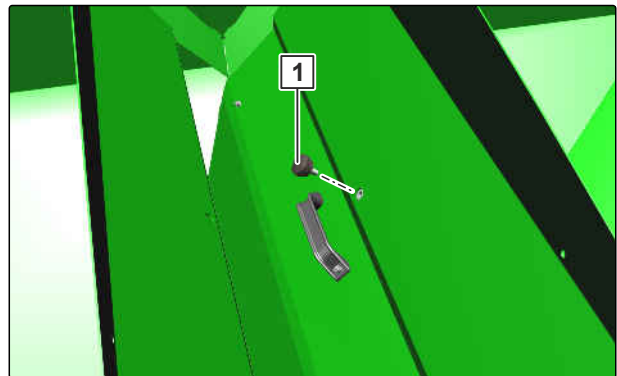
CMS-I-00006436

6. Place the partition wall **1** on the opposite side.



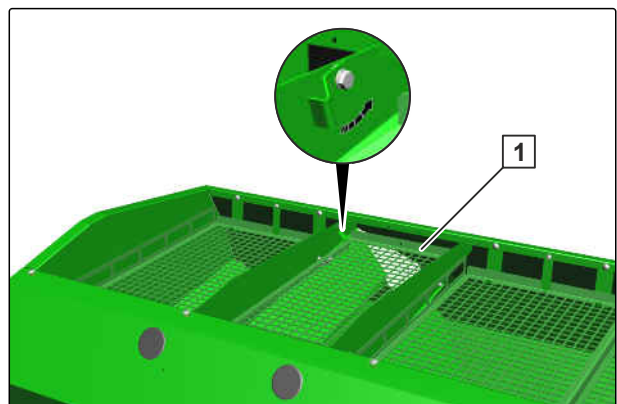
CMS-I-00006441

7. Install the knurled screw **1** and tighten it.



CMS-I-00006443

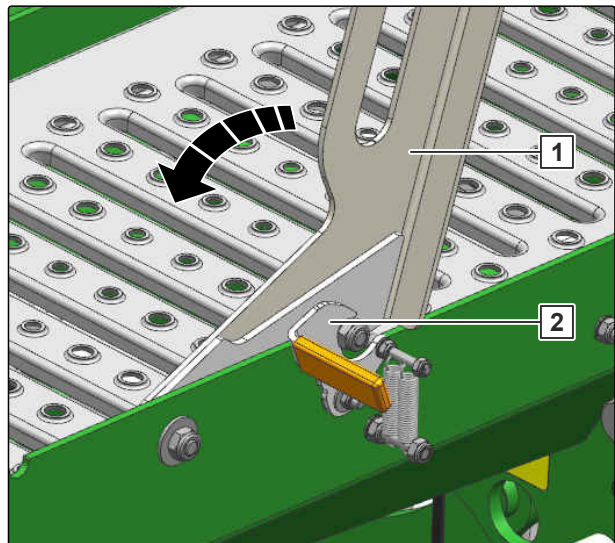
8. Attach the charging sieve **1**.
9. Fold down the charging sieve fastener.
10. Close the roller tarpaulin.



CMS-I-00006448

6.3.5 Filling the hopper

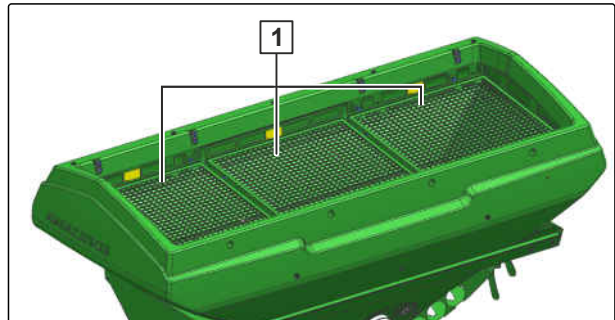
1. lower the implement.
2. Unlock the loading board **1** with the locking mechanism **2**.
3. Swivel the loading board down.
4. Open the roller tarpaulin.



CMS-T-00007524-A.1

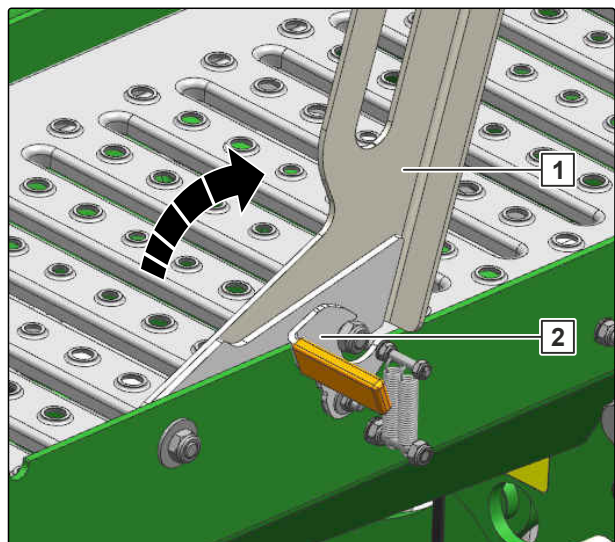
CMS-I-00005277

5. Fill the hopper through the hopper sieve **1**.
6. Close the roller tarpaulin.



CMS-I-00005313

7. Swivel up the loading board **1**.
8. Secure the loading board with the locking mechanism **2**.



CMS-I-00005281

6.3.6 Adjusting the placement depth on the TwinTeC coulter

CMS-T-00007375-A.1



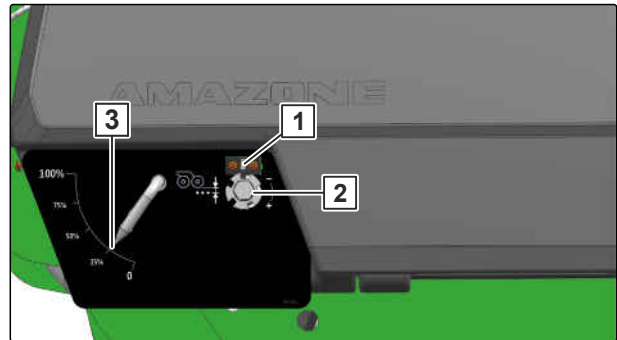
NOTE

The adjustment of the seed placement depth must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

1. Lift the implement.
2. Put the universal operating tool on the adjustment spindle **2**.
3. *To reduce the seed placement depth,* turn the universal operating tool counter-clockwise

or

To increase the seed placement depth, turn the universal operating tool clockwise.



CMS-I-00005152

The scale **3** serves as orientation.

4. Take off the universal operating tool and allow the catch **1** to engage in a groove of the grid.
5. *To check the setting,* seed for approx. 30 m at working speed and then check the work pattern, see "Checking the placement depth".

6.3.7 Adjusting the placement depth on the RoTeC coulter

CMS-T-00007466-A.1

6.3.7.1 Adjusting the depth control wheels or depth control discs

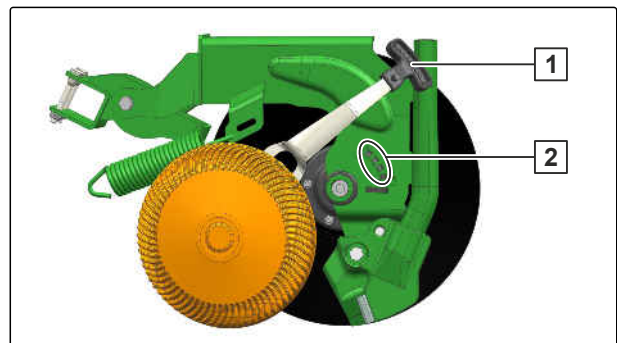
CMS-T-00007467-A.1

The placement depth can be adjusted in four stages **2**. The higher the position of the depth control discs or depth control wheels, the greater the placement depth. The greatest placement depth is achieved when the depth control discs or depth control wheels are removed, see "Removing the depth control wheels or depth control discs".



NOTE

The adjustment of the seed placement depth must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.



CMS-I-00005206

1. Pull on the lever **1** for the depth control disc or depth control wheel, move it up or down and engage it in the desired position
2. Set all of the depth control discs or depth control wheels at the same height.
3. *To check the adjustment of the placement depth on the field,*
seed for approx. 30 m at working speed and then check the work pattern, see "*Checking the placement depth*".
4. If the required placement depth has not yet been reached, the coulter pressure must also be adjusted, see "*Adjusting the coulter pressure hydraulically*".

6.3.7.2 Removing the depth control wheels or depth control discs

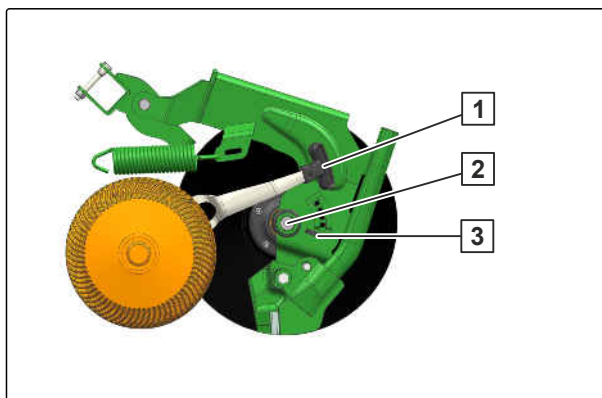
CMS-T-00007468-A.1



NOTE

The adjustment of the seed placement depth must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

1. *To completely remove the depth control disc or depth control wheel,*
move the lever **1** all the way down and push it to the rear in the elongated slot **3** until the depth control disc or depth control wheel can be removed from the lock **2**.
2. Remove all of the depth control discs or depth control wheels completely.
3. *To check the adjustment of the placement depth on the field,*
seed for approx. 30 m at working speed and then check the work pattern, see "*Checking the placement depth*".
4. If the required placement depth has not yet been reached, the coulter pressure must also be adjusted, see "*Adjusting the coulter pressure hydraulically*".



CMS-I-00005207

6.3.8 Adjusting the coulter pressure



WARNING

Unexpected movement of the coulter and exact following harrow

The hydraulic cylinders for the coulter pressure adjustment and the exact following harrow pressure adjustment are actuated simultaneously.

- *Before you actuate the tractor control unit,*
direct people out of the danger area.

1. *Activate the function on implements with Comfort hydraulic system,*
see ISOBUS software operating manual "*Pre-selection for hydraulic functions*".

or

see "*control computer*" operating manual.
2. *Adjust the values for the coulter pressure on implements with Comfort hydraulic system,*
see ISOBUS software operating manual "*Coulter pressure settings*".

or

see "*control computer*" operating manual.
3. *To increase the coulter pressure,*
actuate the "*green 1*" tractor control unit

or

To reduce the coulter pressure,
actuate the "*green 2*" tractor control unit.
4. *To check the setting,*
seed for approx. 30 m at working speed and then
check the work pattern.

6.3.9 Lifting the coulters

1. *Activate the function on implements with Comfort hydraulic system, see ISOBUS software operating manual "Pre-selection for hydraulic functions"*

or

see "control computer" operating manual.
2. *To lift the coulters, reduce the coulter pressure below the value of 0.*
To do so, actuate the "green 2" tractor control unit.



CMS-T-00007379-A.1

CMS-I-00005586

6.3.10 Adjusting the coulter harrow

CMS-T-00006627-B.1

6.3.10.1 Adjusting the coulter harrow

CMS-T-00009568-A.1

6.3.10.1.1 Moving the coulter harrow into the shallow working position

CMS-T-00009569-A.1

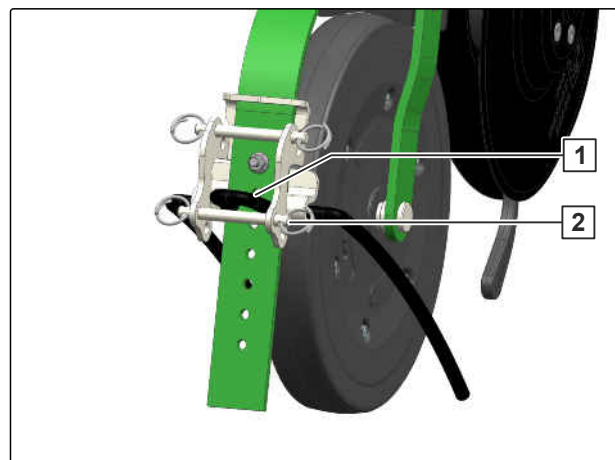
When driving in reverse, the harrow tine **1** folds to the front and rests on the locking pin **2**. As a result, the harrow tine does not protrude into the neighbouring coulters.



IMPORTANT

Damage to the coulters due to folded harrow tines

- Do not remove the locking pin.



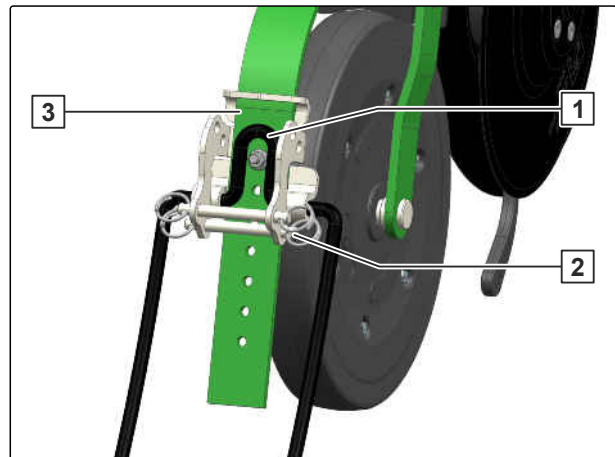
CMS-I-00003184



NOTE

The adjustment of the harrow angle must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

1. Lift the implement.
 2. To move the harrow tines **1** into the flat working position,
Install the pin **2** in the hole shown.
- ➔ The harrow tine is resting on the plate **3**.
3. To check the setting,
seed for approx. 30 m at working speed and then
check the work pattern.



CMS-I-00003187

6.3.10.1.2 Moving the coulter harrow into the medium working position

CMS-T-00009570-A.1

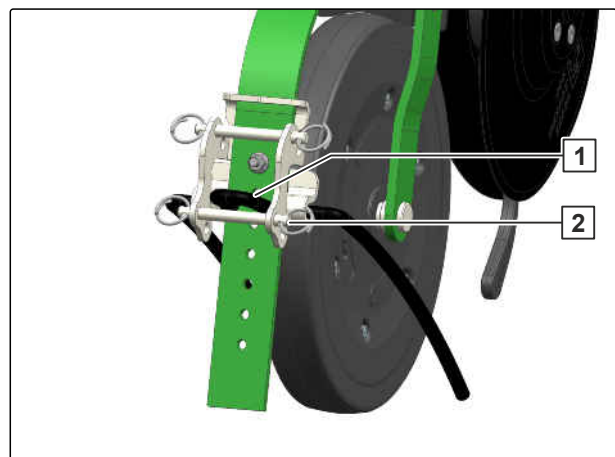
When driving in reverse, the harrow tine **1** folds to the front and rests on the locking pin **2**. As a result, the harrow tine does not protrude into the neighbouring coulters.



IMPORTANT

Damage to the coulters due to folded harrow tines

- Do not remove the locking pin.



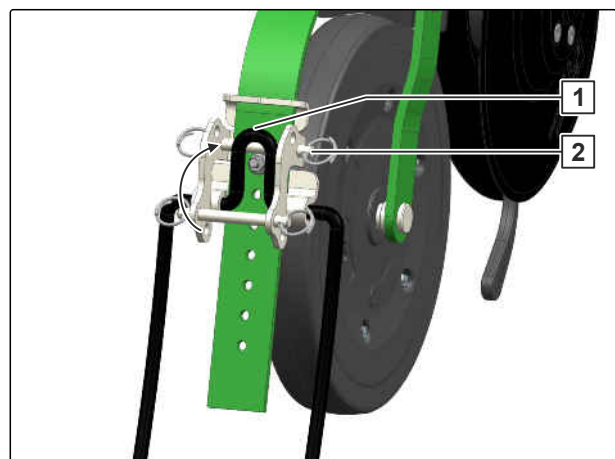
CMS-I-00003184



NOTE

The adjustment of the harrow angle must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

1. Lift the implement.
 2. To move the harrow tine **1** to the medium working position,
Install the pin **2** in the hole shown.
- ➔ The harrow tine is resting on the pin.
3. To check the setting,
seed for approx. 30 m at working speed and then
check the work pattern.



CMS-I-00003186

6.3.10.1.3 Moving the coulter harrow into the steep working position

CMS-T-00009571-A.1

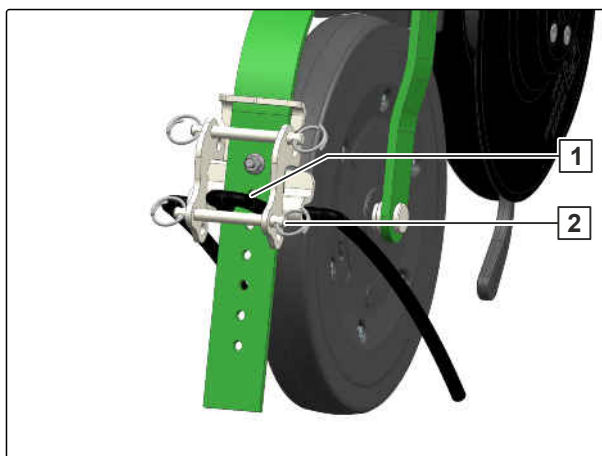
When driving in reverse, the harrow tine **1** folds to the front and rests on the locking pin **2**. As a result, the harrow tine does not protrude into the neighbouring coulters.



IMPORTANT

Damage to the coulters due to folded harrow tines

- Do not remove the locking pin.



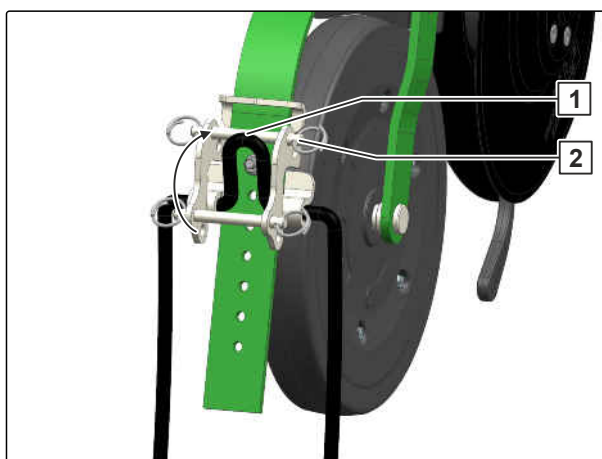
CMS-I-00003184



NOTE

The adjustment of the harrow angle must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

1. Lift the implement.
2. To move the harrow tine **1** to the steep working position, install the pin **2** in the hole shown.
➔ The harrow tine is resting on the pin.
3. To check the setting, seed for approx. 30 m at working speed and then check the work pattern.

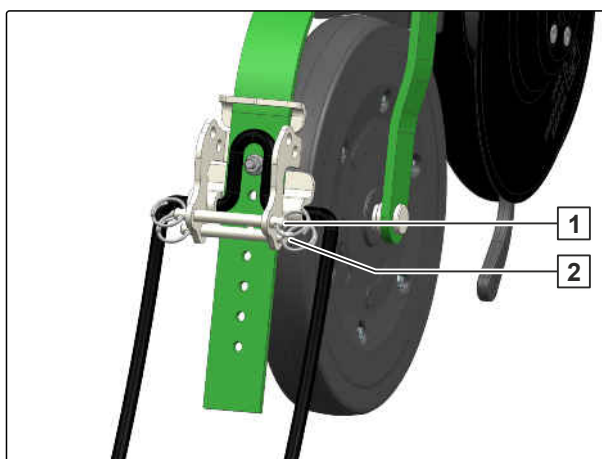


CMS-I-00003185

6.3.10.2 Deactivating the harrow tines

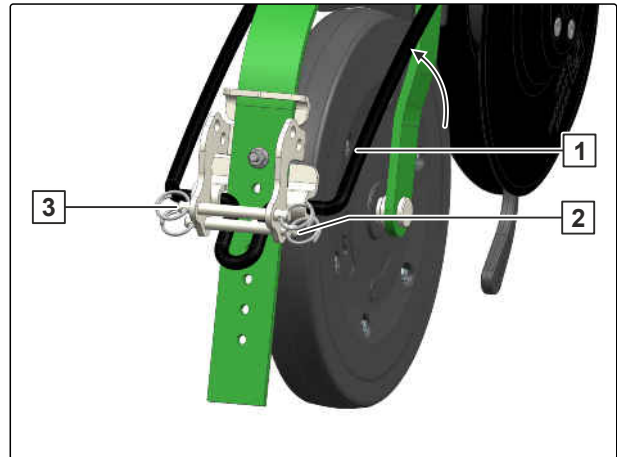
CMS-T-00004370-C.1

1. Lift the implement.
2. Remove the pins **1** and **2**.



CMS-I-00003188

3. fold up the harrow **1**.
4. Install the pins **2** and **3** in the indicated hole.



CMS-I-00003183

6.3.10.3 Adjusting the harrow height

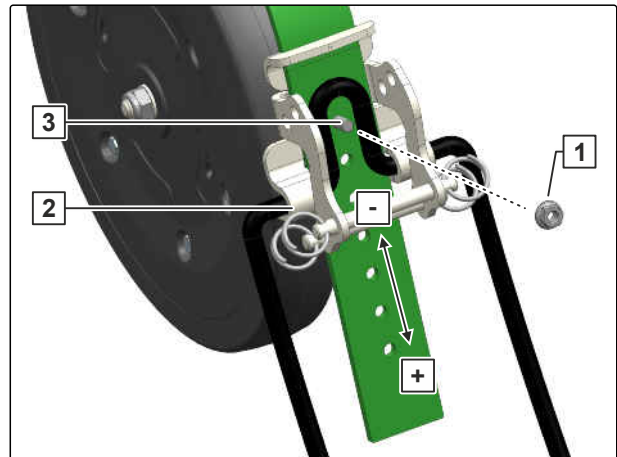
CMS-T-00006457-A.1



NOTE

The adjustment of the harrow height must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

1. Remove the nut **1**.
2. Remove the bolt **3**.
3. Move the harrow bracket **2** to the desired position.
4. Install the bolt **3**.
5. Install the nut **1** and tighten it.
6. *To check the setting,*
seed for approx. 30 m at working speed and then
check the work pattern.



CMS-I-00003182

6.3.11 Adjusting the exact following harrow

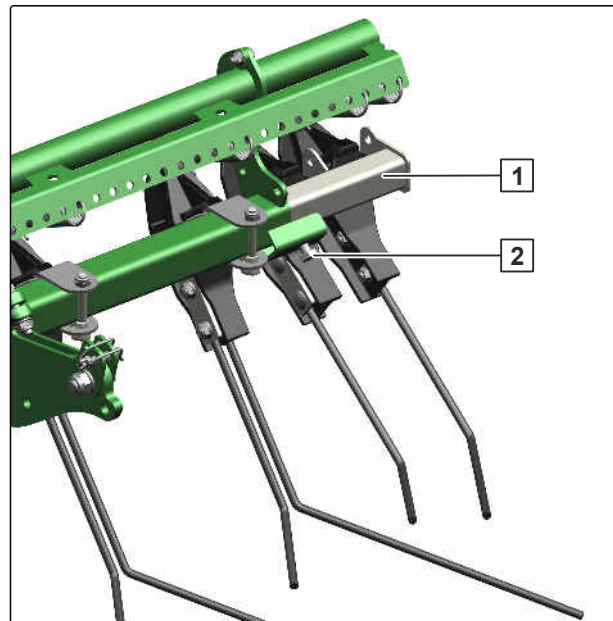
CMS-T-00007381-A.1

6.3.11.1 Moving the exact following harrow into working position

CMS-T-00006334-A.1

The roller and the coulters force the soil outwards to different extents depending on the forward speed and the soil properties. The outer harrow elements must be adjusted such that the soil is guided back and a trackless seedbed is created. The greater the forward speed, the further the outer harrow elements have to be set outwards.

1. Loosen the bolt **2** with the universal operating tool.
2. Push the sliding element **1** outwards.
3. Tighten the bolt **2** with the universal operating tool.
4. Make the same setting for the other side of the implement.
5. *To check the setting,*
seed for approx. 30 m at working speed and then check the work pattern.



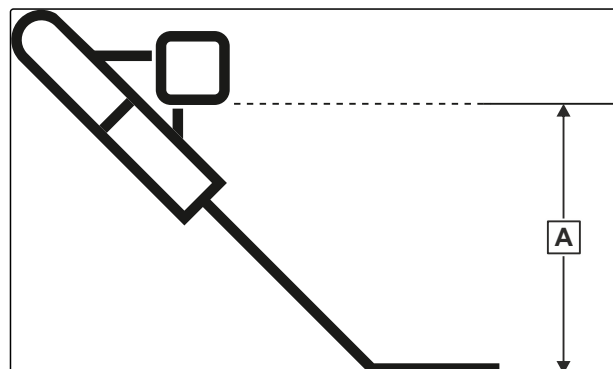
CMS-I-00004674

6.3.11.2 Adjusting the position of the exact following harrow tines

CMS-T-00007382-A.1

When the exact following harrow is correctly set, the harrow tines should lie horizontally on the soil.

To make adjustments, the distance **A** between the carrier tube and the ground is adjusted. The distance must be 230-280 mm.



CMS-I-00004668

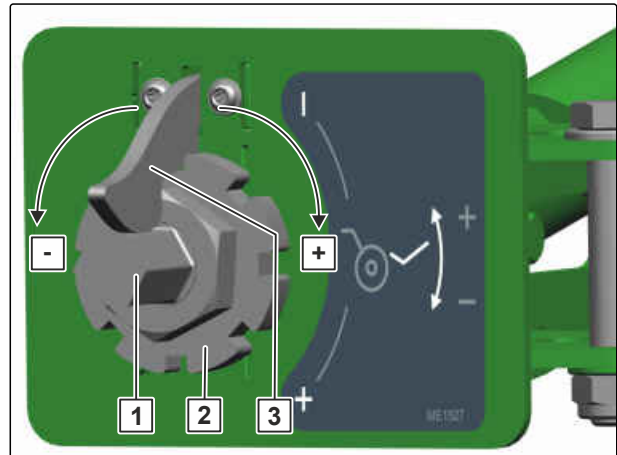
1. Put the universal operating tool on the adjustment spindle **1**.

2. *To set the exact following harrow deeper,*
turn the universal operating tool counter-clockwise **-**

or

To set the exact following harrow higher,
turn the universal operating tool clockwise **+**.

3. Position the grid **2** such that a groove is at the top.
4. Take off the universal operating tool and allow the catch **3** to engage in the groove.
5. *To check the setting,*
seed for approx. 30 m at working speed and then check the work pattern.



CMS-I-00004670

6.3.11.3 Adjusting the exact following harrow pressure mechanically

CMS-T-00006333-C.1

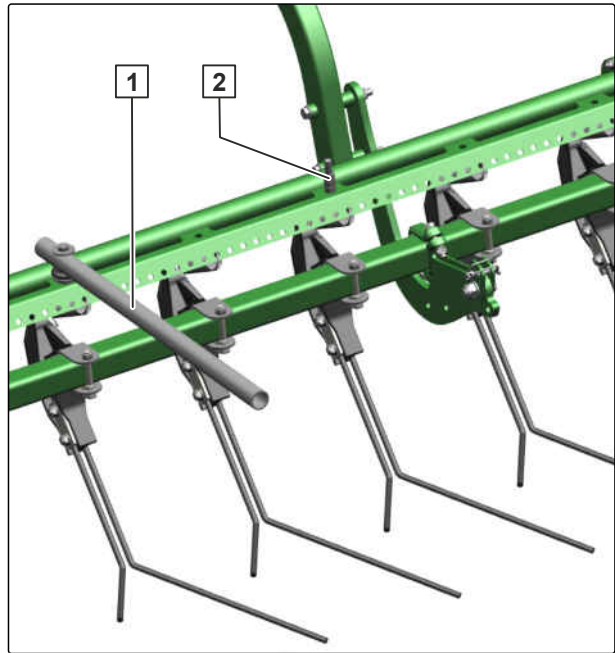
The exact following harrow pressure must be adjusted such that all seed rows are evenly covered with earth. On heavy soils, the pressure must be higher than on light soils.

The exact following harrow pressure is determined by tension springs, which are attached to a rotating tube. To adjust the pressure, a stop is pegged onto the tube. The higher the position of the stop, the greater the exact following harrow pressure.

6 | Preparing the implement

Preparing the implement for operation

1. Turn the lever **1** out of the transport lock **2** and pull it up.



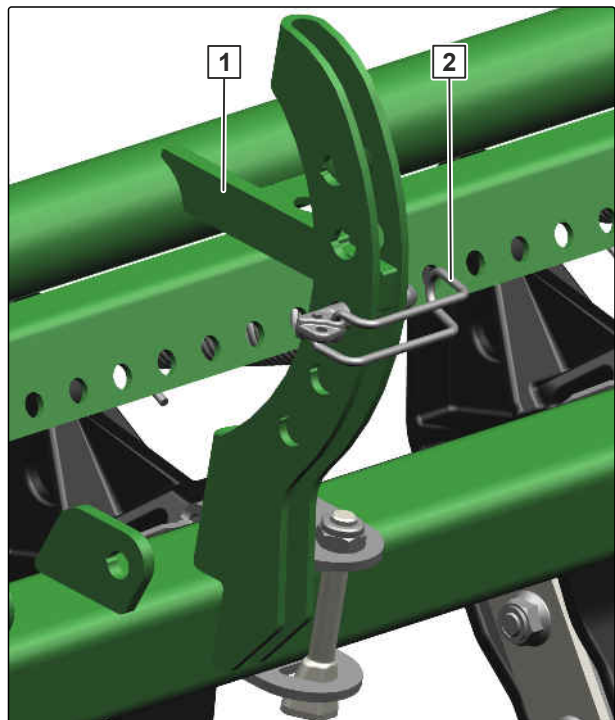
CMS-I-00004673

2. *To increase the exact following harrow pressure,*
remove the linch pin **2** and insert it in a higher hole under the stop **1**

or

To reduce the exact following harrow pressure,
remove the linch pin **2** and insert it in a lower hole under the stop **1**.

3. Relieve the lever and fasten it in the transport lock.
4. *To check the setting,*
seed for approx. 30 m at working speed and then check the work pattern.



CMS-I-00004671

6.3.11.4 Adjusting the exact following harrow pressure hydraulically

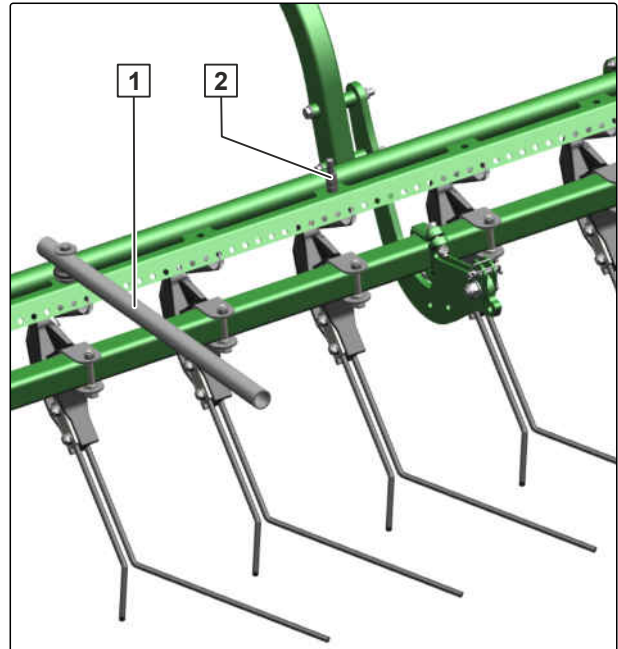
CMS-T-00006338-B.1

The exact following harrow pressure must be adjusted such that all seed rows are evenly covered with earth. On heavy soils, the pressure must be higher than on light soils.

To make adjustments, the minimum pressure and the maximum pressure of the exact following harrow must first be determined by mechanical pegging.

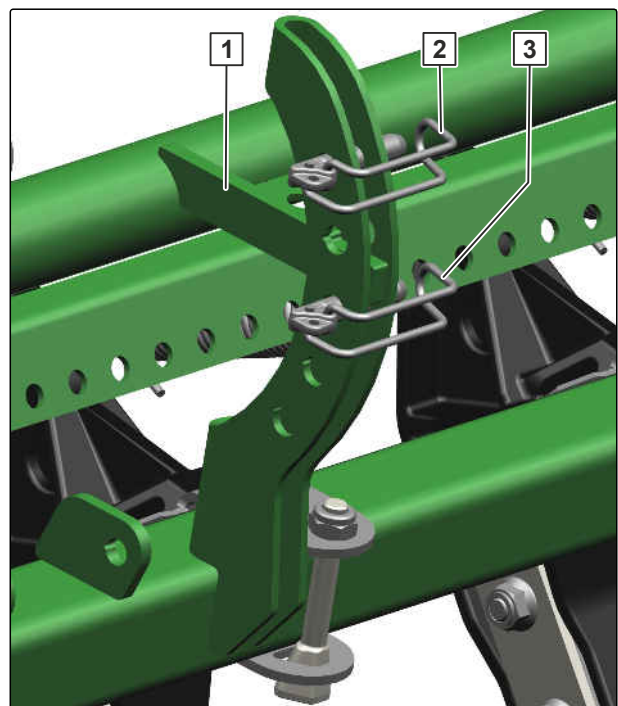
The exact following harrow pressure is then hydraulically adjusted together with the coulter pressure. With higher coulter pressure, higher exact following harrow pressure is also set at the same time.

1. Take the lever **1** out of the transport lock **2** and pull it up.



CMS-I-00004673

2. *To define the minimum pressure of the exact following harrow,* remove the linch pin **3** and insert it in a the desired hole under the stop **1**. The higher the hole, the greater the minimum pressure of the exact following harrow.
3. Relieve the lever and fasten it in the transport lock.
4. *To define the maximum pressure,* remove the second linch pin **2** and insert it in the desired hole under the stop **1**. The higher the hole, the greater the maximum pressure of the exact following harrow.



CMS-I-00004672

5. *To set the higher exact following harrow pressure,*
actuate the "green 1" tractor control unit

or

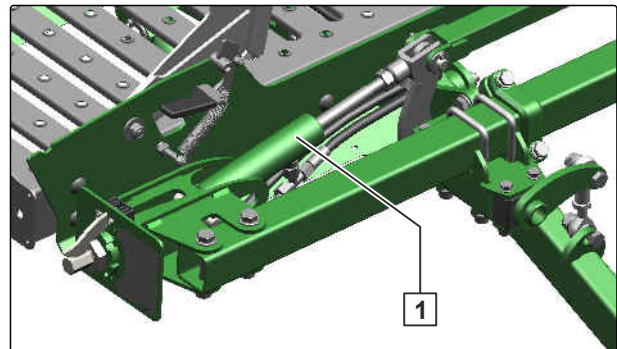
To set the lower exact following harrow pressure,
actuate the "green 2" tractor control unit.

6. *To check the setting,*
seed for approx. 30 m at working speed and then
check the work pattern.

6.3.11.5 Lifting the exact following harrow

For seed drills with exact following harrow lift, the exact following harrow can be lifted independently of the position of the coulters.

A hydraulic cylinder **1** lifts the exact following harrow.



CMS-T-00006415-A.1

CMS-I-00004703

- *To lift the exact following harrow,*
actuate the "blue 2" tractor control unit until the
hydraulic cylinder is retracted to the end position

or

To lower the exact following harrow,
actuate the "blue 1" tractor control unit until the
hydraulic cylinder is extended to the end position.

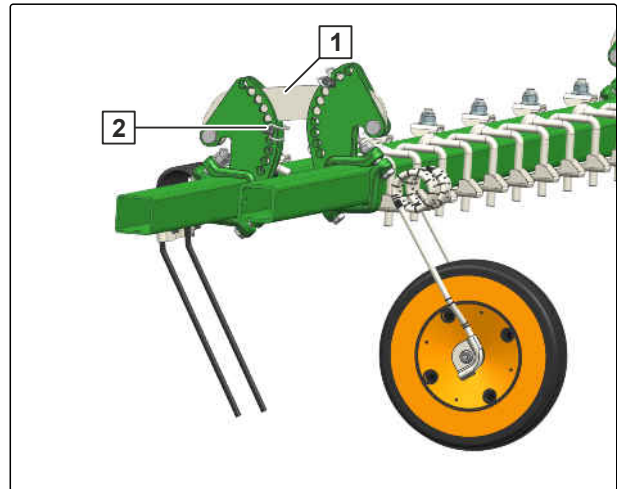
6.3.12 Adjusting the roller harrow

CMS-T-00007386-A.1

6.3.12.1 Adjusting the pitch of the harrow tines

CMS-T-00007387-A.1

1. Raise the implement until the harrow tines no longer touch the ground.
2. *To change the pitch of the harrow tines,* insert the safety pin for the tube **2** underneath the link **1**.



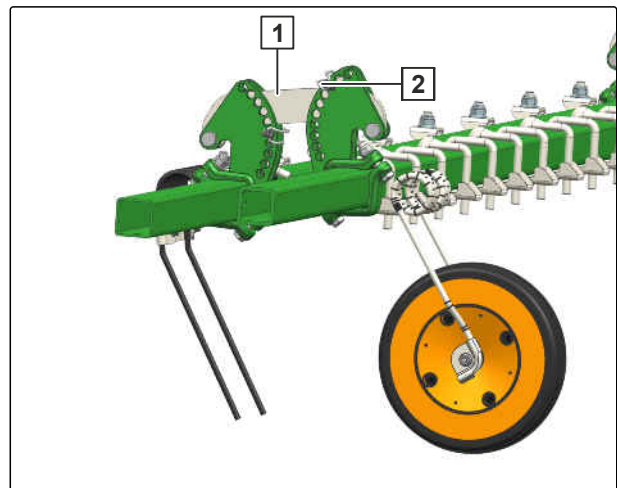
CMS-I-00005161

3. *To check the setting,* seed for approx. 30 m at working speed and then check the work pattern.

6.3.12.2 Adjusting the working depth of the harrow tines

CMS-T-00007388-A.1

1. Raise the implement until the harrow tines no longer touch the ground.
2. *To change the working depth of the harrow tines,* insert the safety pin for the tube **2** above the link **1**.



CMS-I-00005162

3. *To check the setting,* seed for approx. 30 m at working speed and then check the work pattern.

6.3.12.3 Adjusting the roller contact pressure

CMS-T-00007389-A.1

1. Move the implement into working position.
2. *Activate the function on implements with Comfort hydraulic system, see ISOBUS software operating manual "Pre-selection for hydraulic functions"*

or

see "control computer" operating manual.

3. *To increase the roller contact pressure on implements with Comfort hydraulic system, actuate the "green 1" tractor control unit*

or

To increase the roller contact pressure on implements without Comfort hydraulic system, actuate the "blue 1" tractor control unit.

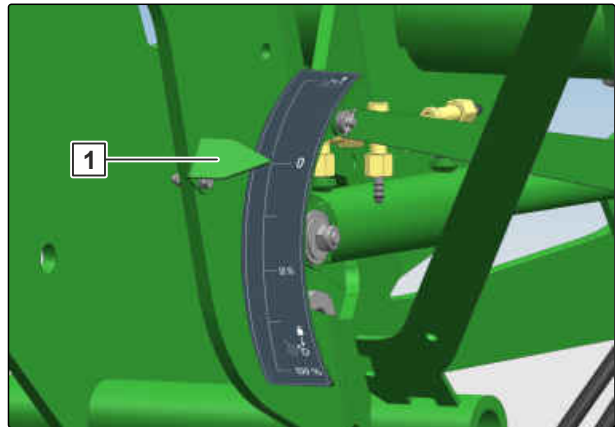
4. *To reduce the roller contact pressure on implements with Comfort hydraulic system, actuate the "green 2" tractor control unit*

or

To reduce the roller contact pressure on implements without Comfort hydraulic system, actuate the "blue 2" tractor control unit.

- ➔ The pointer 1 shows the set roller contact pressure.

5. *To check the setting, seed for approx. 30 m at working speed and then check the work pattern.*



CMS-I-00005163

6.3.12.4 Lifting the roller harrow

1. *Activate the function on implements with Comfort hydraulic system, see ISOBUS software operating manual "Pre-selection for hydraulic functions"*

or

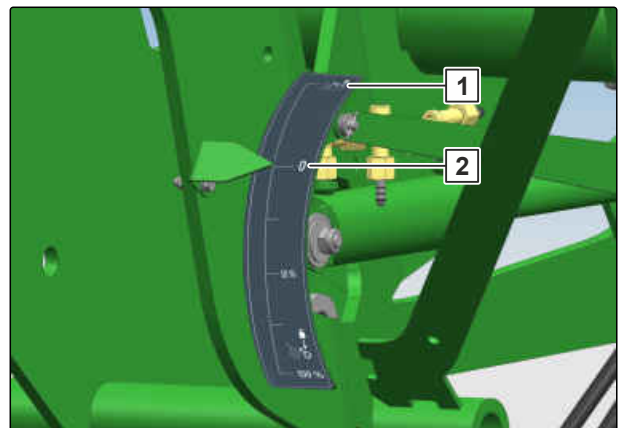
see "control computer operating manual."

2. *To lift the roller harrow on implements with Comfort hydraulic system, actuate the "green 2" tractor control unit,*

or

to lift the roller harrow on implements without Comfort hydraulic system, actuate the "blue 2" tractor control unit.

- ➔ If the pointer is above the 0 mark **2**, the roller harrow is no longer on the ground. If the pointer is in the upper scale position **1**, the roller harrow is completely lifted.



CMS-T-00007390-A.1

CMS-I-00005164

6.3.13 Adjusting the tramline marker

CMS-T-00007391-A.1

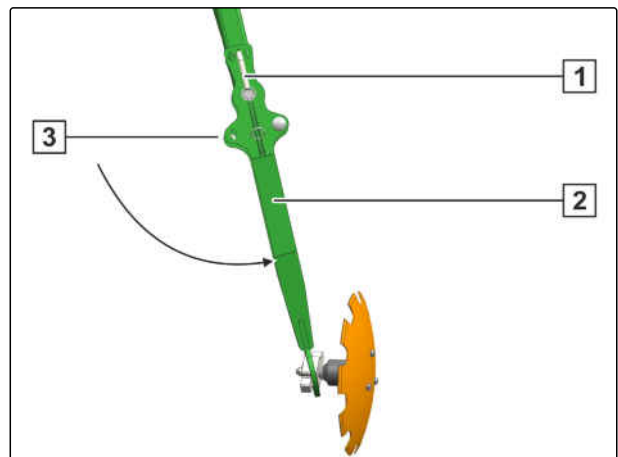
6.3.13.1 Adjusting the tramline marker on the implement frame

CMS-T-00007394-A.1

6.3.13.1.1 Unfolding the tramline marker

CMS-T-00004374-B.1

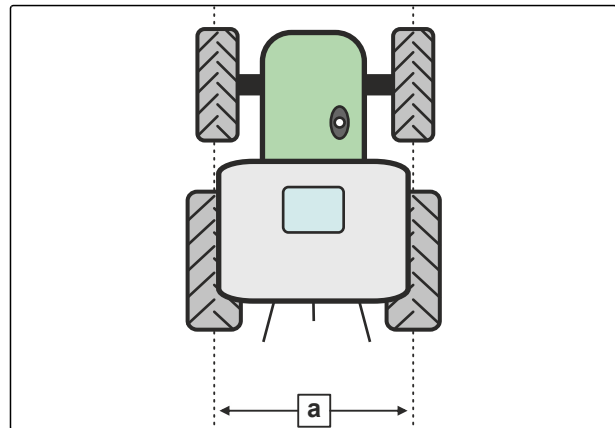
1. Remove the pin **1** from the pegging hole **3**.
2. Move the swivel arm **2** into working position.
3. Secure the swivel arm **3** in the middle hole.
4. *To secure the pin in the adjuster segment, turn the pin down.*



CMS-I-00003168

6.3.13.1.2 Adjusting the track width

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



CMS-T-00004375-C.1

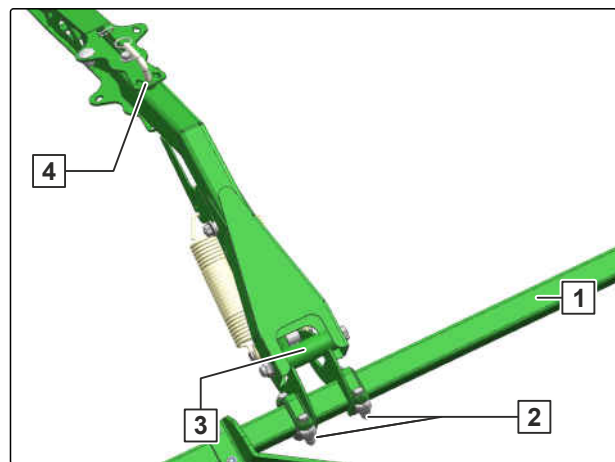
CMS-I-00003195

2. Secure the adjuster segment **4** in the middle hole

or

*To create a double tramline with a track width of 2.20 m,
set the track discs at 2.0 m and select the outer holes on the adjuster segment.*

3. Loosen the bolts **2**.
4. *To adjust the tramline marker to the track width of the cultivating implement,
move the bracket **3** on the profile tube **1**.*

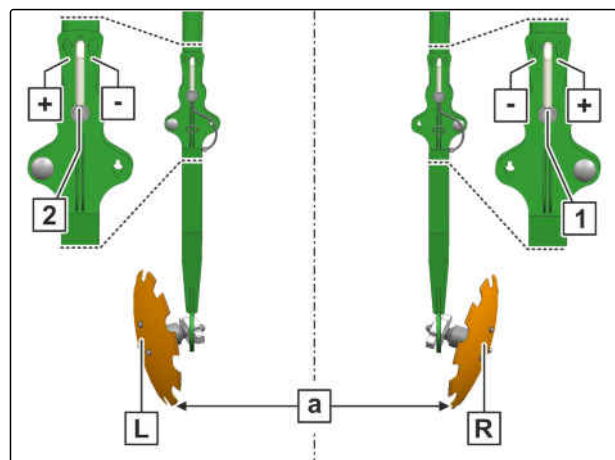


CMS-I-00003169

5. Move the track disc to the desired position.
6. Tighten the bolts.

With the adjacent pegging holes, the set track width **a** can be varied.

7. Release the pins **1** and **2** from the pegging hole.



CMS-I-00003170

8. *To reduce the track width of the tramline marker by 20 cm,*
insert the pin in position ☐ **-** ,

or

to increase the track width of the tramline marker by 20 cm,
insert the pin in position ☐ **+** .
9. *To secure the pin in the adjuster segment,*
turn the pin down.
10. *To check the setting,*
seed for approx. 30 m at working speed and then
check the work pattern.

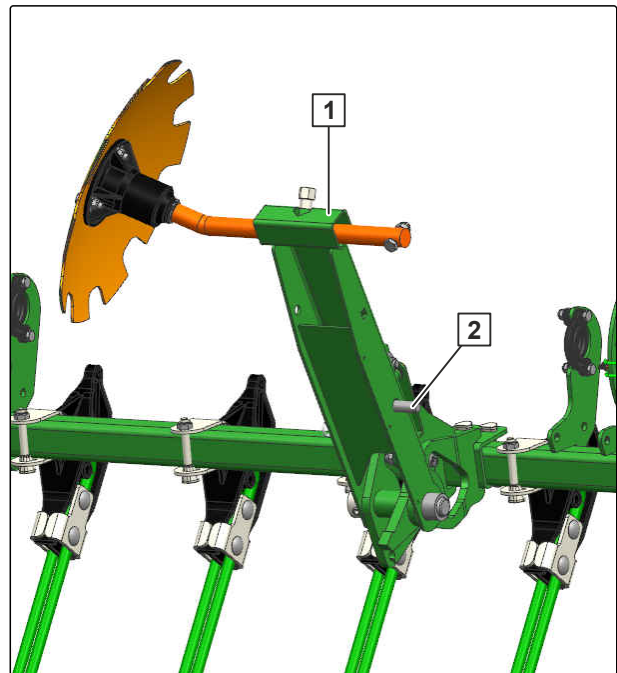
6.3.13.2 Adjusting the tramline marker on the exact following harrow

CMS-T-00007395-A.1

6.3.13.2.1 Unfolding the tramline marker

CMS-T-00007404-A.1

1. Set the implement down on the field.
2. Take hold of the track disc carrier ☐ **1** .
3. Pull out the pin ☐ **2** .
4. Swivel the track disc carriers into working position.

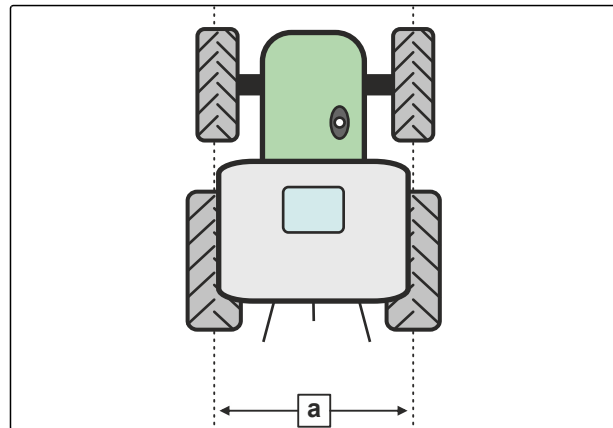


CMS-I-00005174

6.3.13.2 Adjusting the track width

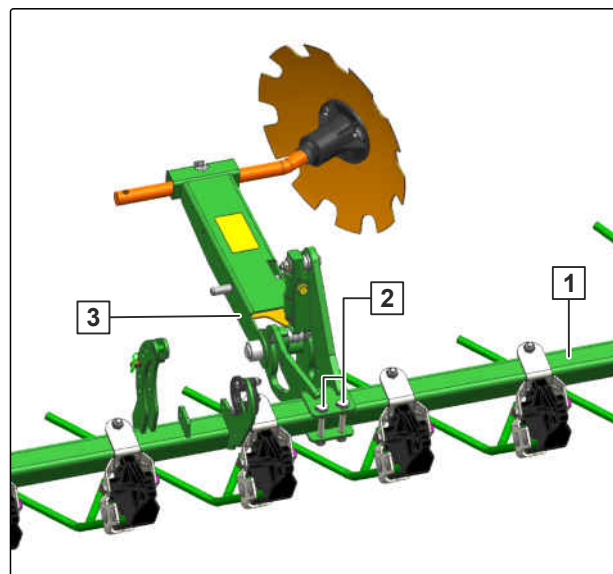
CMS-T-00007403-A.1

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



CMS-I-00003195

2. Loosen the bolts **2**.
3. *To adjust the tramline marker to the track width of the cultivating implement, move the bracket **3** on the profile tube **1**.*
4. Move the track disc to the desired position.
5. Tighten the bolts.
6. *To check the setting, seed for approx. 30 m at working speed and then check the work pattern.*



CMS-I-00005172

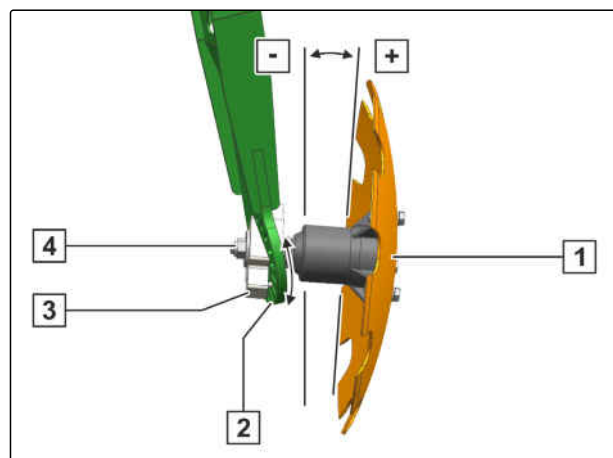
6.3.13.3 Adjusting the track disc pitch

CMS-T-00004377-C.1

1. loosen the nut **4**.
2. *To increase the effect of the track disc **1**, increase the pitch*

or

To reduce the effect of the track disc, reduce the pitch.
3. Move the clamping part **3** in the grid **2** to the desired position.



CMS-I-00003171

4. Tighten the nut.
5. *To check the setting,*
seed for approx. 30 m at working speed and then
check the work pattern.

6.3.13.4 Adjusting the tramline wheelmark width

CMS-T-00004379-C.1

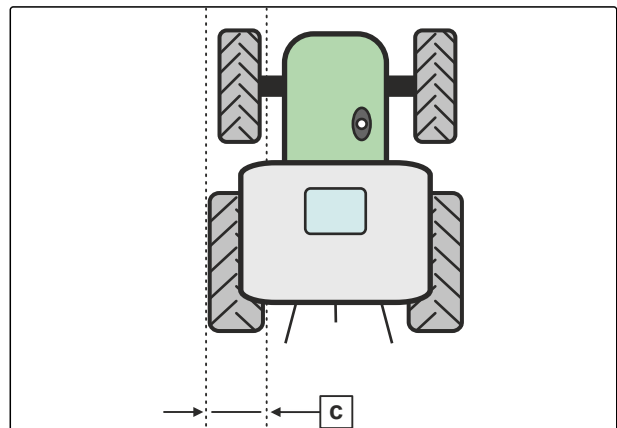
6.3.13.4.1 Installing the tramline segments

CMS-T-00004376-C.1

1. Determine the tractor track width by **c** of the
cultivating implement.
2. *Depending on the determined tractor track
width,*
replace seed outlets with tramline segments

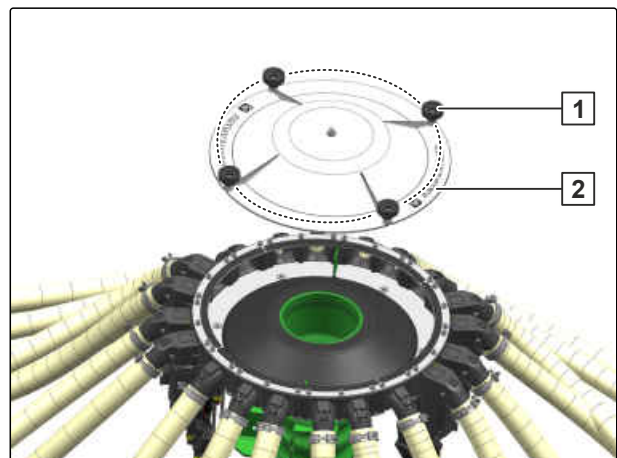
or

replace tramline segments with seed outlets.



CMS-I-00003196

3. Loosen the four knurled screws **1**.
4. Remove the cover **2**.

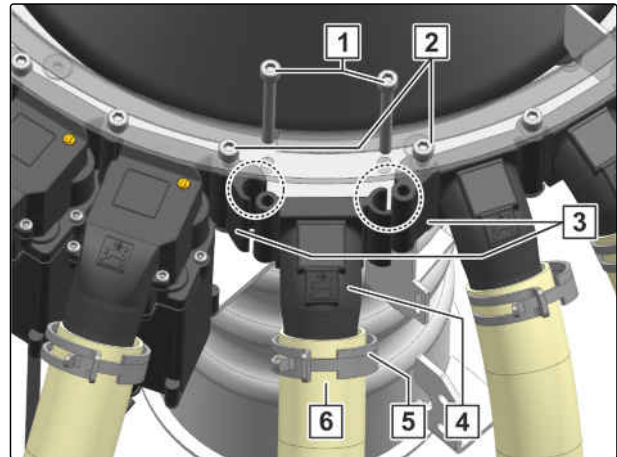


CMS-I-00003190

6 | Preparing the implement

Preparing the implement for operation

5. Remove the bolts **1**.
6. Loosen the bolts **2**.
- ➔ The intermediate segments **3** are easy to move.
7. Take the seed outlet **4** out of the intermediate segments.
8. Loosen the hose clamp **5**.
9. Remove the conveyor hose **6**.



CMS-I-00003132

10. *Depending on the determined tractor track width and row spacing,*
install an additional tramline segment in the intermediate segment.
11. Install the bolts.
12. Install the adjacent bolts on the intermediate segments.
13. Install the conveyor hose.
14. Install the hose clamp.
15. Install the cover.
16. Tighten the four knurled screws by hand.
17. *To ensure that all tramlines have the same wheelmark width,*
install additional tramline segments for all tramlines.
18. *For the additional tramline segments to be switched,*
see section "Connecting tramline segments"

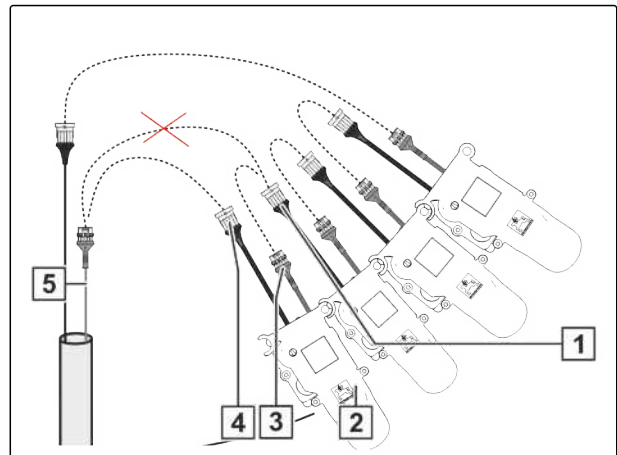
or

If fewer tramline segments are required,
see section "Disconnecting tramline segments".

6.3.13.4.2 Connecting additional tramline segments

CMS-T-00004380-C.1

1. Disconnect the plug connection between **1** and **5**.
 2. Establish the plug connection between **1** and **3**.
 3. Establish the plug connection between **4** and **5**.
- ➔ The new tramline segment **2** will be switched.
4. *To ensure that all tramlines have the same wheelmark width,*
connect all of the additional tramline segments.

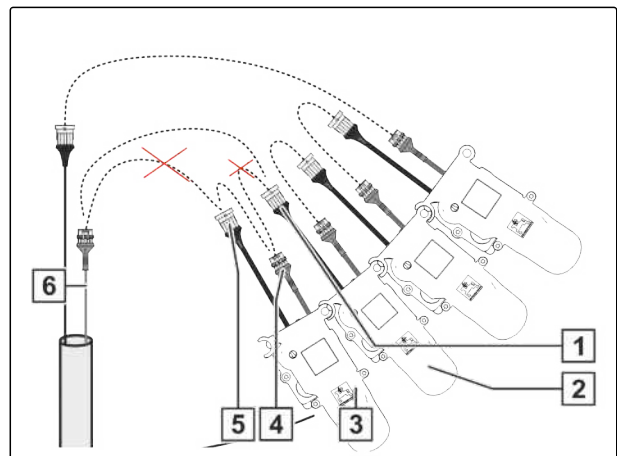


CMS-I-00003194

6.3.13.4.3 Disconnecting tramline segments

CMS-T-00004381-C.1

1. Disconnect the plug connection between **1** and **4**.
2. Disconnect the plug connection between **5** and **6**.
3. *To ensure that the switch on the tramline segment **2** is not interrupted,*
Establish the plug connection between **1** and **6**.
4. *To protect against moisture and soiling,*
Establish the plug connection between **4** and **5**.



CMS-I-00003193

➔ Tramline segment **3** is without function.

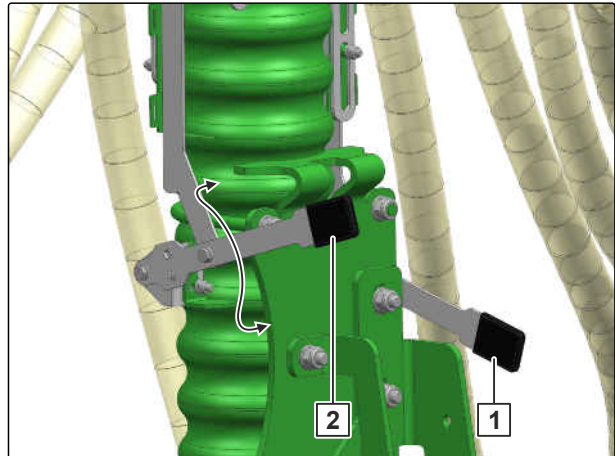
i NOTE

Deactivated tramline segments must be opened.
If the flap in the tramline segment is closed, the coulter will not be supplied with seed.

5. *To ensure that all tramlines have the same wheelmark width,*
disconnect all tramline segments that are not required.

6.3.14 Operating the one-sided switching

The control lever on the left in the direction of travel **1** actuates the left sliding shutter, opened here. The control lever on the right in the direction of travel **2** actuates the right sliding shutter, closed here.



CMS-T-00004888-C.1

CMS-I-00003596

1. To actuate the desired sliding shutter manually, swivel up the corresponding control lever.

or

To operate the electrically actuated sliding shutter,
see "ISOBUS software" operating manual

or

see "control computer" operating manual.

2. To halve the seed rate when using half the working width,
see "ISOBUS software" operating manual

or

see "control computer" operating manual.

6.3.15 Adjusting the fan speed hydraulically

CMS-T-00007513-A.1

- ✓ REQUIREMENTS**
- ✓ The hopper is full
 - ✓ The hopper is closed








⚠ 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 5000 rpm.

The specifications for the fan speed are recommendations. If seed remains in the conveyor section or is blown out of the seedbed, the setting must be adjusted.

 max. 5000 min ⁻¹	 3-4	 3				 m
		< 150	≥ 150	< 150	≥ 150	
	2800	3500	4000	4000	4500	 min ⁻¹
	3000	4000	4500	4500	4500	

CMS-I-00006488

1. Read the fan speed for fertiliser, seed or fine seeds from the table.
2. *To set the fan nominal speed,*
refer to the ISOBUS software operating manual,
"Fan settings"
- or
- see "control computer" operating manual.
3. *To correct the fan speed,*
adjust the oil quantity on the tractor control unit.
4. *If the control terminal does not display an appreciable pressure when the fan is running,*
check whether the hopper and calibration flap are closed.

6.3.16 Adjusting the fan speed manually

CMS-T-00007514-A.1



REQUIREMENTS

- ✓ The hopper is full
- ✓ The hopper is closed









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 5000 rpm.

The specifications for the fan speed are recommendations. If seed remains in the conveyor section or is blown out of the seedbed, the setting must be adjusted.

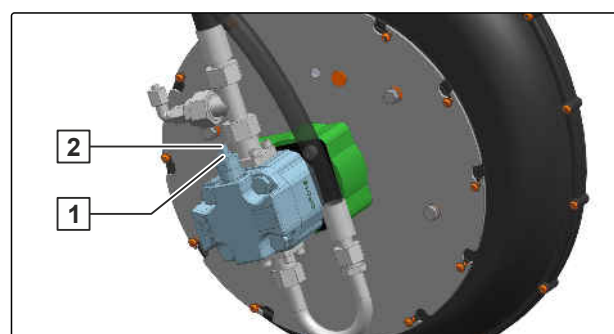
 max. 5000 min ⁻¹	 3-4	 3				 m
		< 150	≥ 150	< 150	≥ 150	
 kg/ha	 min ⁻¹	2800	3500	4000	4000	4500
		3000	4000	4500	4500	4500

CMS-I-00006488

1. Read the fan speed for fertiliser, seed or fine seeds from the table.
2. Remove the lock nut **1**.
3. *To increase the speed,*
turn the bolt **2** to the right,

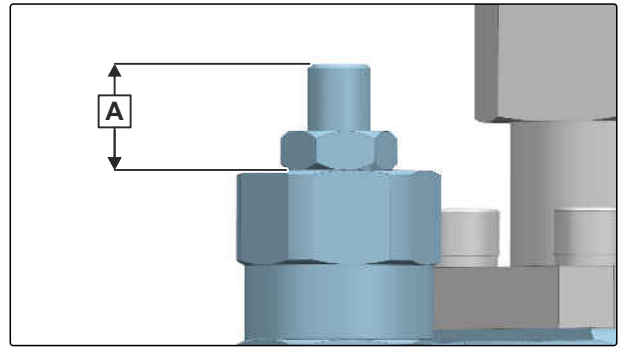
or

to reduce the speed,
turn the bolt **2** to the left.



CMS-I-00005376

4. To reset the speed to the factory settings, adjust the bolt so that the length **A** is 21 mm.

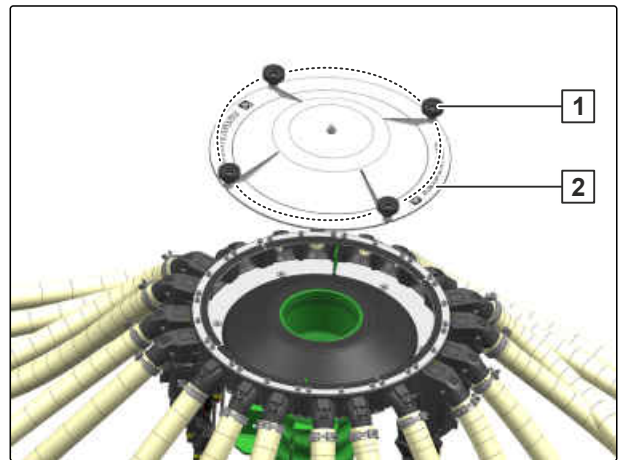


CMS-I-00005388

6.3.17 Adjusting the row spacing

For large row spacings, e.g. for seeding maize, individual seed rows can be closed.

1. Loosen the four knurled screws **1**.
2. Remove the cover **2**.



CMS-T-00004489-C.1

CMS-I-00003190

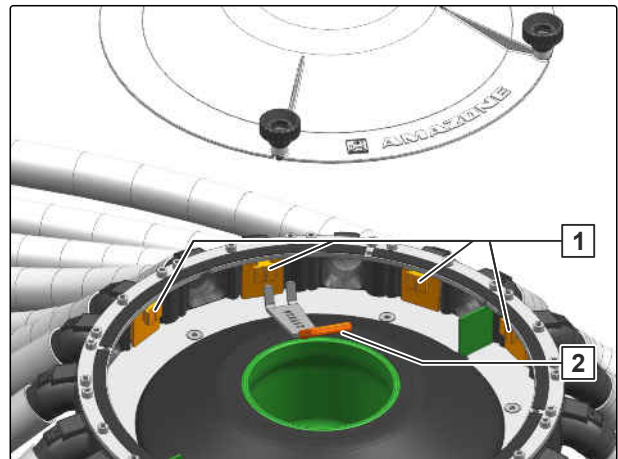
i NOTE

A maximum of 50 percent of the seed outlets may be closed off.

3. To increase the row spacing, use the tool **2** to install the sealing plugs **1** in the seed outlets

or

To reduce the row spacing, use the tool **2** to remove the sealing plugs **1** from the seed outlets.



CMS-I-00003247



NOTE

The sealing plugs fit only in the seed outlets, since the tramline segments are opened and closed electronically. To keep the tramline segments permanently closed, disconnect the closed tramline segments, see *"Disconnecting tramline segments"*.

4. *To activate tramline control,*
see *"ISOBUS software"* operating manual

or

see *"control computer"* operating manual.
5. *To close all of the tramline segments,*
see *"ISOBUS software"* operating manual

or

see *"control computer"* operating manual.
6. *To permanently deactivate the desired tramline segments,*
see section *"Disconnecting tramline segments"*.
7. *To open the remaining active tramline segments again,*
advance the tramline counter.
8. Deactivate tramline control.

6.3.18 Setting up the speed sensor

CMS-T-00003210-D.1

To start the metering unit(s), a speed signal is required. The speed sensor on the implement can be used for this.

- *To set up the speed sensor on the implement,*
see ISOBUS software operating manual, *"Setting up the speed sensor on the implement"*

or

see *"control computer operating manual."*

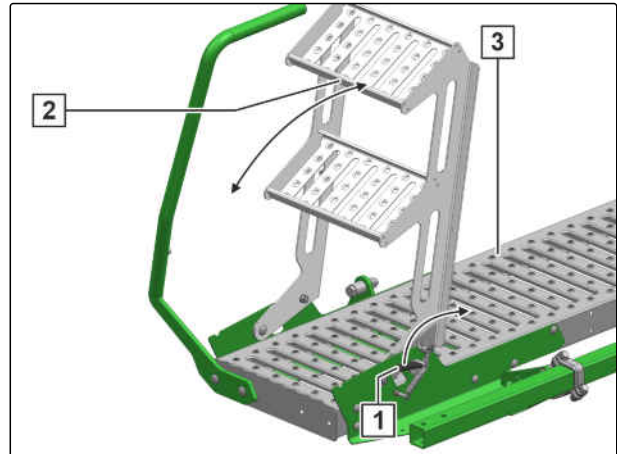
6.3.19 Operating the loading board with steps

CMS-T-00007020-B.1

✓ REQUIREMENTS

- ✓ The seed drill is coupled to the soil tillage implement

1. Hold the steps **2** in position.
2. To unfold the steps, release the transport lock **1**.
3. Swivel the steps down.
4. Climb onto the loading board **3** using the steps.
5. After use, swivel the steps up and put them in the parking position.



CMS-I-00004942

➔ The transport lock locks automatically.

6. Check whether the transport lock is properly locked.

6.3.20 Preparing the metering unit for operation

CMS-T-00007508-A.1

6.3.20.1 Selecting the metering roller

CMS-T-00007509-A.1

Spreading material	Metering volume in cm ³									
	3.75	7.5	20	40	120	210	350	600	660	880
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						

6 | Preparing the implement
Preparing the implement for operation

Spreading material	Metering volume in cm ³									
	3.75	7.5	20	40	120	210	350	600	660	880
Caraway		X	X	X						
Lupines					X		X		X	
Lucerne		X	X	X						
Maize					X					
Poppy	X	X	X							
Oilseed (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	
Sunflowers					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

Always use a flexible roller for granular fertiliser.

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

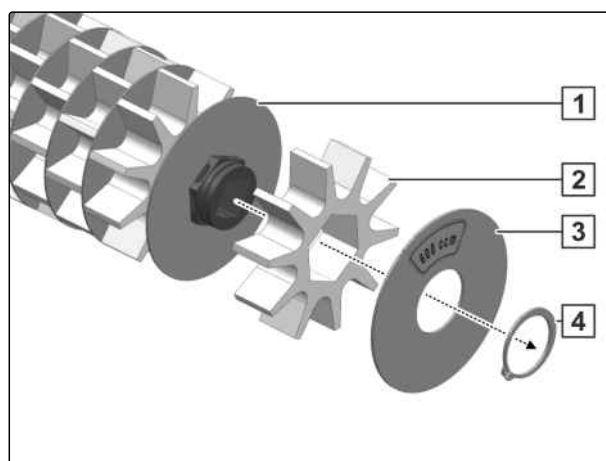
1. The metering roller according to the spreading material can be found in the table.
2. *To install the desired metering roller, see section "Changing the metering roller".*
3. *To perform the calibration, see "Calibrating the metering unit".*

6.3.20.2 Enlarging the metering chambers

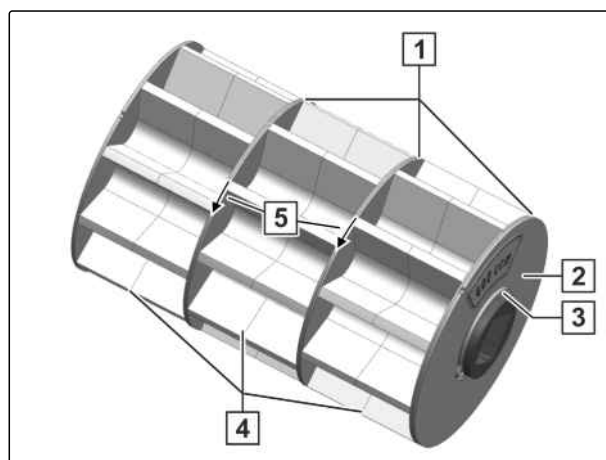
When very large seeds need to be metered, enlarge the chambers of the modular metering roller.

1. Remove the locking ring **4**.
2. Remove the end plate **3**.
3. Remove the metering wheels **2** and intermediate plates **1**.
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-T-00003564-D.1



CMS-I-00002550



CMS-I-00002551

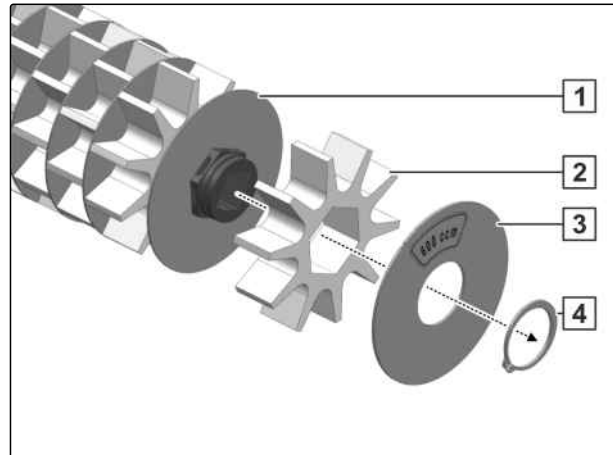
6.3.20.3 Adjusting the metering volume

CMS-T-00003614-D.1

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

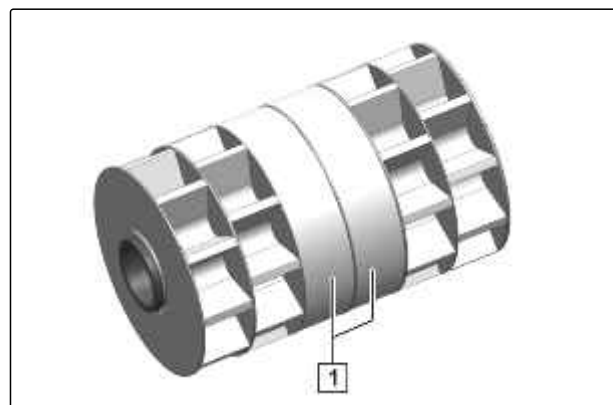
You must select a metering roller volume that is not too large or too small, but that is sufficient to spread the required quantity of spreading material.

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. *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.

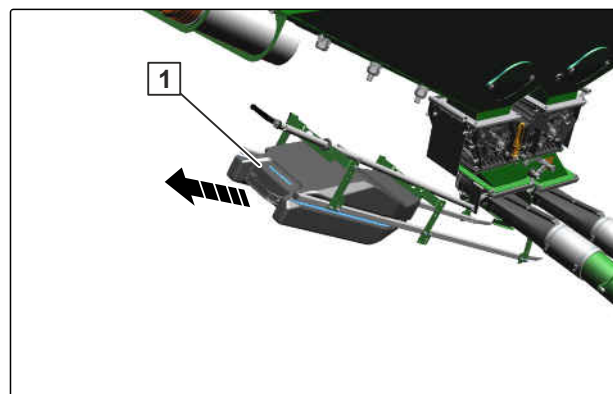


CMS-I-00002552

6.3.20.4 Changing the metering roller

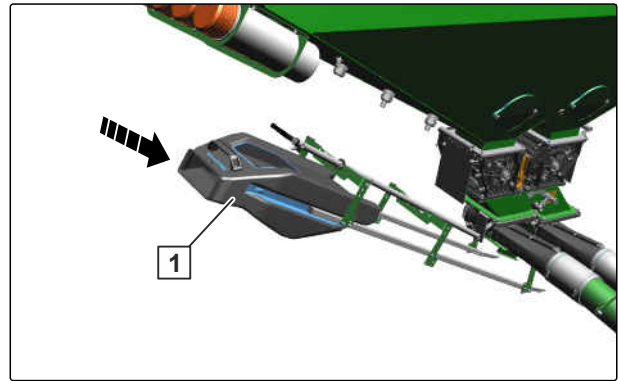
CMS-T-00007511-A.1

1. Switch off the fan.
2. Take the calibration bucket **1** from the guide rails.



CMS-I-00006368

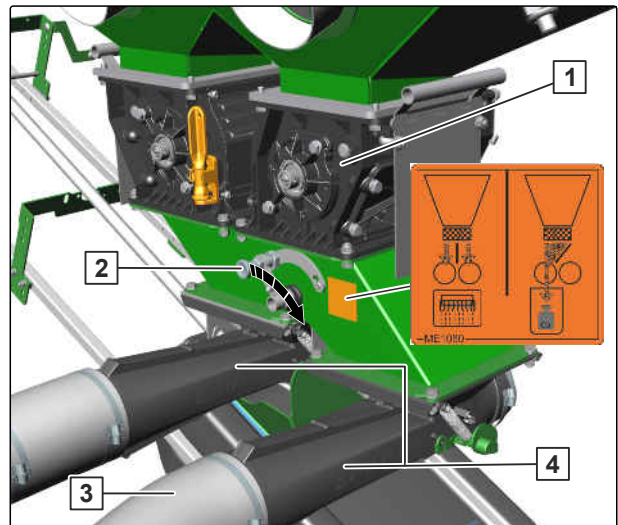
3. Turn the calibration bucket **1** and slide it into the guide rails.



CMS-I-00006373

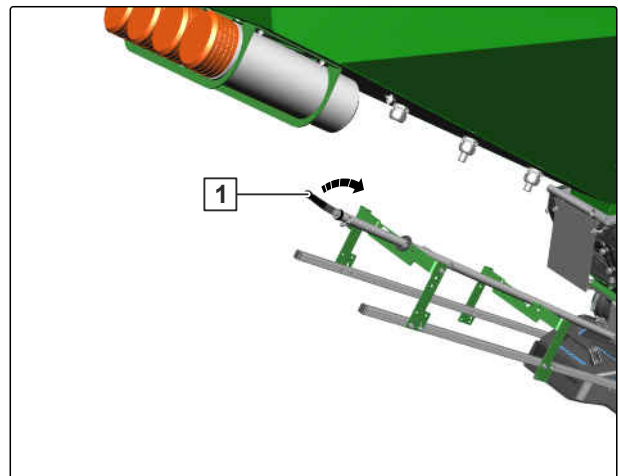
4. *If the implement has two injectors **4** and two metering units **1**,*
deactivate the conveyor section **3** with the lever **2**.

➔ The seed from both metering units can now be collected in the calibration bucket.



CMS-I-00006398

5. *To remove seed residues from the metering unit housing,*
open the calibration flap with the lever **1**.

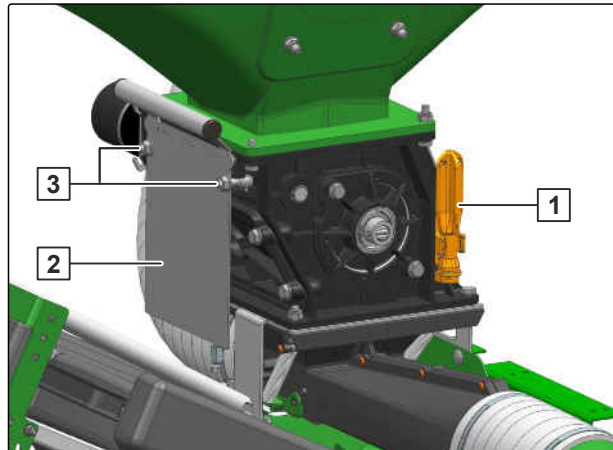


CMS-I-00006375

6 | Preparing the implement

Preparing the implement for operation

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

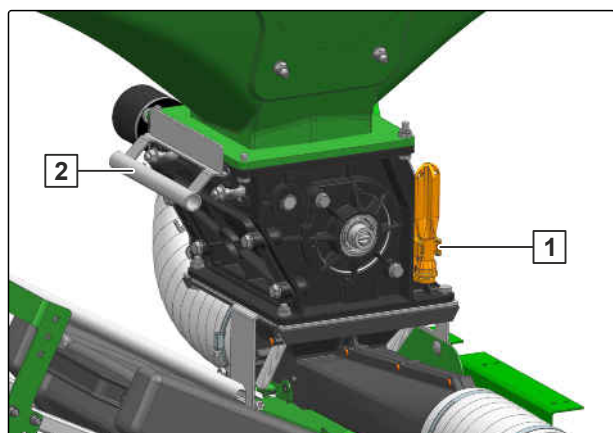


CMS-I-00005255

9. Push the sliding shutter **2** into the metering unit housing.
10. Park the socket wrench in the holder **1**.
11. *To empty the metering unit and the metering roller,*
refer to the ISOBUS software operating manual,
"Emptying".

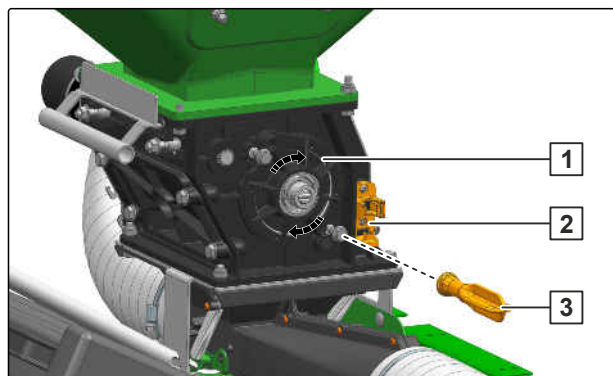
or

see "control computer" operating manual.



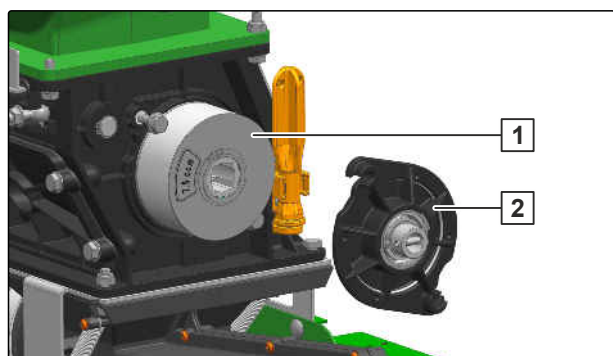
CMS-I-00005259

12. Loosen the bolts with the socket wrench **3**.
13. Park the socket wrench in the holder **2**.
14. Turn the bearing cover **1**.



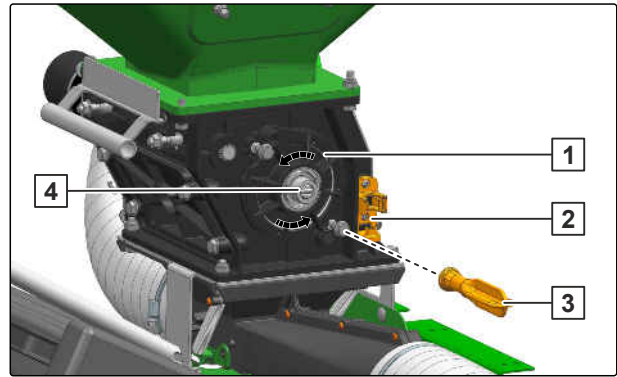
CMS-I-00005253

15. Pull off the bearing cover **2**.
16. Pull the metering roller **1** out of the metering unit.
17. Install the new metering roller.

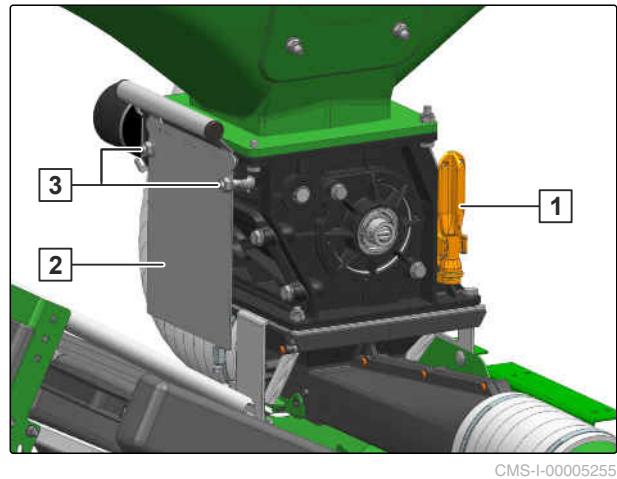


CMS-I-00005256

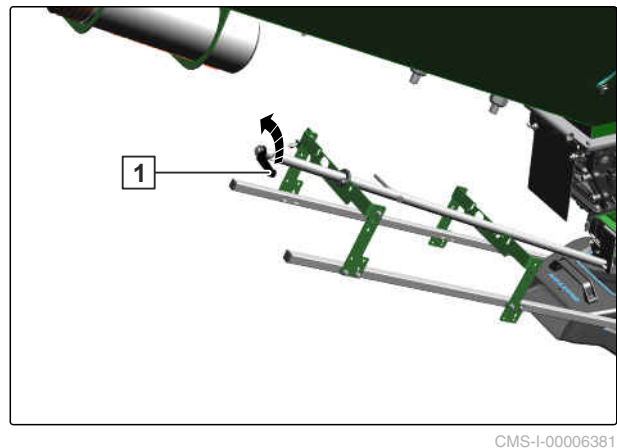
18. Align the catch **4** on the bearing cover **1** with the drive shaft.
19. Install the bearing cover.
20. Tighten the bolts with the socket wrench **3**.
21. Park the socket wrench in the holder **2**.



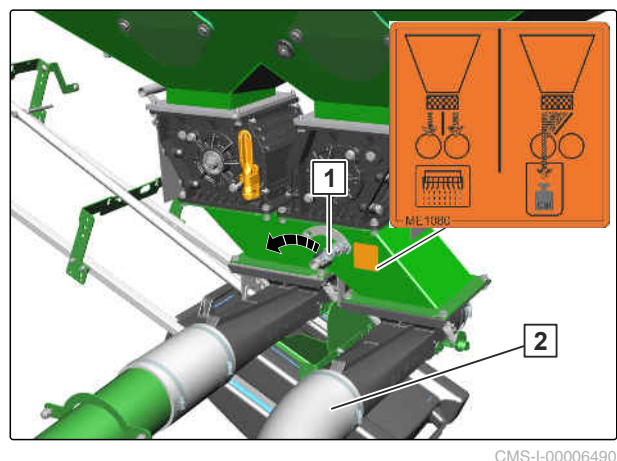
22. Park the sliding shutter **1** on the metering unit housing.
23. Swivel the bolts **3** in front of the sliding shutter.
24. Tighten the bolts with the socket wrench **2**.



25. Close the calibration flap with the lever **1**.



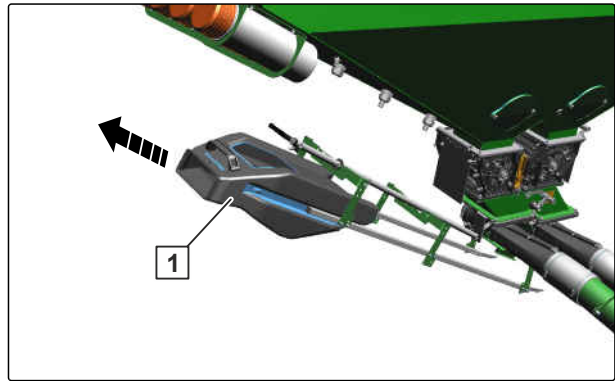
26. Activate the conveyor section **2** with the lever **1**.



6 | Preparing the implement

Preparing the implement for operation

27. Take the calibration bucket **1** from the guide rails.
28. Empty the calibration bucket.
29. Turn the calibration bucket.
30. Slide the calibration bucket into the guide rails and put in parking position.

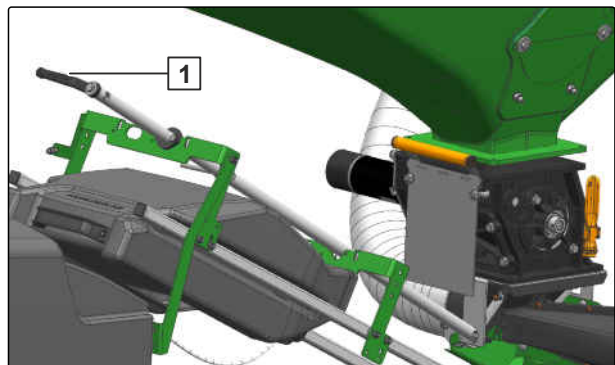


CMS-I-00006377

6.3.20.5 Putting the metering unit into operation without calibration

CMS-T-00007510-A.1

- *If work is started without calibration,*
Close the calibration flap with the lever **1**.



CMS-I-00005248

6.3.20.6 Calibrating the metering unit

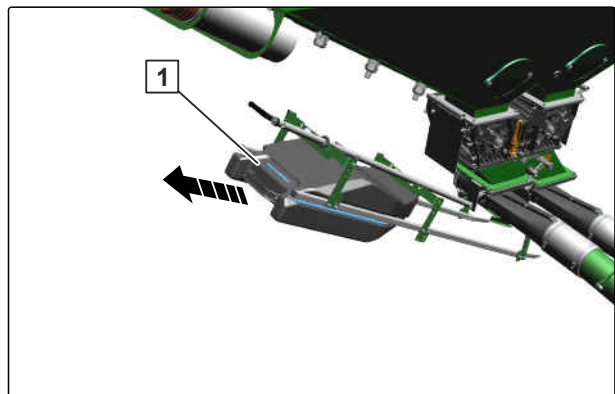
CMS-T-00009292-A.1



REQUIREMENTS

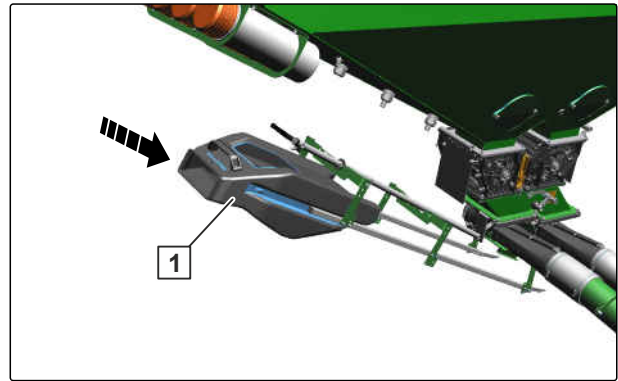
- ✓ The hopper is at least 1/4 filled with spreading material

1. Take the calibration bucket **1** from the guide rails.



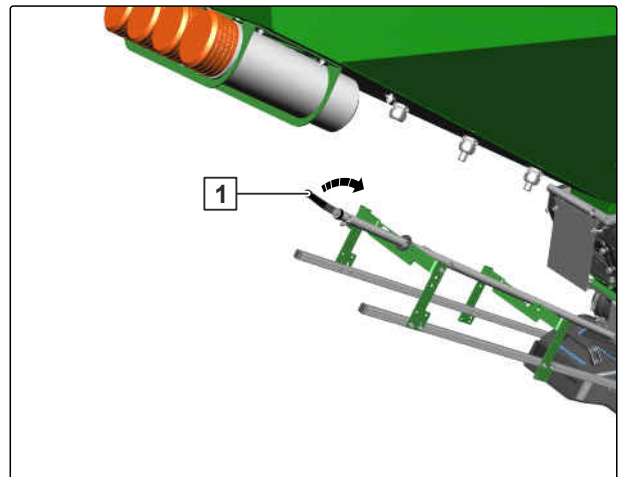
CMS-I-00006368

2. Turn the calibration bucket **1** and slide it into the guide rails.



CMS-I-00006373

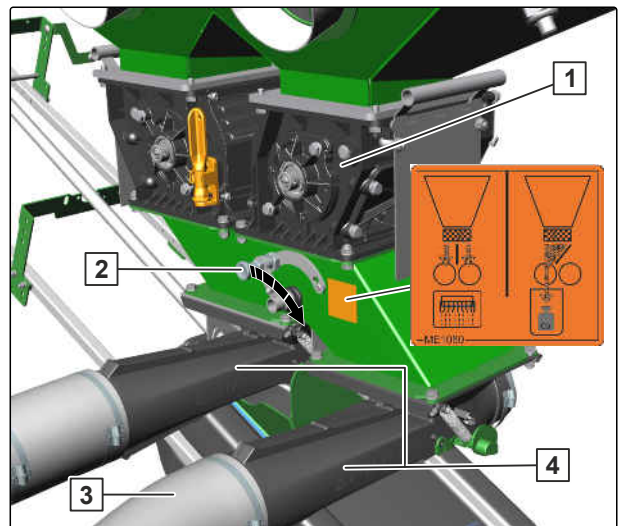
3. Open the calibration flap with the lever **1**.



CMS-I-00006375

4. *If the implement has two injectors **4** and two metering units **1**,* deactivate the conveyor section **3** with the lever **2**.

➔ The seed from both metering units can now be collected in the calibration bucket.



CMS-I-00006398



NOTE

If uniform emptying is desired for a 2-chamber hopper with only one seed type, the target rates must be converted to the percentage of the hopper volume.

5. To start the calibration via the TwinTerminal **1** or the calibration button, refer to the ISOBUS software operating manual, "Calibration menu"

or

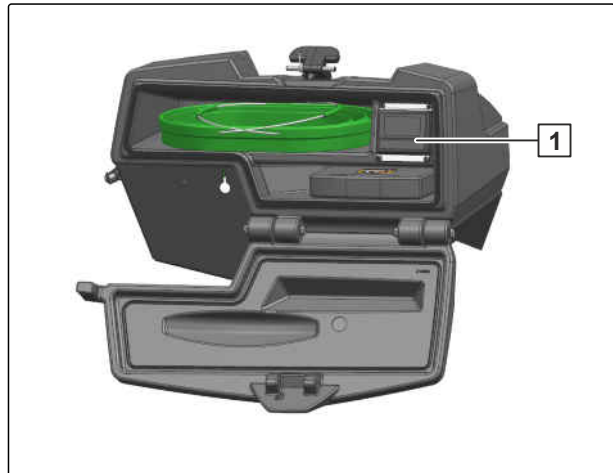
see "control computer" operating manual.

6. To start the calibration via the control terminal, refer to the ISOBUS software operating manual, "Calibration menu"

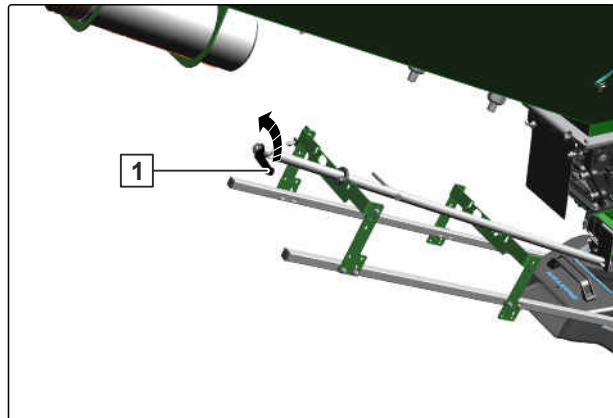
or

see "control computer" operating manual.

7. Close the calibration flap with the lever **1**.

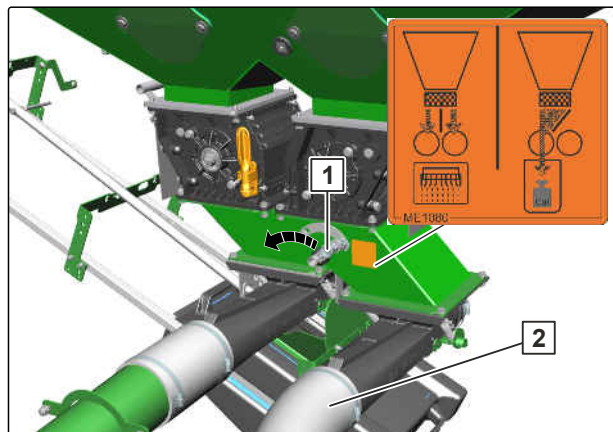


CMS-I-00005266



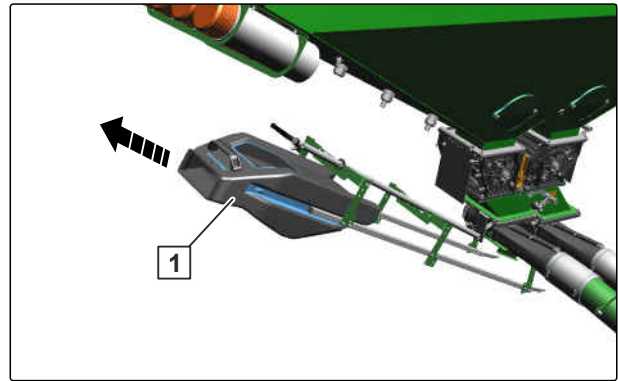
CMS-I-00006381

8. Activate the conveyor section **2** with the lever **1**.



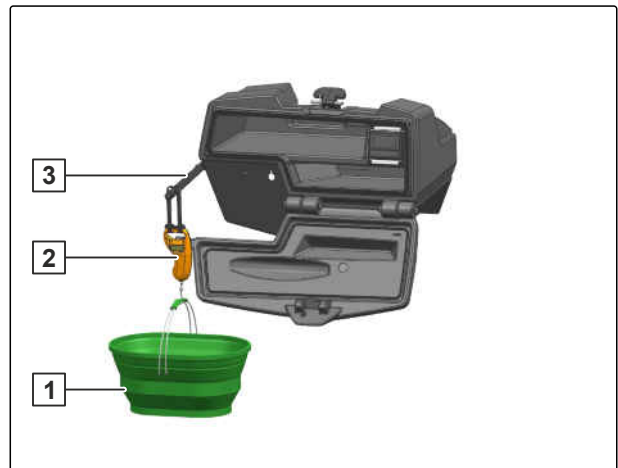
CMS-I-00006490

9. Take the calibration bucket **1** from the guide rails.



CMS-I-00006377

10. Pour the seed from the calibration bucket into the collapsible bucket **1**.
11. Unfold the bar **3**.
12. Hang the scale **2** on the bar.
13. Hang the collapsible bucket on the scale and read the weight of the collected seed.
14. refer to the ISOBUS software operating manual, "Calibration menu"

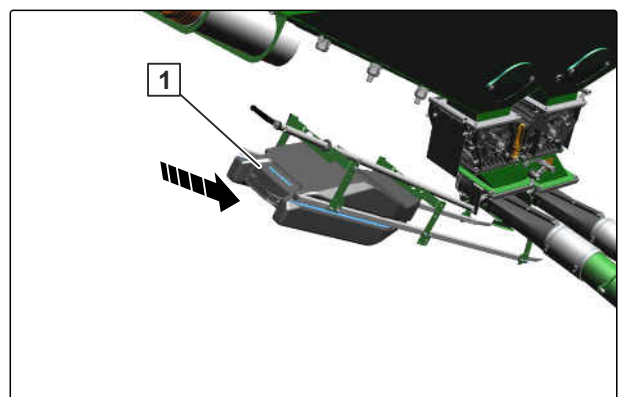


CMS-I-00005267

or

see "control computer" operating manual.

15. *If the implement is equipped with a 2-chamber hopper,*
also calibrate the metering unit for the second hopper tip.
16. Turn the calibration bucket **1** and put it in parking position.



CMS-I-00006382

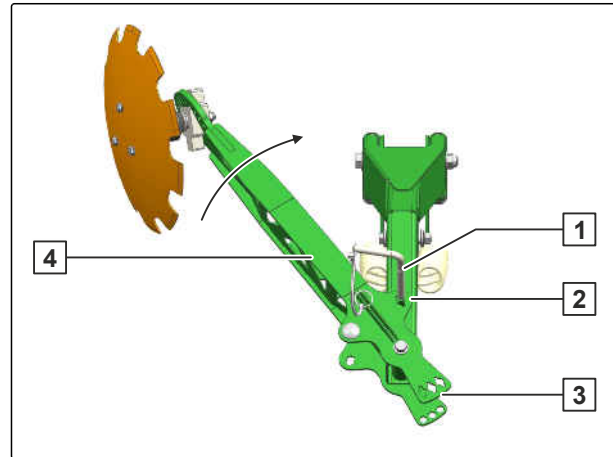
6.4 Preparing the machine for road travel

CMS-T-00007429-A.1

6.4.1 Folding the tramline marker onto the implement frame

CMS-T-00004422-B.1

1. To move the track disc out of the ground, slightly lift the implement.
2. Remove the pin **1** from the pegging hole **3**.
3. Put the swivel arm **4** into transport position.
4. Peg the swivel arm in transport position **2**.
5. To secure the pin in the adjuster segment, turn the pin down.



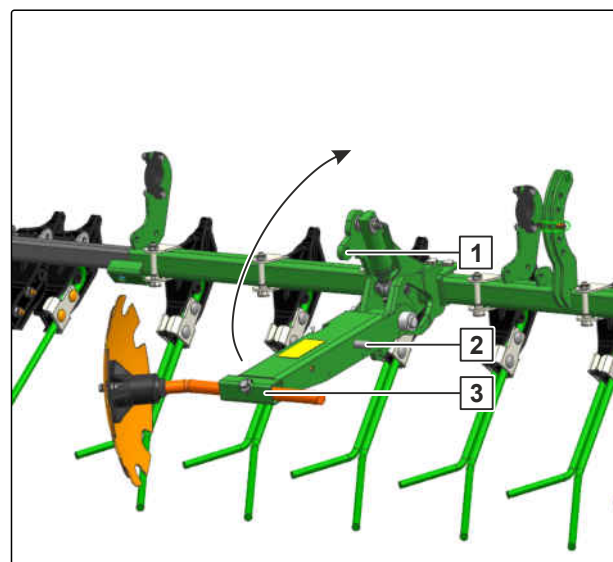
CMS-I-00003216

6.4.2 Folding the tramline marker on the exact following harrow

CMS-T-00007448-A.1

To be able to move the tramline marker into transport position, no tramlines may be created in the ISOBUS software or on the control computer.

1. To deactivate tramline control, see ISOBUS software operating manual
or
see control computer operating manual.
2. To lift the tramline marker from the ground, actuate the "yellow 1" tractor control unit.
➔ The tramline marker is hydraulically lifted and can be moved into transport position.
3. Raise the track disc carrier **3**.
4. Secure the track disc carrier in the transport bracket **1** with a pin **2**.



CMS-I-00005176

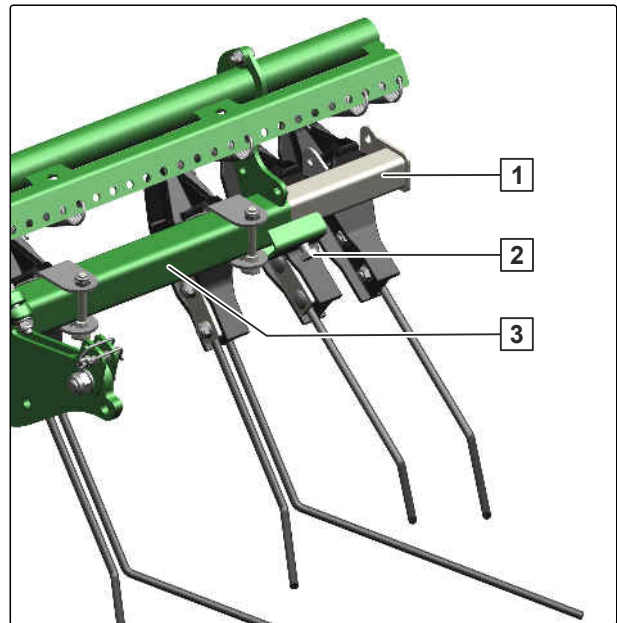
6.4.3 Moving the exact following harrow into transport position

CMS-T-00006417-A.1

The outer harrow elements can exceed the permissible transport width during transport. To avoid exceeding the permitted transport width, the exact

following harrow must be moved into transport position before road transport.

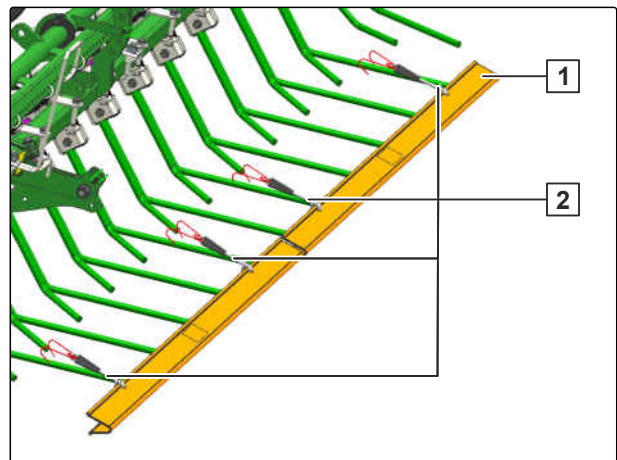
1. Loosen the bolt **2** with the universal operating tool.
2. Push the sliding element **1** into the carrier tube **3** up to the stop.
3. Tighten the bolt **2** with the universal operating tool.
4. Make the same setting for the other side of the implement.



CMS-I-00004675

6.4.4 Attaching the road safety bar on the exact following harrow

1. Fasten the road safety bar **1** over the tips of the tines of the exact following harrow.
2. Fasten the road safety bar on the exact following harrow with spring holders **2**.



CMS-T-00007449-A.1

CMS-I-00005185

6.5 Calculating the permissible payload

CMS-T-00007536-A.1



WARNING

Risk of accident due to exceeded payload

If the payload is exceeded, the implement can be damaged or/and it can result in uncontrolled driving behaviour of the tractor.

- ▶ Carefully determine the payload of the implement.
- ▶ Never exceed the payload of the implement.

Maximum payload = Permissible technical implement weight - tare weight

1. Read the permissible technical implement weight from the rating plate.
2. *To determine the tare weight,*
Weigh the implement when the hopper is empty.
3. Calculate the payload.

Using the implement

7

CMS-T-00007454-A.1

7.1 Using the implement

CMS-T-00004492-C.1

1. Align the implement parallel to the ground.
2. Lower the implement on the field.
3. Move the hydraulic system of the 3-point power lift into float position.
4. Switch on the tractor PTO shaft. Slowly couple the tractor PTO shaft only at an idle or at low tractor engine speed.
5. *To check the settings of the implement,* seed for approx. 30 m at working speed and then check the work pattern.



NOTE

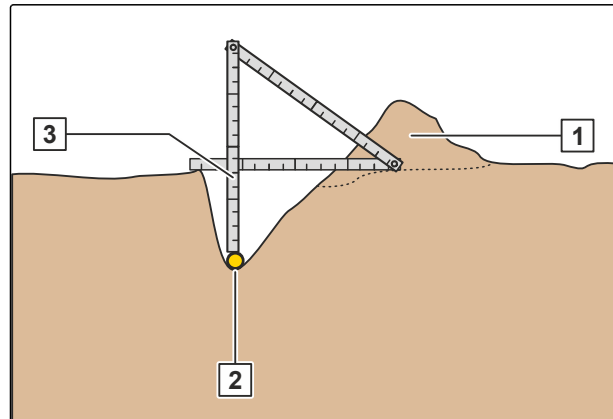
Perform the following visual inspections regularly, e.g. after each reloading with seed:

- Placement depth
- Segment distributor heads
- Coulters
- Metering unit

7.2 Checking the placement depth

CMS-T-00004517-C.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

7.3 Turning on the headlands

CMS-T-00004491-B.1



NOTE

Lifting the implement causes the metering roller in the metering unit to stop. When the fan is running, seed emerges from the coulters until the conveyor section is empty.

1. *To prevent seed accumulations,*
give the tractor control unit for the fan drive priority.
2. *To prevent lateral loads when driving in curves on the headlands,*
Raise the implement.
3. *To avoid damage to the implement,*
pay attention to obstacles when turning.
4. *When the direction of the implement matches that of the direction of travel,*
lower the implement.

Eliminating faults

8

CMS-T-00007560-A.1

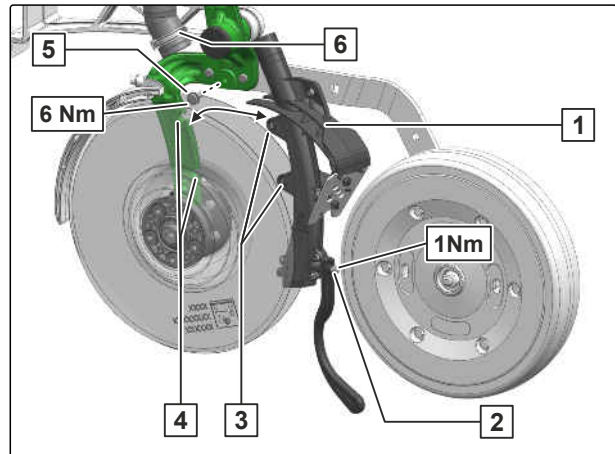
Errors	Cause	Solution
The TwinTeC coulter does not fix the seed sufficiently in the furrow	When the seed catcher is worn, the seed is not fixed in the furrow.	see page 111
The TwinTeC coulter does not guide the seed precisely into the furrow	When the guide extension is worn, the seed is not guided into the furrow.	see page 111
The TwinTeC coulter is not spreading seed	The seed outlet is slightly blocked.	<ul style="list-style-type: none"> ► Raise the implement. ► Clean the seed outlet from below.
	The seed outlet is strongly blocked.	see page 112
TwinTeC concave disc blocked	When the inner scraper is worn, the concave discs are blocked by adhering soil.	see page 112
The RoTeC coulter is not spreading seed	The seed outlet is slightly blocked.	<ul style="list-style-type: none"> ► Raise the implement. ► Clean the seed outlet from below.
	The seed outlet is strongly blocked.	see page 113
The fan speed displayed on the control terminal is too high.	The hydraulic control unit is incorrectly adjusted.	see page 113
The metering shaft speed displayed on the control terminal is too low.	The metering roller is rotating stiffly.	► <i>To check the metering unit, see "Calibrating the spread rate".</i>
	The metering roller is blocked by foreign objects in the metering unit housing.	► <i>To clean the metering unit, see "Cleaning the metering unit".</i>
The electric drives do not run or start running at the wrong time.	The switch points of the working position sensor are wrong.	► <i>To configure the working position sensor, see "Configuring the working position sensor".</i>

Errors	Cause	Solution
The coulter harrow does not cover the seed sufficiently with fine soil	The angle of the coulter harrow is incorrectly set.	► See <i>"Adjusting the TwinTeC coulter" > "Adjusting the harrow angle"</i>
	The height of the coulter harrow is incorrectly set.	► See <i>"Adjusting the TwinTeC coulter" > "Adjusting the harrow height"</i>
	The harrow tines of the coulter harrow are worn.	see page 113
The exact following harrow does not cover the seed sufficiently with fine soil	On seed drills without exact following harrow lift, the overload safety is triggered.	see page 114
	The harrow tines are not aligned parallel to the ground.	► See <i>"Adjusting the exact following harrow" > "Adjusting the position of the exact following harrow tines"</i>
	The exact following harrow pressure is incorrectly set	► See <i>"Adjusting the exact following harrow" > "Adjusting the exact following harrow pressure mechanically" or "Adjusting the exact following harrow pressure hydraulically"</i>
	The harrow tines are worn.	see page 114
The roller harrow does not cover the seed sufficiently with fine soil	The harrow tines are worn.	see page 115
	The rollers are damaged.	see page 115
The lighting for road travel has a malfunction.	Lamp or lighting supply line is damaged.	► Replace the lamp. ► Replace the lighting supply line.

The TwinTeC coulter does not fix the seed sufficiently in the furrow

CMS-T-00006593-D.1

1. Remove the hose **6**
or
Remove the Y-piece.
2. Remove the bolt **5**.
3. Remove the TwinTeC seed outlet **1**.
4. Remove the bolt **2**.
5. Replace the seed catcher **3**.
6. Install the bolt.
7. *To install the TwinTeC seed outlet,*
place the guides **3** in the coulter bodies **4**.
8. Install the bolt.
9. Install the hose.

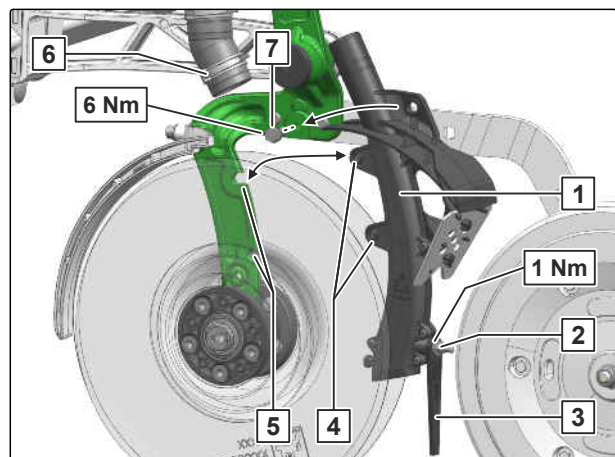


CMS-I-00003260

The TwinTeC coulter does not guide the seed precisely into the furrow

CMS-T-00006594-C.1

1. Remove the hose **6**
or
Remove the Y-piece.
2. Remove the bolt **7**.
3. Remove the TwinTeC seed outlet **1**.
4. Remove the bolt **2**.
5. Replace the guide extension **3**.
6. Install the bolt.
7. *To install the TwinTeC seed outlet,*
place the guides **4** in the coulter bodies **5**.



CMS-I-00003242

8. Install the bolt.
9. Install the hose.

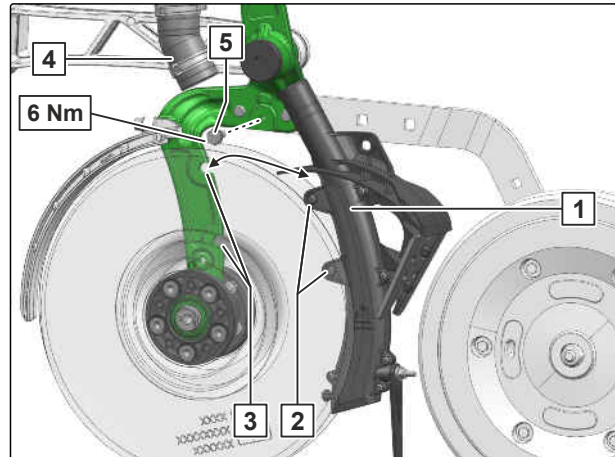
The TwinTeC coulter is not spreading seed

CMS-T-00006601-B.1

1. *If the blockage cannot be removed from below,*
Remove the hose **4**

or

Remove the Y-piece.
2. Remove the bolt **5**.
3. Remove the seed outlet **1**.
4. Clean the seed outlet.
5. *To install the seed outlet,*
place the guides **2** in the coulter bodies **3**.
6. Install the bolt.
7. Install the hose.



CMS-I-00003246

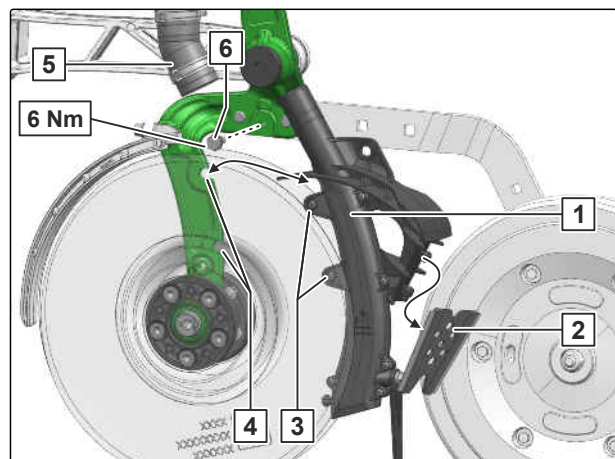
TwinTeC concave disc blocked

CMS-T-00006595-B.1

1. Remove the hose **5**

or

Remove the Y-piece.
2. Remove the bolt **6**.
3. Remove the TwinTeC seed outlet **1**.
4. Replace the inner scraper **2**.
5. Install the bolt.
6. *To install the TwinTeC seed outlet,*
place the guides **3** in the coulter bodies **4**.



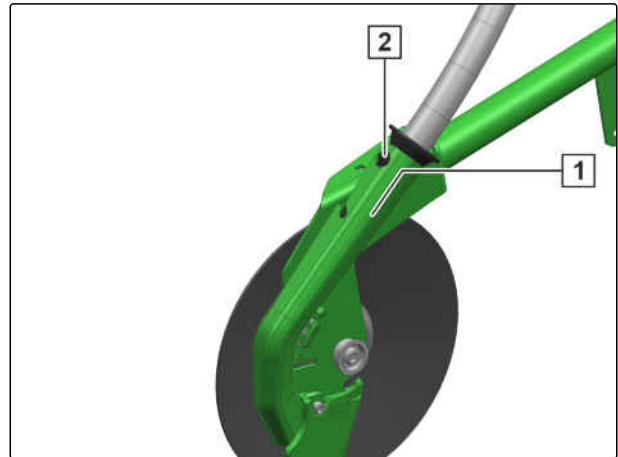
CMS-I-00003245

7. Install the bolt.
8. Install the hose.

The RoTeC coulter is not spreading seed

CMS-T-00007580-A.1

1. *If the blockage cannot be removed from below,*
Remove the conveyor hose **2**.
2. Clean the seed outlet **1** from above.
3. Install the conveyor hose.



CMS-I-00004767

The fan speed displayed on the control terminal or control computer is too high

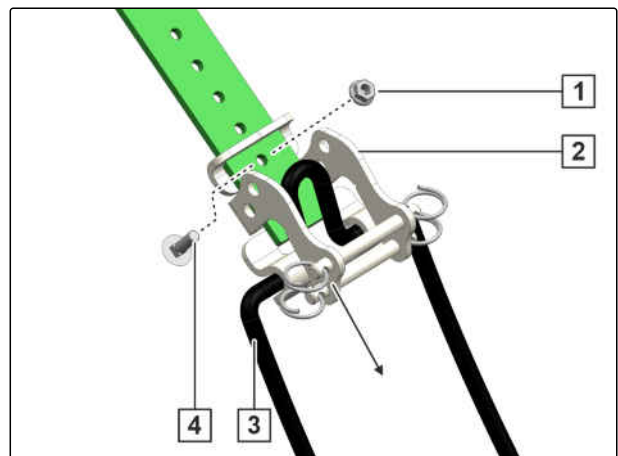
CMS-T-00007763-A.1

- *To adjust the fan speed,*
see "Setting the fan speed hydraulically"
- or
- see "Setting the fan speed manually".*

The coulter harrow does not cover the seed sufficiently with fine soil

CMS-T-00006604-A.1

1. Remove the nut **1**.
2. Remove the bolt **4**.
3. Remove the harrow bracket **2**.
4. Replace the harrow tines **3**.
5. Move the harrow bracket to the desired position.
6. Install the bolt.



CMS-I-00004632

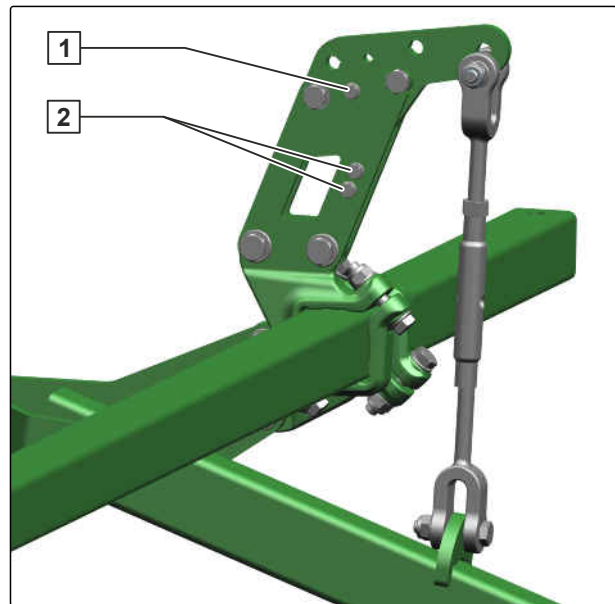
7. Install the nut and tighten it.
8. *To check the setting,*
seed for approx. 30 m at working speed and then
check the work pattern.

The exact following harrow does not cover the seed sufficiently with fine soil

CMS-T-00007581-A.1

The following actions must be performed to replace worn shear bolts **1**.

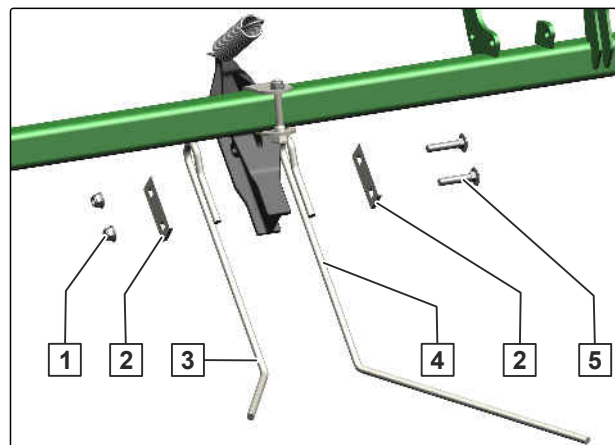
1. *To position the exact following harrow correctly,*
Lift the implement.
2. Remove the remainders of the torn shear bolt **1**.
3. Take out one of the spare shear bolts **2**.
4. Install the spare shear bolt with washers and nut at position **1**.



CMS-I-00004678

The following actions must be performed when the harrow tines are worn.

1. Remove the nuts **1**.
2. Remove the bolts **5** and plates **2**.
3. Replace the harrow tines **3** and **4**.
4. Install the plates and bolts.
5. Install the nuts and tighten them.



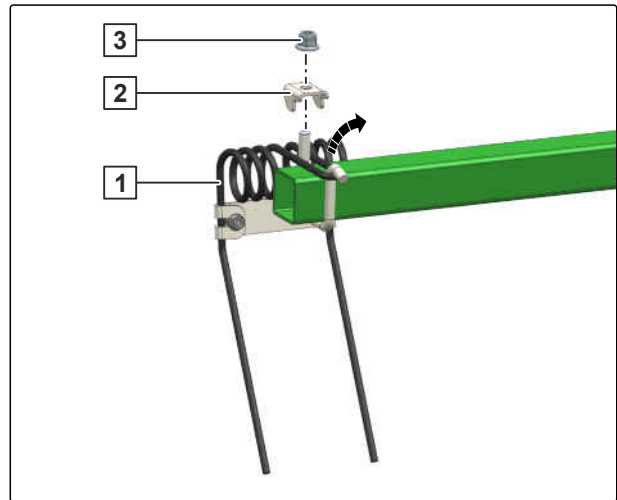
CMS-I-00004677

The roller harrow does not cover the seed sufficiently with fine soil

CMS-T-00007582-A.1

The following instructions must be followed when a harrow tine is worn.

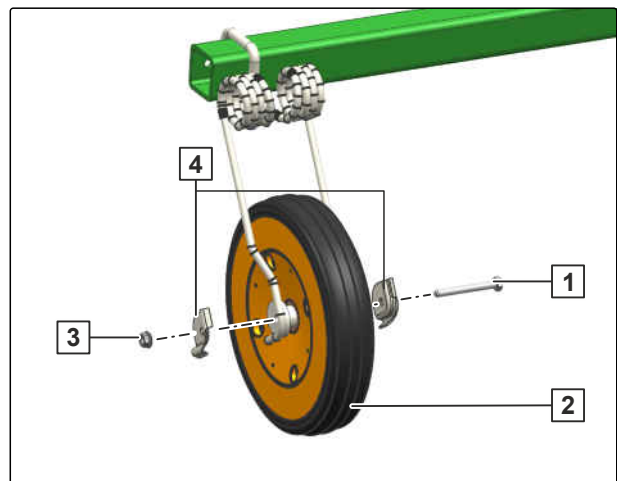
1. Remove the nut **3**.
2. Remove the plate **2**.
3. Replace the harrow tines **1**.
4. Install the plate.
5. Install the nut and tighten it.



CMS-I-00005330

The following instructions must be followed when a roller is damaged.

1. Remove the nut **3**.
2. Remove the bolt **1**.
3. Remove the plates **4**.
4. Replace the roller **2**.
5. Install the plates.
6. Install the bolt.
7. Install the nut and tighten it.



CMS-I-00005332

Parking the implement

9

CMS-T-00007461-A.1

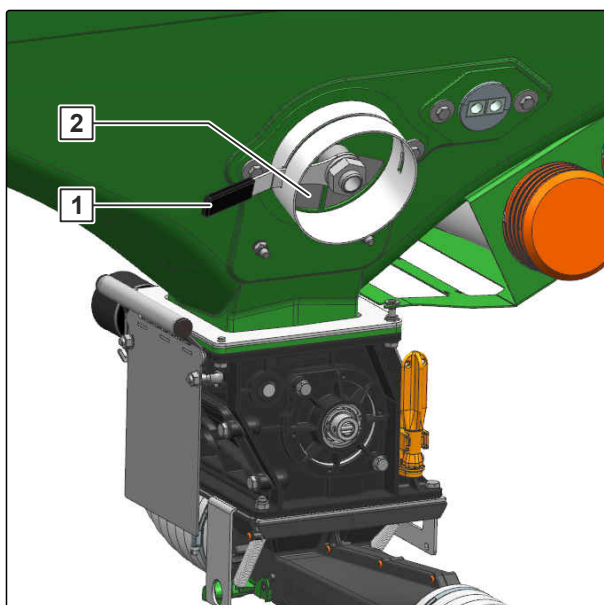
9.1 Emptying the hopper

CMS-T-00007540-A.1

9.1.1 Emptying the hopper via the quick emptying

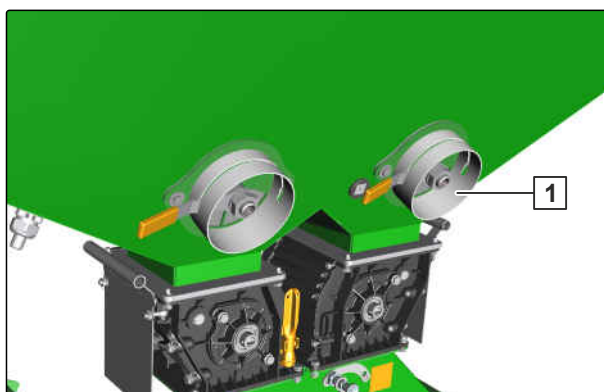
CMS-T-00007541-A.1

1. Switch off the fan.
2. *To start the quick emptying,*
actuate the lever **1**.
- ➔ The flap will be opened **2**.
3. Collect the residual quantity in a collection bucket.
4. *When the seed hopper is emptied,*
Close the quick emptying.



CMS-I-00005305

5. *If the implement is equipped with a two-chamber hopper,*
repeat the procedure for the second quick emptying **1**.

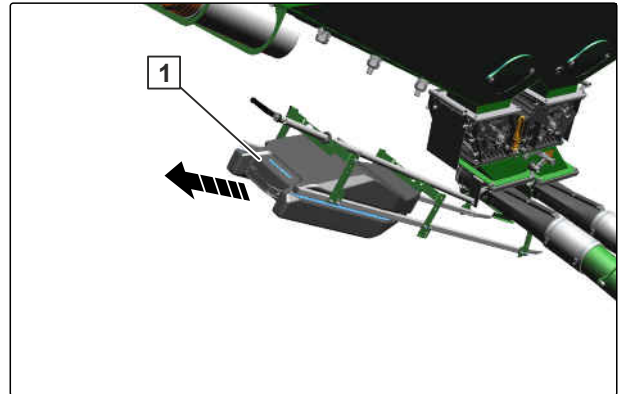


CMS-I-00006392

9.1.2 Emptying the hopper via the metering unit

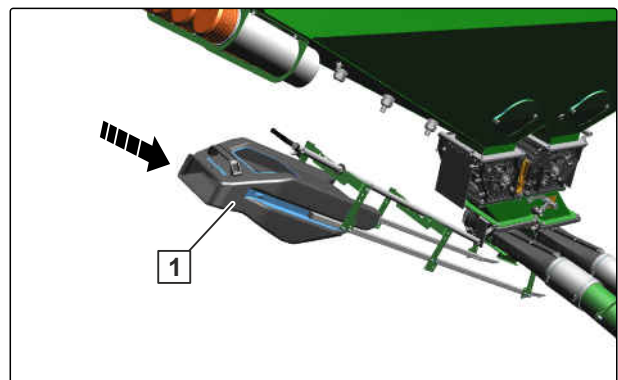
CMS-T-00007543-A.1

1. Take the calibration bucket **1** from the guide rails.



CMS-I-00006368

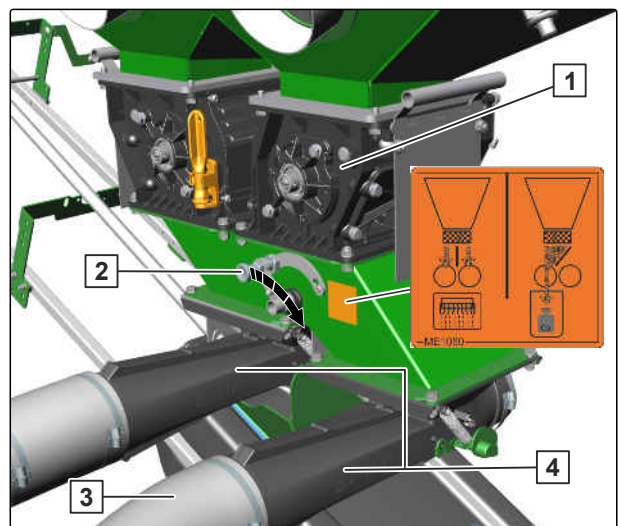
2. Turn the calibration bucket **1** and slide it into the guide rails.



CMS-I-00006373

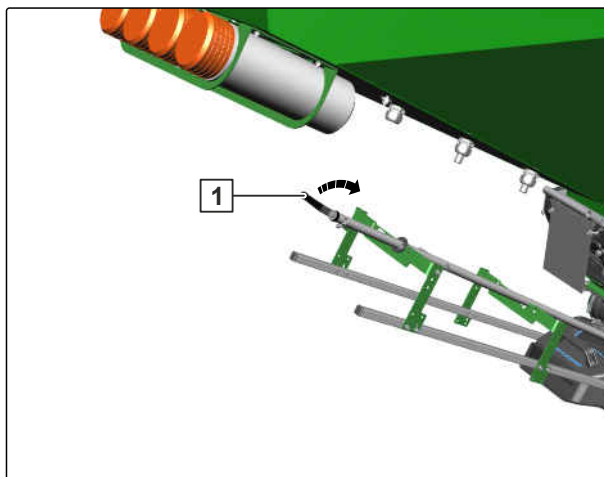
3. *If the implement has two injectors **4** and two metering units **1**,* deactivate the conveyor section **3** with the lever **2**.

➔ The seed from both metering units can now be collected in the calibration bucket.



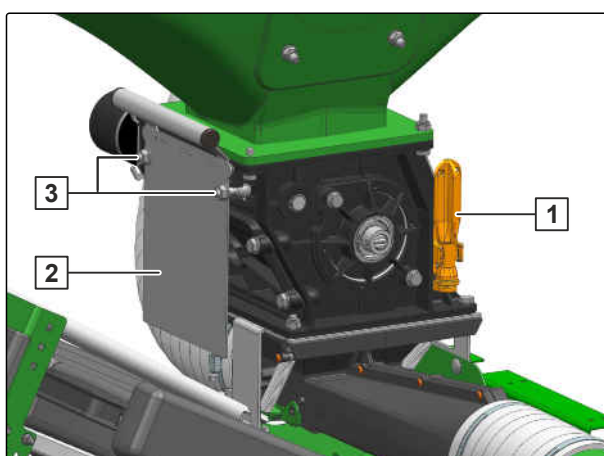
CMS-I-00006398

4. Open the calibration flap with the lever **1**.



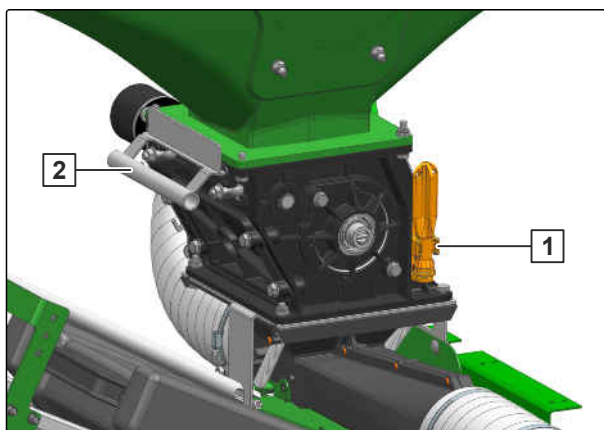
CMS-I-00006375

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



CMS-I-00005255

8. Push the sliding shutter **2** into the metering housing.
9. Park the socket wrench in the holder **1**.
10. *To empty the metering unit and the metering roller, refer to the ISOBUS software operating manual, "Emptying".*

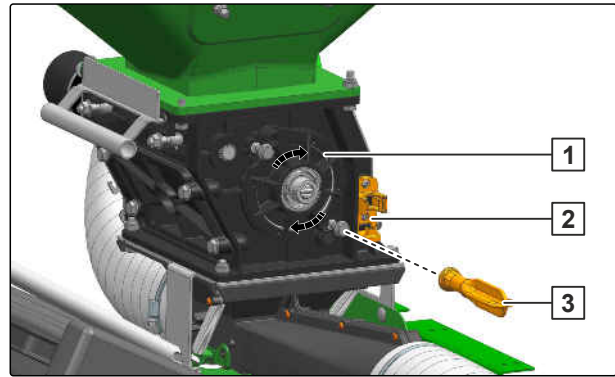


CMS-I-00005259

11. Loosen the bolts with the socket wrench **3**.

12. Park the socket wrench in the holder **2**.

13. Turn the bearing cover **1**.

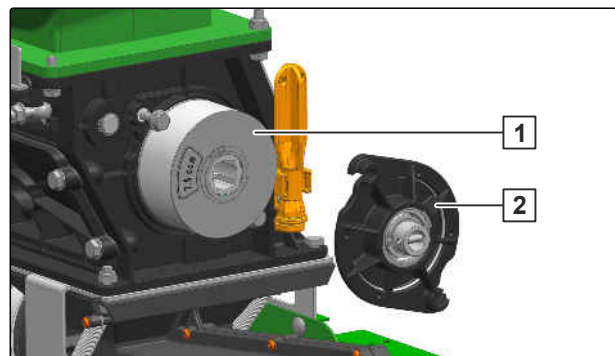


CMS-I-00005253

14. Pull off the bearing cover **2**.

15. *When the hopper is closed off with the sliding shutter,*
pull the metering roller **1** out of the metering unit.

16. Pull the sliding shutter out of the metering housing.



CMS-I-00005256

17. Collect the residual quantity.

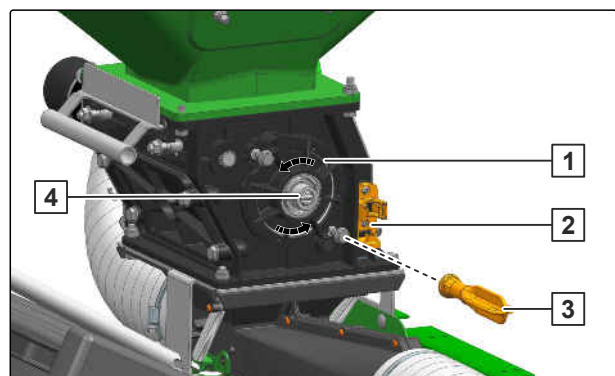
18. *When the hopper is empty,*
reinstall the metering roller.

19. Align the catch **4** on the bearing cover **1** with the drive shaft.

20. Install the bearing cover.

21. Tighten the bolts with the socket wrench **3**.

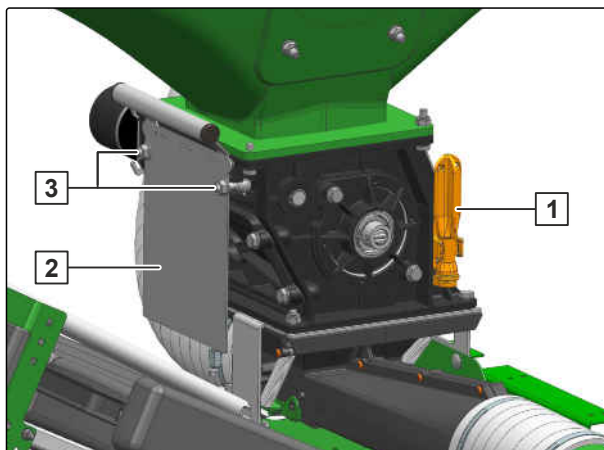
22. Park the socket wrench in the holder **2**.



CMS-I-00005254

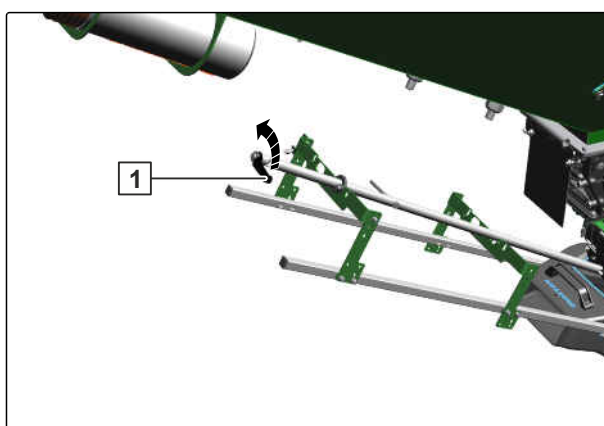
9 | Parking the implement Emptying the hopper

23. Park the sliding shutter **1** on the metering housing.
24. Swivel the bolts **3** in front of the sliding shutter.
25. Tighten the bolts with the socket wrench **2**.
26. *If the implement has two metering units,* empty the second metering unit **1** as well.



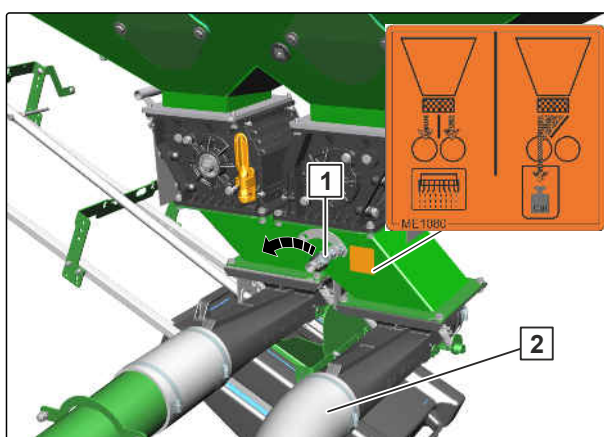
CMS-I-00005255

27. Close the calibration flap with the lever **1**.



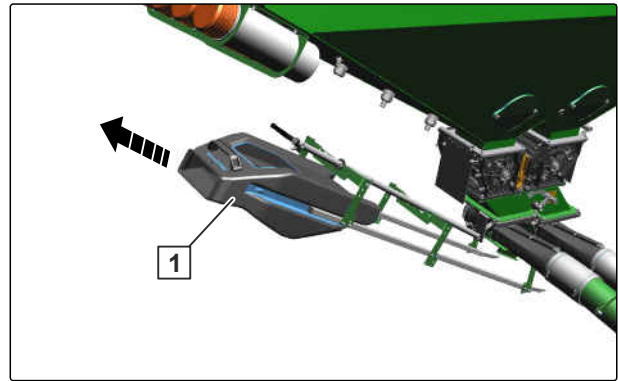
CMS-I-00006381

28. Activate the conveyor section **2** with the lever **1**.



CMS-I-00006490

29. Take the calibration bucket **1** from the guide rails.
30. Empty the calibration bucket.
31. Turn the calibration bucket.
32. Slide the calibration bucket into the guide rails and put in parking position.



CMS-I-00006377

9.2 Emptying the metering unit

CMS-T-00007539-A.1

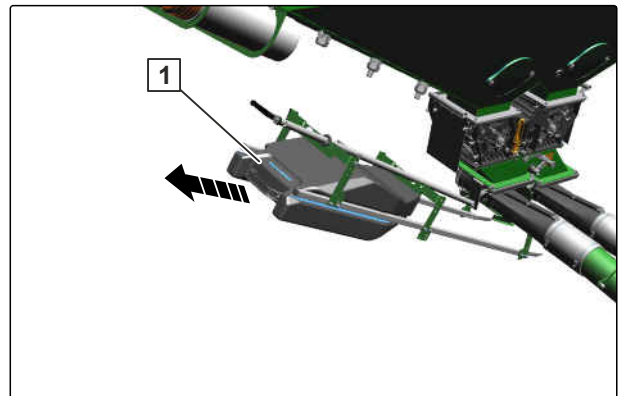


IMPORTANT

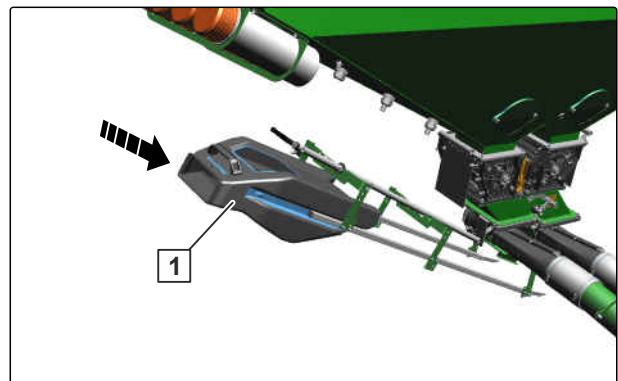
Risk of damage to the metering drive due to swelling fertiliser or germinating seed.

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

1. Switch off the fan.
2. Take the calibration bucket **1** from the guide rails.
3. Slide the calibration bucket **1** into the guide rails.



CMS-I-00006368

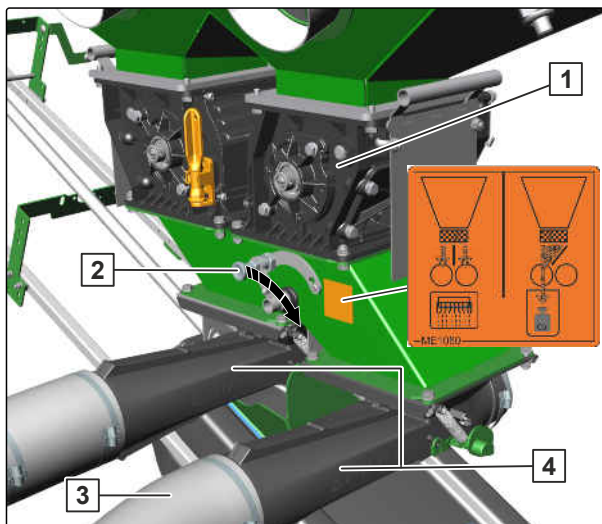


CMS-I-00006373

9 | Parking the implement Emptying the metering unit

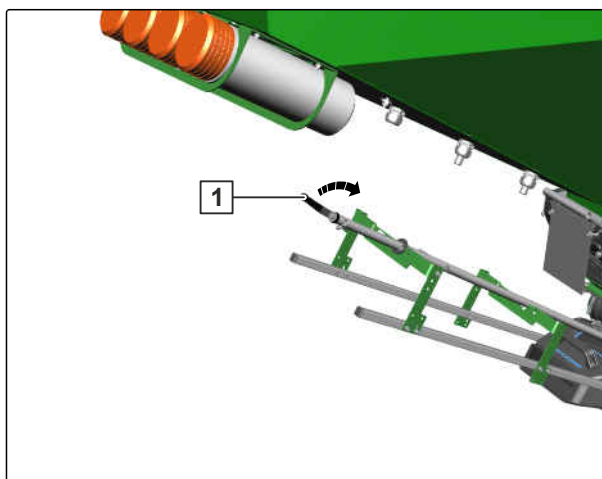
4. *If the implement has two injectors* **4** *and two metering units* **1**, deactivate the conveyor section **3** with the lever **2**.

➔ The seed from both metering units can now be collected in the calibration bucket.



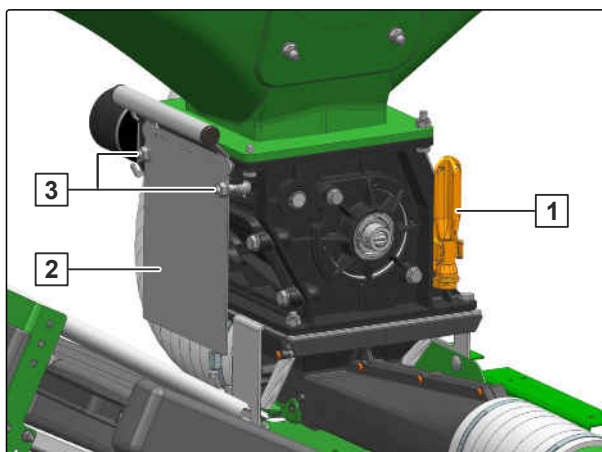
CMS-I-00006398

5. *To remove seed residues from the metering unit housing,* open the calibration flap with the lever **1**.



CMS-I-00006375

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

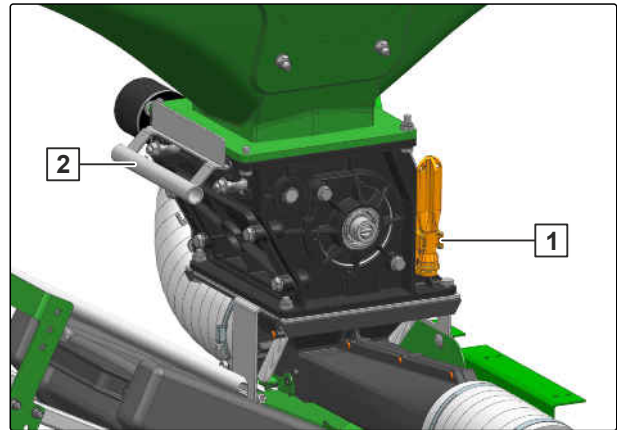


CMS-I-00005255

9. Push the sliding shutter **2** into the metering unit housing.
10. Park the socket wrench in the holder **1**.
11. *To empty the metering unit and the metering roller,*
refer to the ISOBUS software operating manual,
"Emptying"

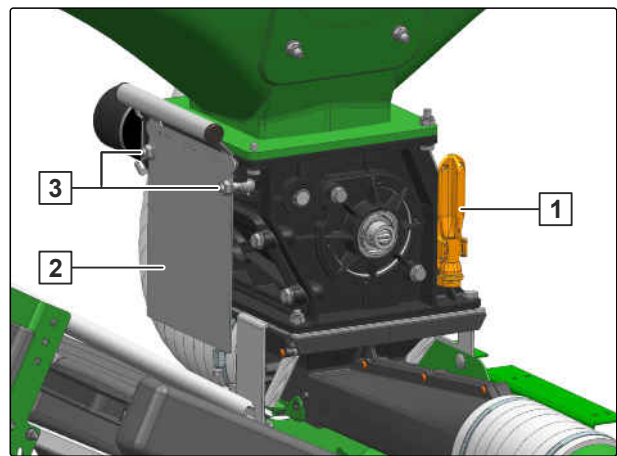
or

see "control computer" operating manual.



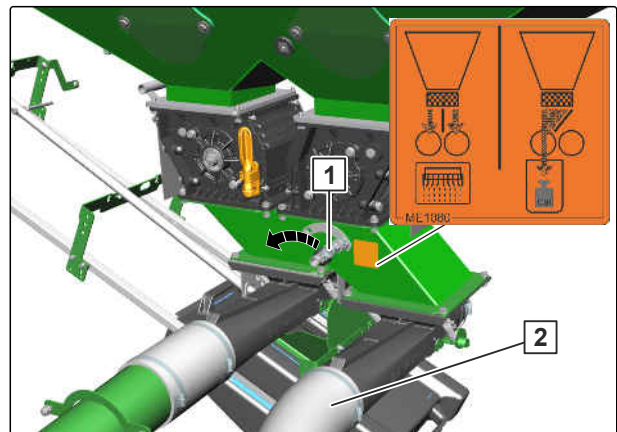
CMS-I-00005259

12. *Before work is started again,*
park the sliding shutter **2** on the metering unit housing.
13. Swivel the bolts **3** in front of the sliding shutter.
14. Tighten the bolts with the socket wrench **1**.
15. *If the implement has two metering units,*
empty the second metering unit **1** as well.



CMS-I-00005255

16. Activate the conveyor section **2** with the lever **1**.

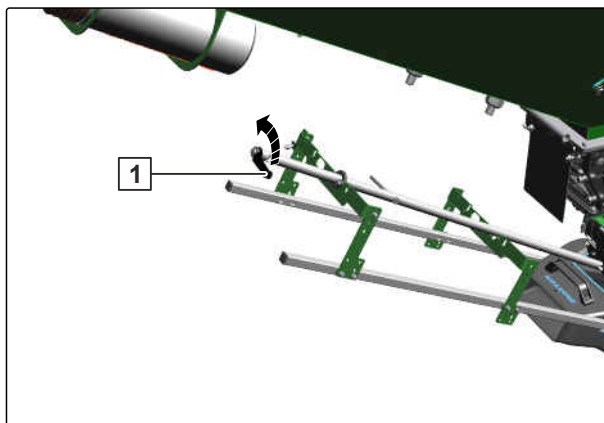


CMS-I-00006490

9 | Parking the implement

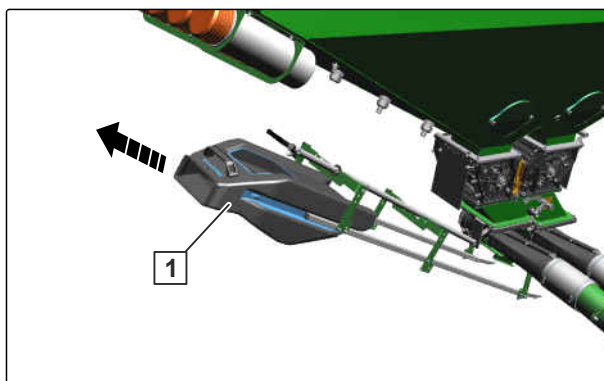
Disconnecting the hydraulic hose lines

17. To close the calibration flap, actuate the lever **1**.



CMS-I-00006381

18. Take the calibration bucket **1** from the guide rails.
19. Empty the calibration bucket.
20. Turn the calibration bucket.
21. Slide the calibration bucket into the guide rails and put in parking position.

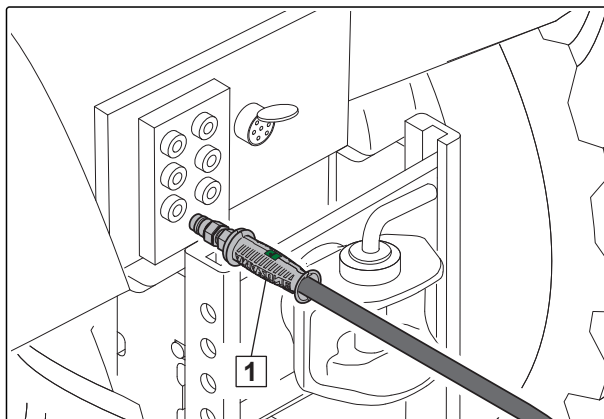


CMS-I-00006377

9.3 Disconnecting the hydraulic hose lines

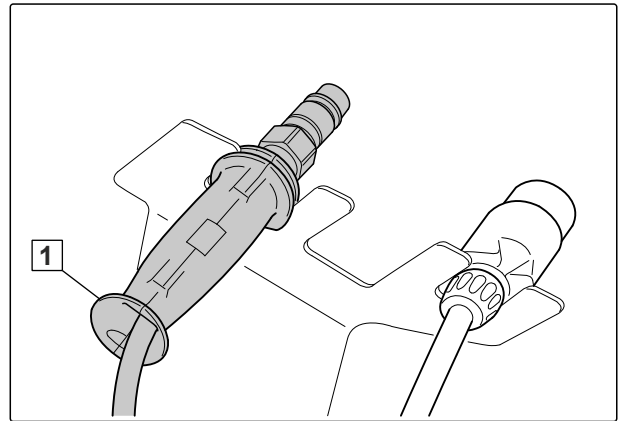
CMS-T-00000277-E.1

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.

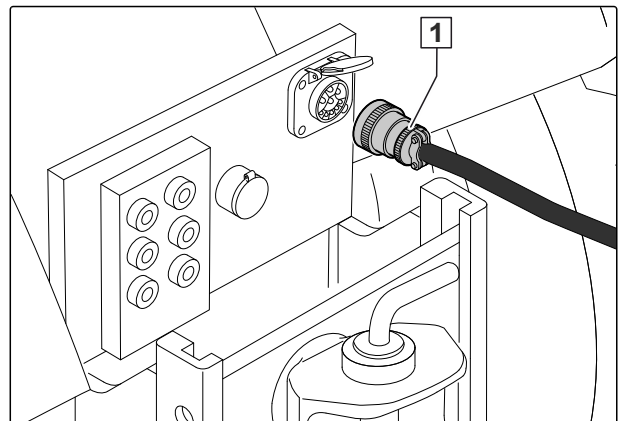


CMS-I-00001250

9.4 Uncoupling the ISOBUS line

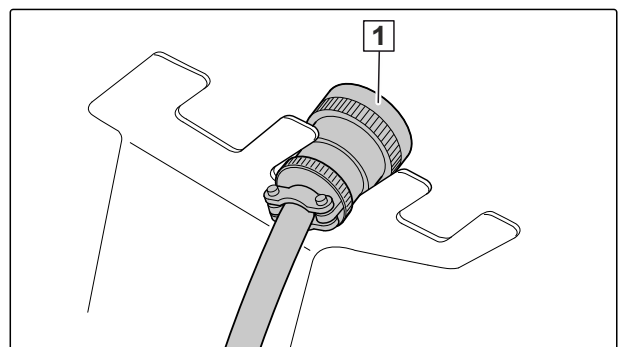
CMS-T-00006174-C.1

1. Unplug the connector **1** of the ISOBUS line.



CMS-I-00004333

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

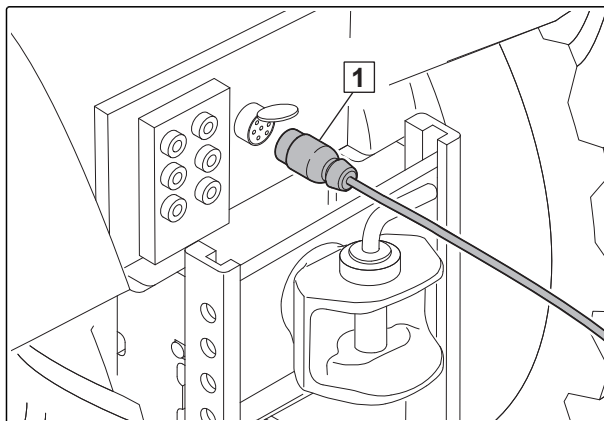


CMS-I-00004414

9.5 Uncoupling the power supply

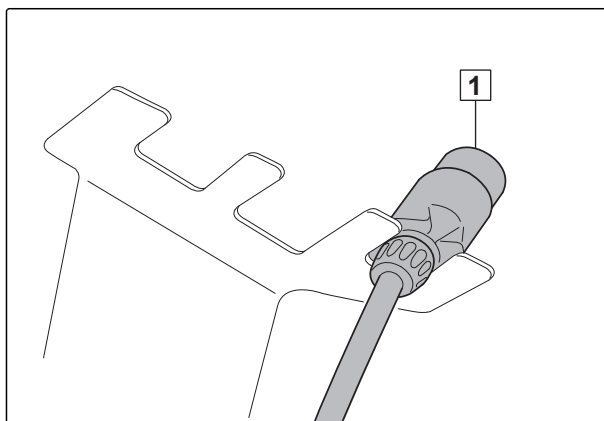
CMS-T-00001402-F.1

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



CMS-I-00001048

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

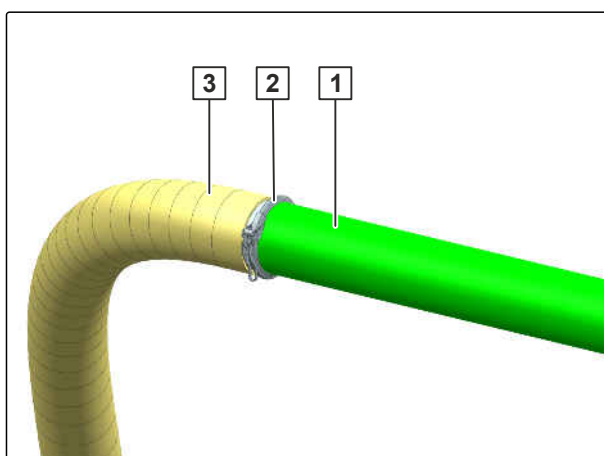


CMS-I-00001248

9.6 Uncoupling the FTender conveyor line

CMS-T-00007864-A.1

1. Open the clamp **2**.
2. Remove the connector **3** from the conveyor line **1**.



CMS-I-00005374

9.7 Uncoupling the seeding combination

CMS-T-00007462-A.1



WARNING

Risk of injury or even death due to tipping over of the implement

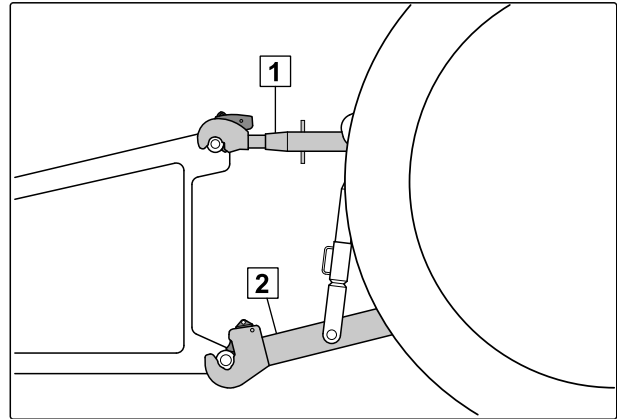
- ▶ Park the implement on stable and even ground.



WARNING

Risk of injury or even death due to tipping over of the seeding combination

- ▶ *Since the parking supports are not designed for the coupled seeding combination, set only the pack top seed drill down onto the parking supports.*



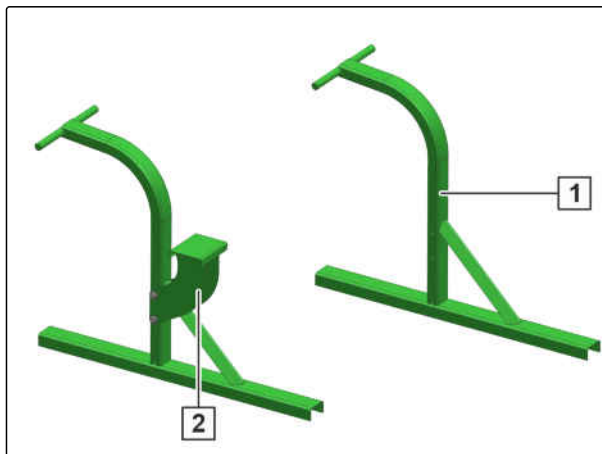
CMS-I-00001249

1. Release the top link **1**.
2. Disconnect the top link **1** from the implement from the tractor seat.
3. Release the lower links **2**.
4. *To secure the Centaya seeding combination against rolling away, put 2 pieces of squared timber with a size of at least 80 mm x 80 mm in front of and behind the roller of the soil tillage implement.*
5. Uncouple the lower link **2** from the implement from the tractor seat.
6. Drive the tractor forward.

9.8 Parking the Centaya pack top seed drill

CMS-T-00007463-A.1

Parking support **1** for implements with RoTeC Pro coulters. Parking support **2** for implements with TwinTeC coulters.

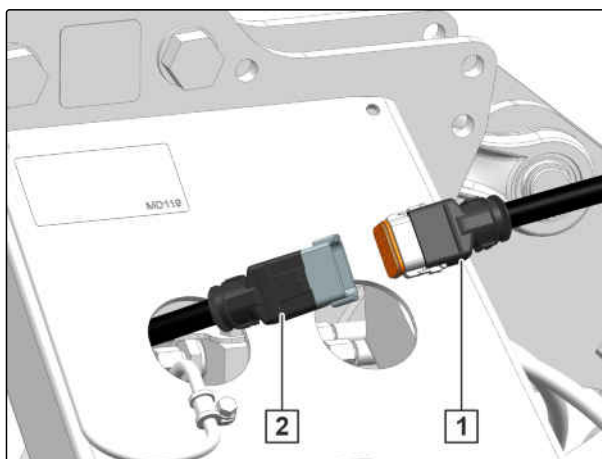


CMS-I-00004939

1. *To set the coulter pressure to 0,*
see section "Adjusting the coulter pressure hydraulically"

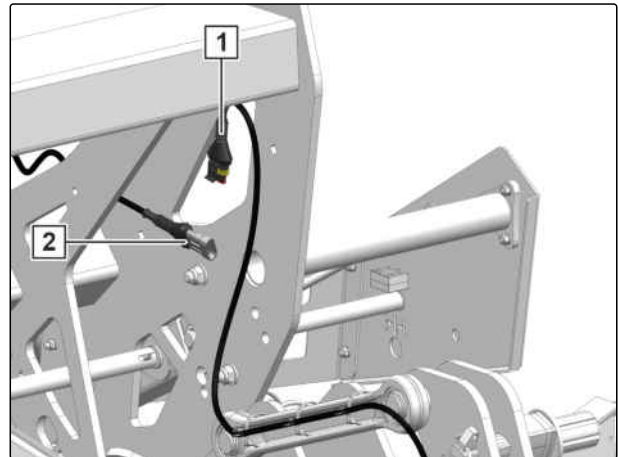
or

Section "Adjusting the coulter pressure mechanically".
2. *To set the placement depth to 0,*
see section "Adjusting the placement depth on the TwinTeC coulter".
3. Disconnect the supply line **1** from the soil tillage implement **2**.



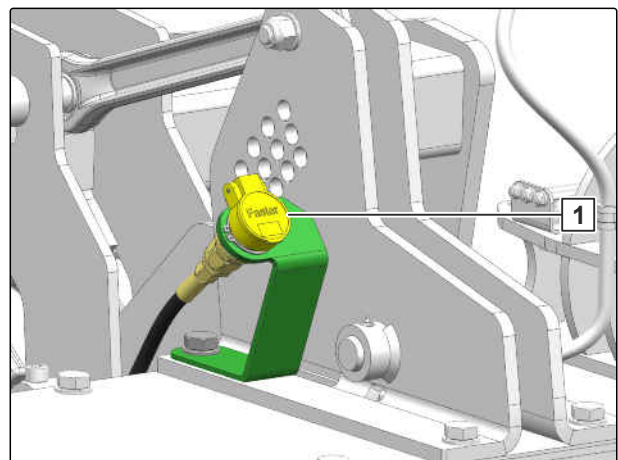
CMS-I-00004528

4. Disconnect the supply line **2** for the rear lighting and identification from the soil tillage implement **1**.



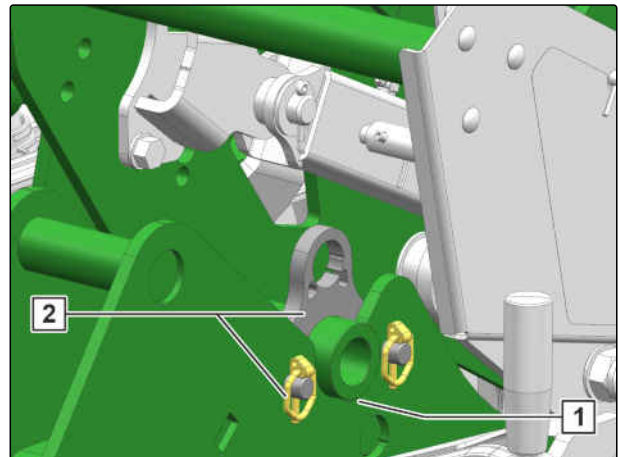
CMS-I-00004527

5. *If the pack top seed drill has a tramline marker,* disconnect the supply line of the pack top seed drill from the soil tillage implement **1**.



CMS-I-00003485

6. Remove the safety clips **2** from all of the brackets **1**.



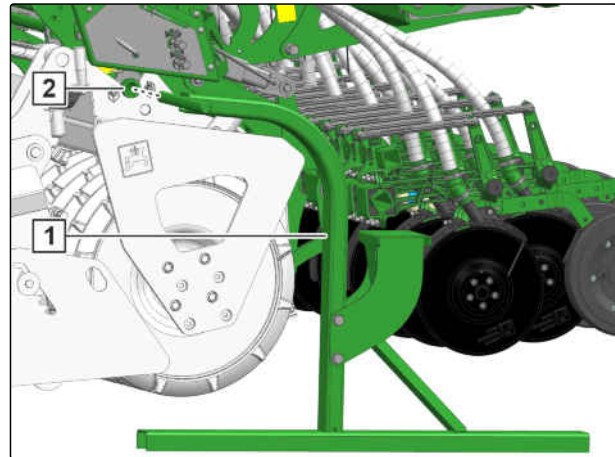
CMS-I-00003593

WARNING

The parking supports do not have a locking device.

The parking supports can fall out of the mount while driving.

- Remove the parking supports.



CMS-I-00004938

7. Install the parking supports **1** on the implement **2** on both sides.

8. Park the soil tillage implement with the coupled pack top seed drill.

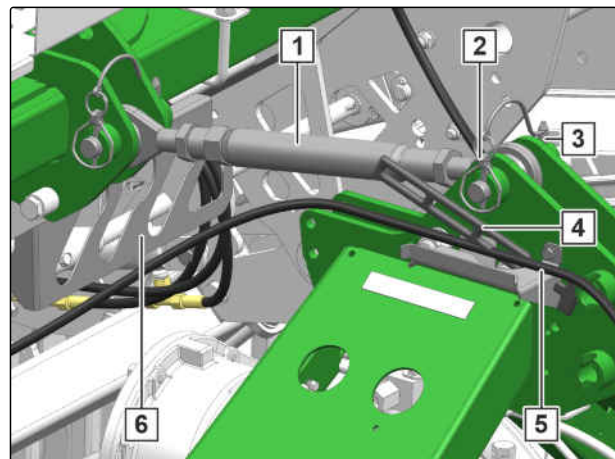
9. Remove the linch pin **2**.

10. Remove the pin **3**.

11. Disconnect the top link **1** from the soil tillage implement.

12. Release the holder **4**.

13. Take the hydraulic hose lines out of the guide **5** and place them in the hose cabinet **6**.



CMS-I-00004526

14. Disconnect the supply line for the job computer from the hose package and place it in the hose cabinet

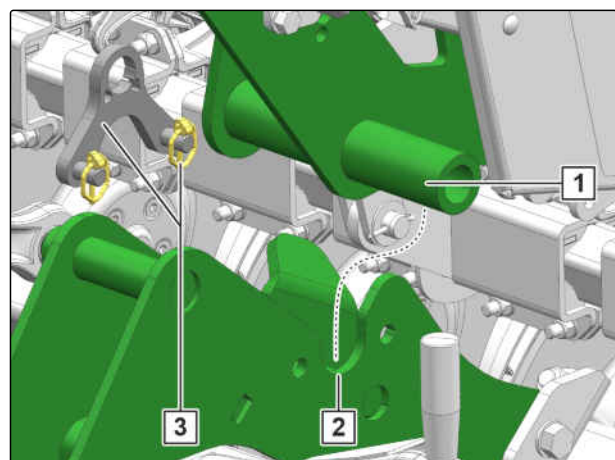
15. Disconnect the supply line for the job computer from the tractor and place it in the hose cabinet

16. *To park the implement on a level surface with solid ground,*
Slowly lower the soil tillage implement.

- ➔ The catching sockets **2** of the soil tillage implement are lowered.

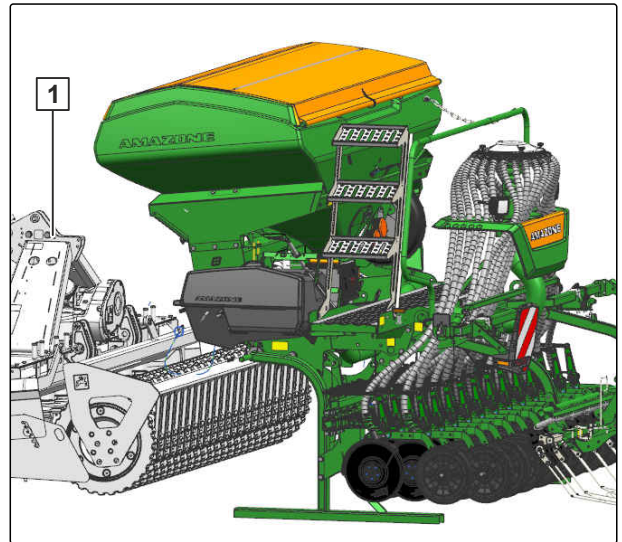
- ➔ The pack top seed drill **1** is standing on the parking supports.

17. Install the safety clips **3** on the soil tillage implement.



CMS-I-00003590

18. Slowly drive the tractor with the coupled soil tillage implement **1** forward.



CMS-I-00005145

Repairing the implement

10

CMS-T-00007477-A.1

10.1 Maintaining the implement

CMS-T-00007478-A.1

10.1.1 Maintenance schedule

After initial operation	
Checking the tightening torque for the radar sensor bolts	see page 145
Checking the hydraulic hose lines	see page 150
After the first 50 operating hours	
Cleaning the 1-chamber hopper	see page 139
Cleaning the 2-chamber hopper	see page 140
Cleaning the hand wash tank	see page 142
Cleaning the conveyor section	see page 142
at the end of the season	
Checking the RoTeC depth control discs and RoTeC depth control wheels	see page 137
as required	
Cleaning the 1-chamber hopper	see page 139
Cleaning the 2-chamber hopper	see page 140
Cleaning the hand wash tank	see page 142
Cleaning the conveyor section	see page 142
daily	
Cleaning the metering unit	see page 145
Checking the top link pin and lower link pin	see page 149

Every 12 months	
Checking the tightening torque for the radar sensor bolts	see page 145
Every 10 operating hours / daily	
Cleaning the segment distributor head	see page 144
Cleaning the cyclone separator	see page 149
Every 50 operating hours / weekly	
Checking the TwinTeC concave disc	see page 133
Checking the TwinTeC concave disc spacing	see page 134
Checking the TwinTeC depth control wheel	see page 135
Checking the TwinTeC depth control wheel scraper	see page 136
Checking the cutting discs	see page 138
Checking the hydraulic hose lines	see page 150
Checking the RoTeC furrow former	see page 151

10.1.2 Checking the TwinTeC concave disc

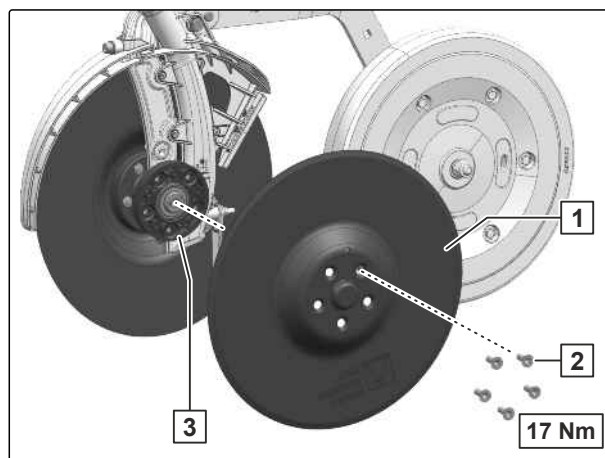
CMS-T-00004452-C.1



INTERVAL

- Every 50 operating hours
or
weekly

1. Determine the concave disc diameter.
2. *If the diameter of the TwinTeC concave discs is smaller than 300 mm, replace the TwinTeC concave discs.*
3. Remove the bolts **2**.
4. Remove worn TwinTeC concave discs **1**.
5. Pay attention to the orientation of the sealing ring **3**.
6. Install new TwinTeC concave discs.
7. *To ensure that the TwinTeC concave discs touch slightly, see section "Checking the TwinTeC concave disc spacing".*



CMS-I-00003233

10.1.3 Checking the TwinTeC concave disc spacing

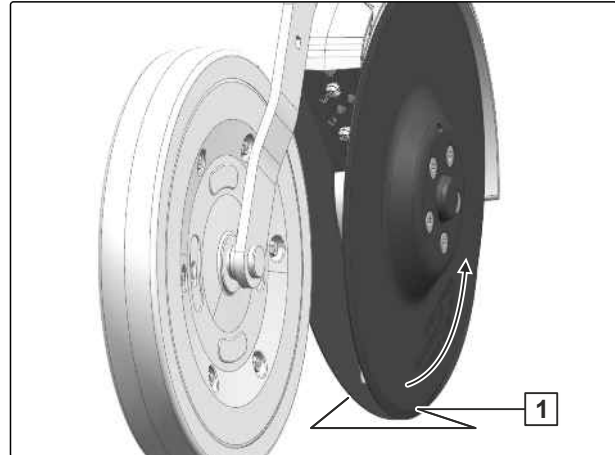
CMS-T-00004447-C.1



INTERVAL

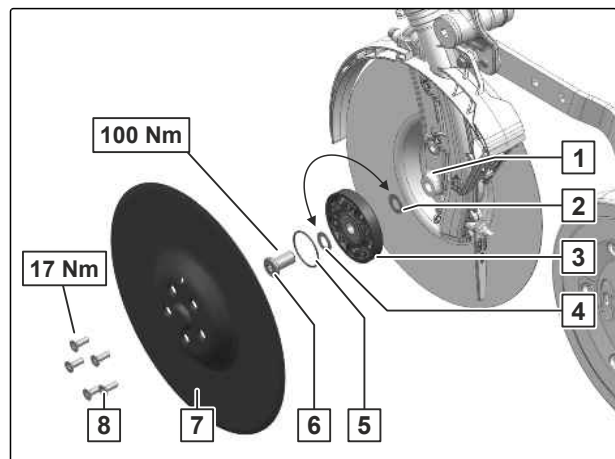
- Every 50 operating hours
or
weekly

1. Rotate the TwinTeC concave disc **1**.
- ➔ The opposite disc rotates along. The spacing is correctly set.
2. *If the opposite disc does not rotate along,* adjust the concave disc spacing.



CMS-I-00003244

3. Remove the bolts **8**.
4. Remove the TwinTeC concave disc **7**.
5. Remove the sealing ring **5**.
6. Remove the central bolts **6**.



CMS-I-00003234



NOTE

The central bolts have different threads:

- The right central bolt has right-hand thread
- The left central bolt has left-hand thread

7. *To ensure that the TwinTeC concave discs touch slightly,* adjust the spacing of the TwinTeC concave discs with the spacer discs **4** and **2**.
8. Install spacer discs that are not required on the opposite side of the concave disc bearing **3** with the central bolt.
9. Install the concave disc bearing on the coulter **1**.
10. Install the central bolt.

11. *Check the sealing ring before installation.
Replace in case of damage.
Install the sealing ring.*
12. Install the TwinTeC concave disc.
13. Install the bolts.

10.1.4 Checking the TwinTeC depth control wheel

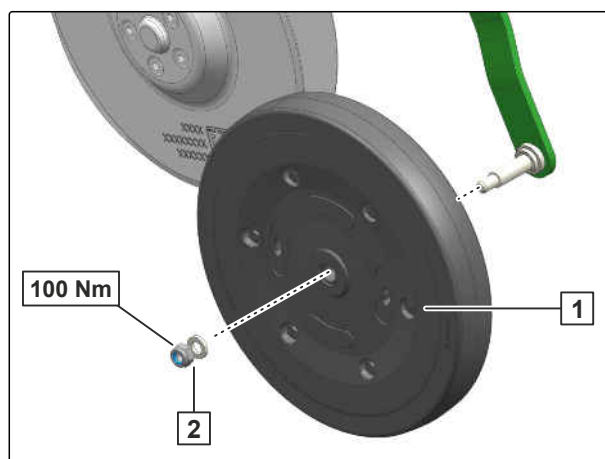
CMS-T-00004451-C.1



INTERVAL

- Every 50 operating hours
or
weekly

1. Check the TwinTeC depth control wheel **1**.
2. *If the TwinTeC depth control wheel has cracks or fractures,*
replace the depth control wheel.
3. Remove the nut and washer **2**.
4. Replace the damaged TwinTeC depth control wheel.
5. Install the nut and washer.



CMS-I-00003243

10.1.5 Checking the TwinTeC depth control wheel scraper

CMS-T-00004989-C.1



INTERVAL

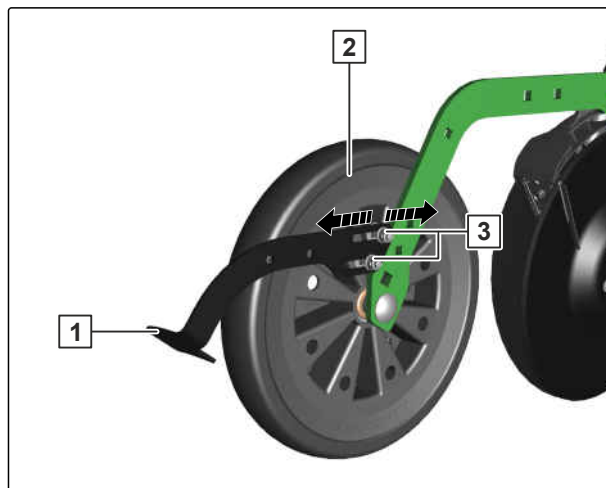
- Every 50 operating hours
or
weekly



IMPORTANT

Damage to the wheel due to abrasion by the scraper

- *To check the distance, rotate the wheel*



CMS-I-00006164

1. Lift the implement.
2. *To check the distance of the TwinTeC depth control wheel scraper* **1**, rotate the wheel **2**.
3. *If the distance is larger or smaller than 3 mm, loosen the nut* **3**.
4. Adjust the TwinTeC depth control wheel scraper **1**.
5. Tighten the nut.
6. *To check the distance, Rotate the wheel again.*
7. *If the TwinTeC depth control wheel scraper cannot be readjusted any further, replace the press roller scraper.*
8. Remove the nut and washer.
9. Replace the TwinTeC depth control wheel scraper.
10. Install the washer and nut.
11. *To check the distance, rotate the wheel.*

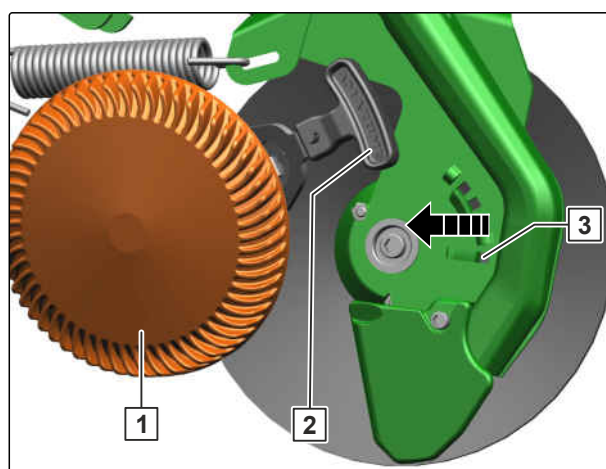
10.1.6 Checking the RoTeC depth control discs and RoTeC depth control wheels

CMS-T-00006349-B.1



INTERVAL

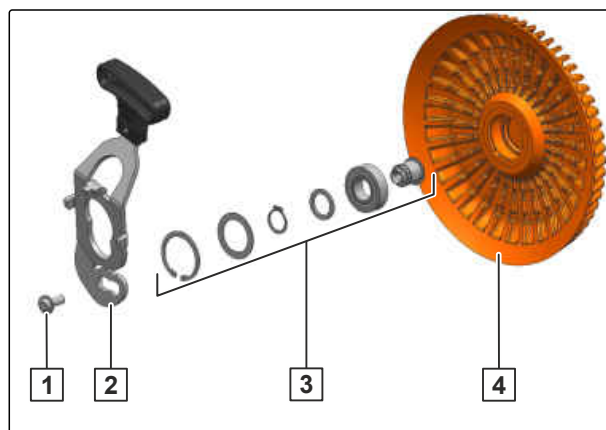
- at the end of the season
1. Check the RoTeC depth control discs or RoTeC depth control wheels for damage such as cracks or fractures.
 2. *If a RoTeC depth control disc or RoTeC depth control wheel is damaged,* replace the RoTeC depth control disc or RoTeC depth control wheel.
 3. *To remove the damaged RoTeC depth control disc or RoTeC depth control wheel* **1** *from the coulter,* press firmly against the RoTeC depth control disc or RoTeC depth control wheel, move the lever **2** all the way down and push it to the rear in the elongated slot **3** until the RoTeC depth control disc or RoTeC depth control wheel can be removed.



CMS-I-00004665

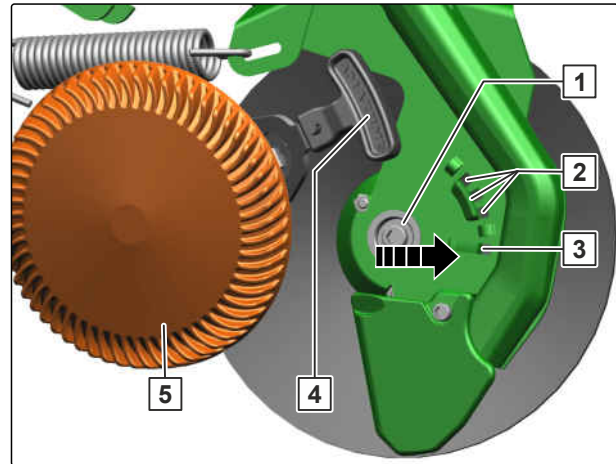
The removed unit consisting of RoTeC depth control disc or RoTeC depth control wheel **4** and lever **2** can be replaced as a whole or further disassembled. If only the RoTeC depth control disc or RoTeC depth control wheel should be replaced, the unit must be further disassembled as described in the following.

4. Remove the bolt **1**.
5. Take the axle, ball bearing, locking rings and locking washers **3** out of the worn RoTeC depth control disc or RoTeC depth control wheel and insert them in the new RoTeC depth control disc or RoTeC depth control wheel.
6. Install the lever **2** with the bolt **1** on the new RoTeC depth control disc or RoTeC depth control wheel **4**.



CMS-I-00004802

7. *To install the new RoTeC depth control disc or RoTeC depth control wheel [5] on the coulter, set the notch of the lever [4] on the bearing seat [1] of the cutting disc, press it firmly against the RoTeC depth control disc or RoTeC depth control wheel and pull the lever towards the front in the elongated slot [3] until the RoTeC depth control disc or RoTeC depth control wheel completely engages.*
8. *To adjust the placement depth, pull on the lever for the RoTeC depth control disc or RoTeC depth control wheel, move it up and engage it in the desired hole [2].*



CMS-I-00004836

10.1.7 Checking the cutting discs

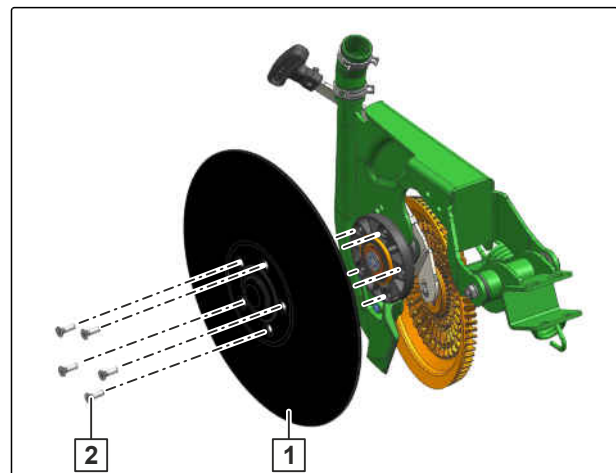
CMS-T-00007567-A.1



INTERVAL

- Every 50 operating hours
or
weekly

1. Determine the diameter of the cutting discs.
2. *If the diameter of a cutting disc is smaller than 365 mm, replace the cutting disc.*
3. *To replace the cutting disc, remove the bolts [2] on the front side of the cutting disc.*
4. Replace the worn cutting disc [1].
5. Install the bolts.



CMS-I-00005324

10.1.8 Cleaning the 1-chamber hopper

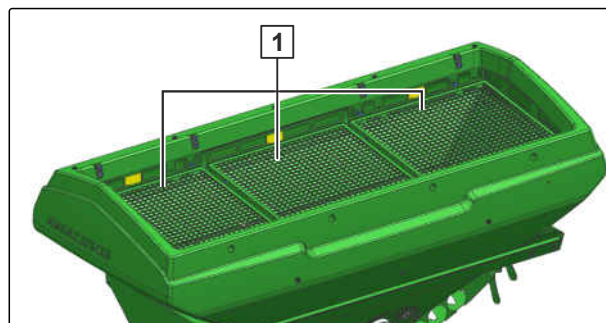
CMS-T-00007544-A.1



INTERVAL

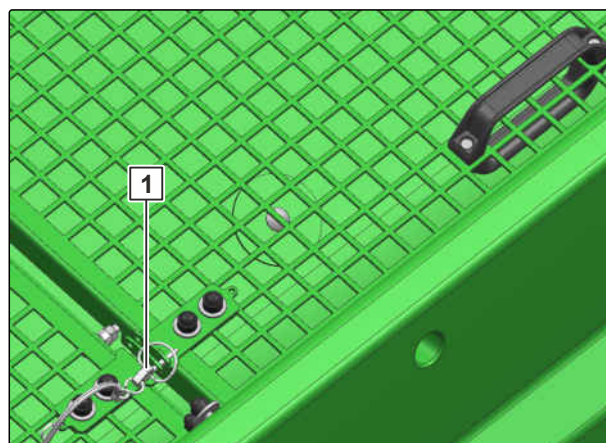
- After the first 50 operating hours
- as required

1. Open the roller tarpaulin.
2. Clean the charging sieve **1**.



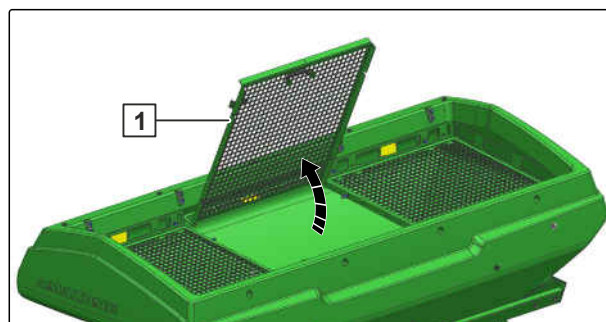
CMS-I-00005313

3. Remove the linch pin **1**.



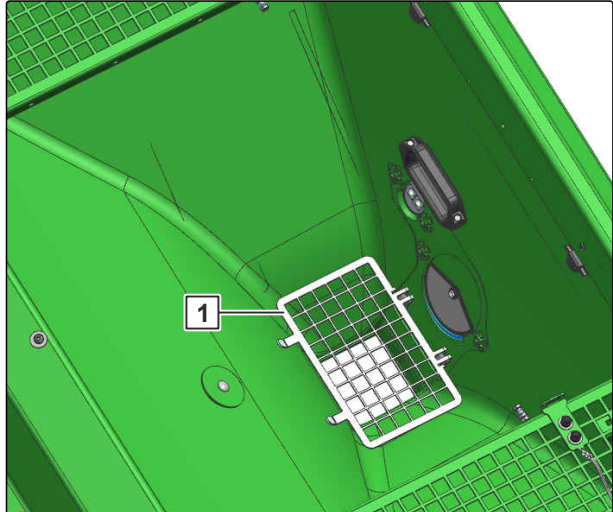
CMS-I-00005314

4. Open the charging sieve **1**.
5. Clean the hopper.



CMS-I-00005311

6. Clean the metering unit protective screen **1**.
7. Close the roller tarpaulin.



CMS-I-00005315

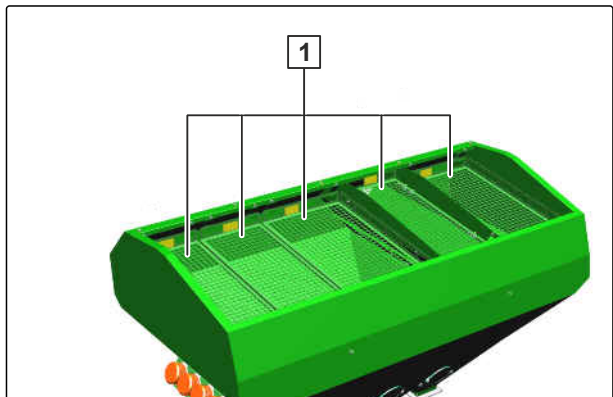
10.1.9 Cleaning the 2-chamber hopper

CMS-T-00009345-A.1

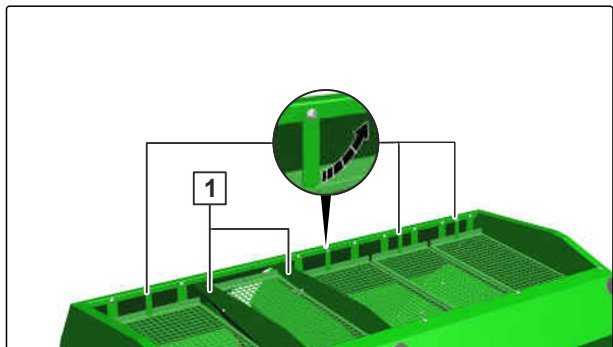


INTERVAL

- After the first 50 operating hours
 - as required
1. Open the roller tarpaulin.
 2. Clean the charging sieve **1**.
 3. *To be able to take out the charging sieves beside the partition walls **1**, fold up the fasteners.*
 4. Take out the charging sieves.
 5. Clean the right and left hopper chambers.

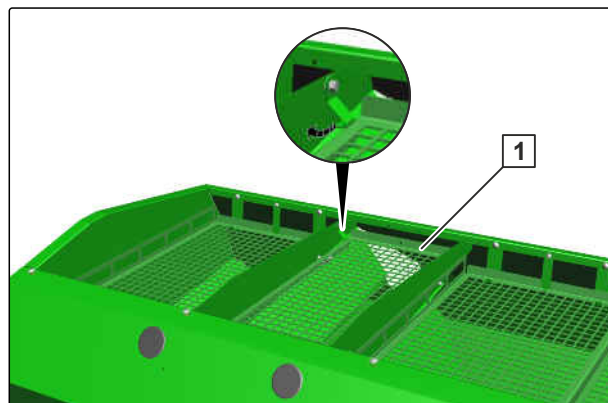


CMS-I-00006402



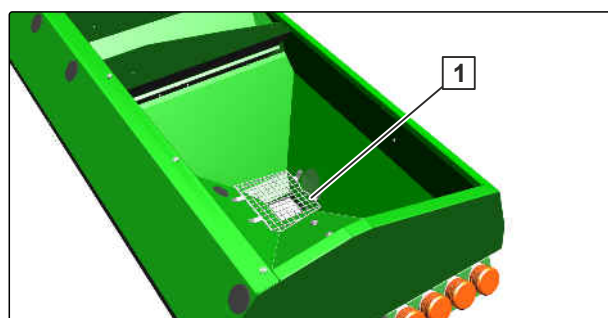
CMS-I-00006419

6. *To be able to remove the charging sieve from the hopper chamber to adjust the volume, fold up the fastener.*
7. Take out the charging sieves.
8. Take out the partition wall.
9. Clean the hopper chamber.



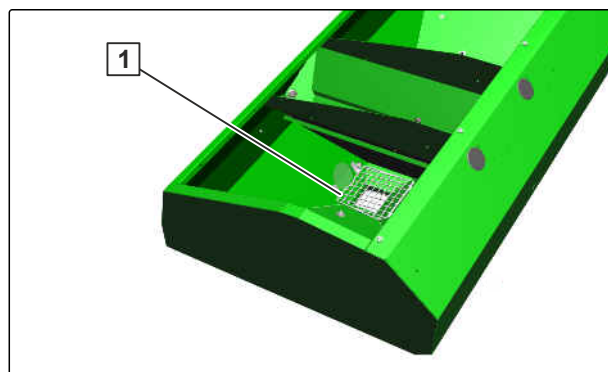
CMS-I-00006420

10. Clean the metering unit protective screen **1** in the right hopper chamber.



CMS-I-00006421

11. Clean the metering unit protective screen **1** in the left hopper chamber.
12. Install the partition wall.
13. Install the charging sieve.
14. Secure the charging sieve.
15. Close the roller tarpaulin.



CMS-I-00006422

10.1.10 Cleaning the hand wash tank

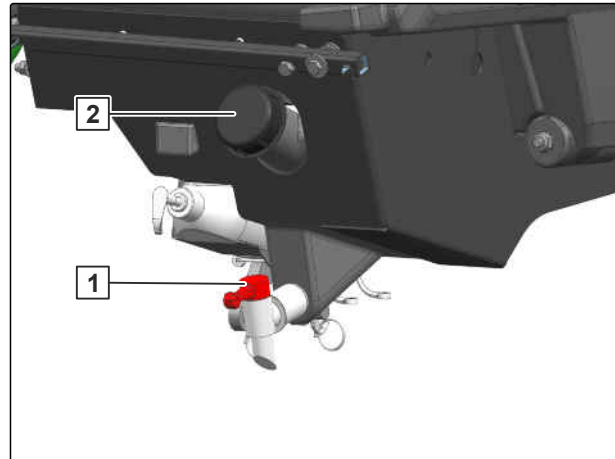
CMS-T-00007691-A.1



INTERVAL

- After the first 50 operating hours
- as required

1. *To empty the hand wash tank,*
open the water tap **1**.
2. Open the screw cap **2**.
3. *To remove soiling,*
direct a jet of water into the hand wash tank.



CMS-I-00005401

10.1.11 Cleaning the conveyor section

CMS-T-00007651-A.1



INTERVAL

- After the first 50 operating hours
- as required

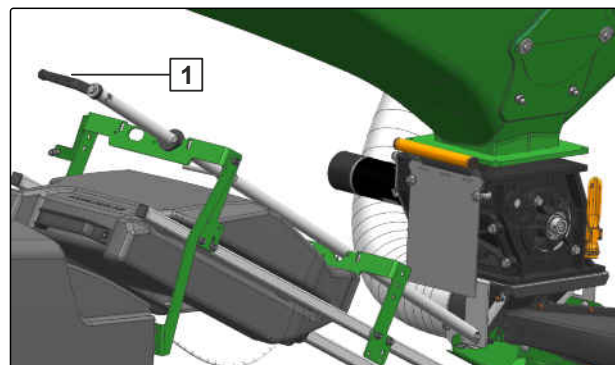
The air drawn by the fan can contain fertiliser dust or sand. These impurities can accumulate on the fan rotors and cause imbalance of the fan. This can destroy the fan.



REQUIREMENTS

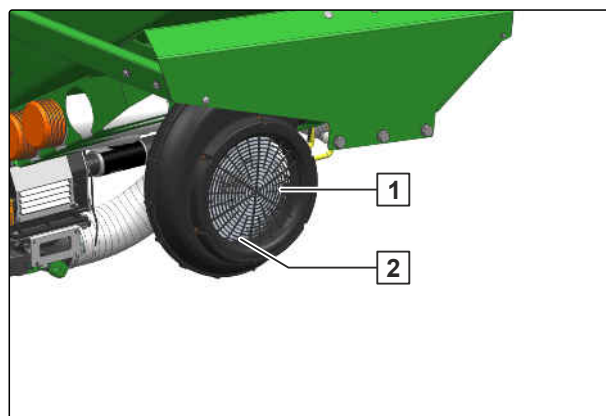
- ✓ The implement is coupled to the tractor

1. Open the calibration flap with the lever **1**.



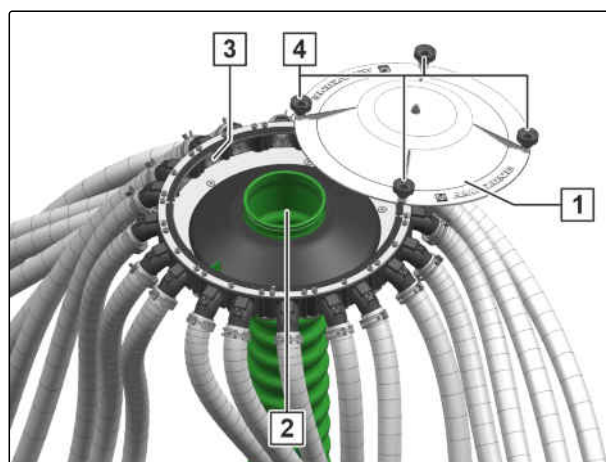
CMS-I-00005248

2. Clean the suction cage **1**.
3. *To wash the deposits from the fan rotors **2**, direct a jet of water into the suction opening.*



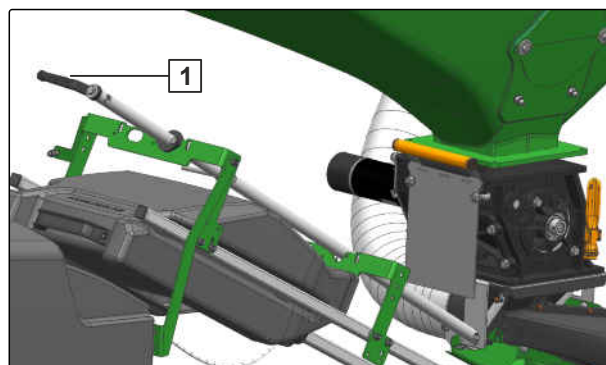
CMS-I-00005364

4. Loosen the 4 knurled screws **4**.
5. Remove the cover **1**.
6. *To remove the deposits, aim a water jet into the seed outlets **3** and into the corrugated tube **2**.*
7. Install the cover.
8. Tighten the 4 knurled screws by hand.



CMS-I-00004702

9. *When most of the water has escaped through the calibration opening, Close the calibration flap with the lever **1**.*
10. Run the fan for about 5 minutes.
➔ The air supply is blown dry.
11. Switch off the fan.



CMS-I-00005248

10.1.12 Cleaning the segment distributor head

CMS-T-00004448-E.1



INTERVAL

- Every 10 operating hours
or
daily



NOTE

The segment distributor head must be kept free of dust, deposits, and foreign objects.

Shorten the checking intervals under very dusty conditions.

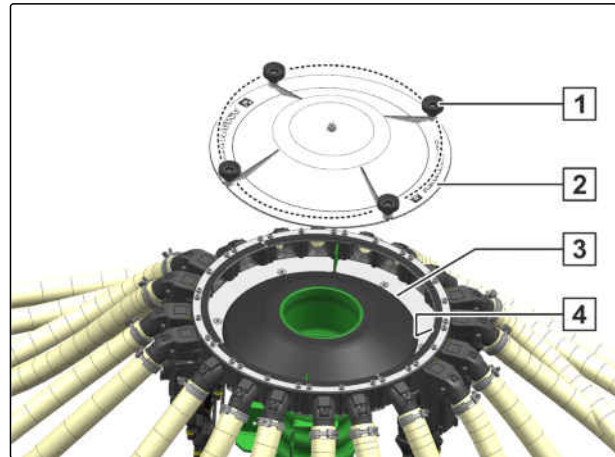
1. Loosen the 4 knurled screws **1**.
2. Remove the cover **2**.



WARNING Risk of chemical burns by dressing dust

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

3. Clean the segment distributor head **3** using a paint brush, hand brush or with compressed air.
4. Clean the seed outlets and tramline segments **4** using a paint brush, hand brush or with compressed air.
5. Install the cover.
6. Tighten the 4 knurled screws by hand.




CMS-I-00003133

10.1.13 Checking the tightening torque for the radar sensor bolts

CMS-T-00002383-D.1

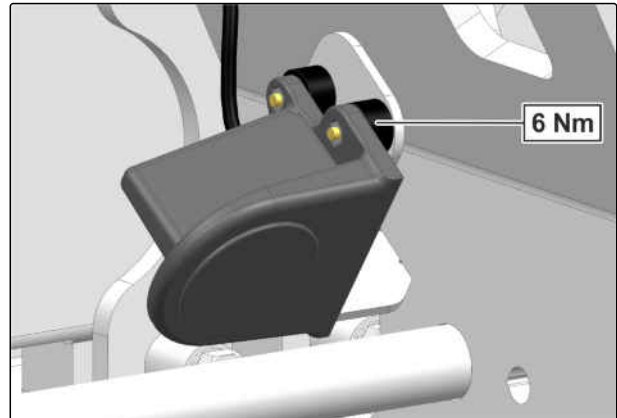
 **INTERVAL**

- After initial operation
- Every 12 months

 **NOTE**

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

- Check the tightening torque on the radar sensor.




CMS-I-00002600

10.1.14 Cleaning the metering unit

CMS-T-00007501-A.1

 **INTERVAL**

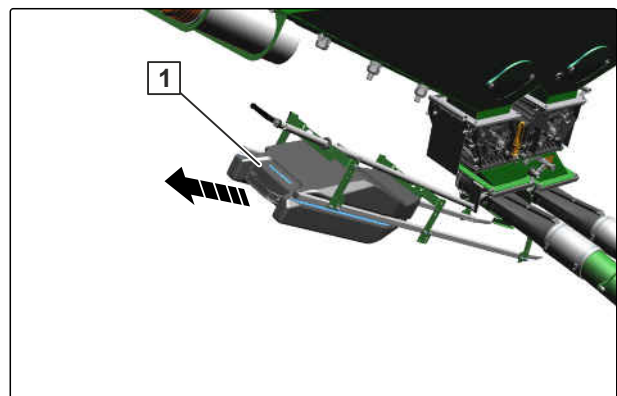
- daily

 **IMPORTANT**

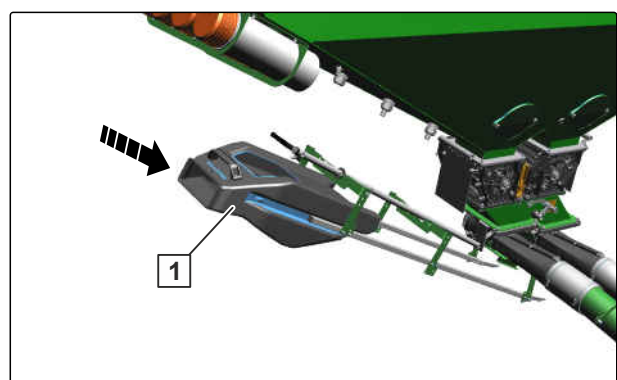
Risk of damage to the metering drive due to swelling fertiliser or germinating seed.

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

1. Switch off the fan.
2. Take the calibration bucket **1** from the guide rails.
3. Slide the calibration bucket **1** into the guide rails.



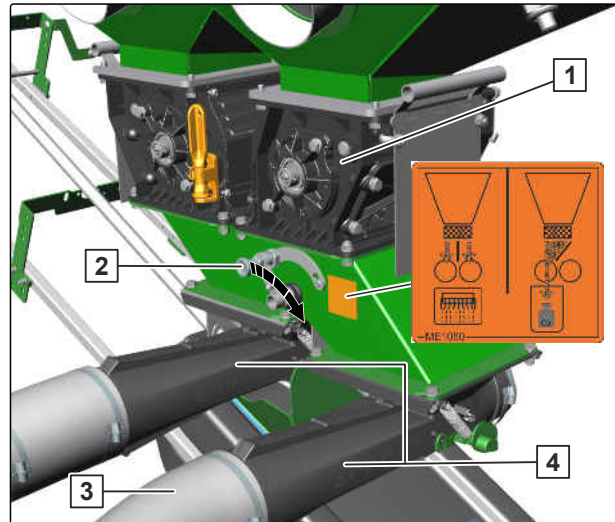
CMS-I-00006368



CMS-I-00006373

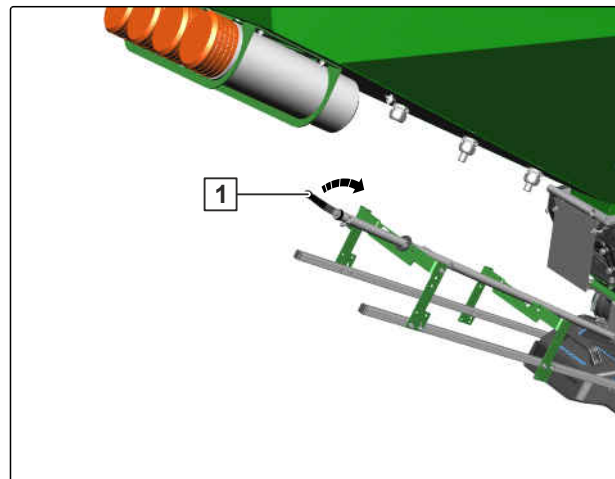
4. If the implement has two injectors **4** and two metering units **1**, deactivate the conveyor section **3** with the lever **2**.

➔ The seed from both metering units can now be collected in the calibration bucket.



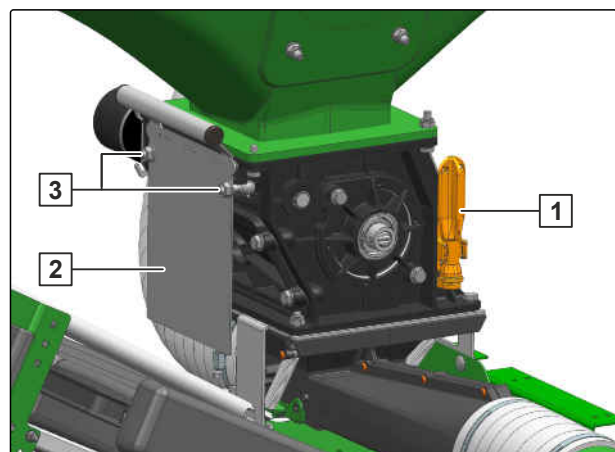
CMS-I-00006398

5. To remove seed residues from the metering unit housing, open the calibration flap with the lever **1**.



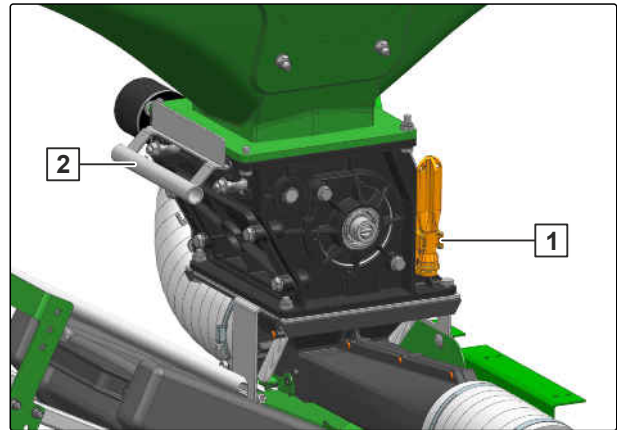
CMS-I-00006375

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



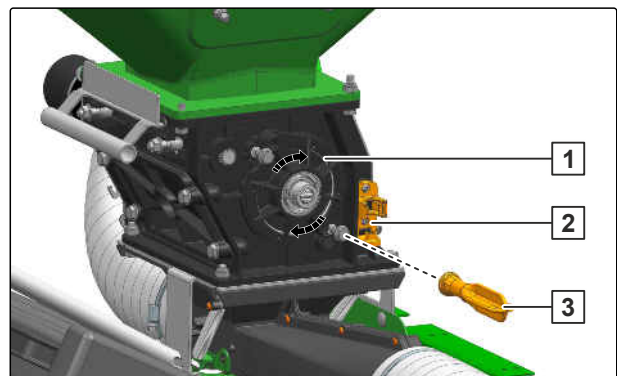
CMS-I-00005255

9. Push the sliding shutter **2** into the metering unit housing.
10. Park the socket wrench in the holder **1**.
11. *To empty the metering unit and the metering roller,*
refer to the ISOBUS software operating manual,
"Emptying"
or
see "control computer" operating manual.



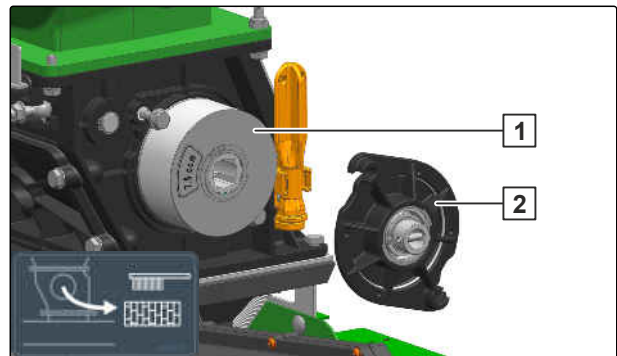
CMS-I-00005259

12. Loosen the bolts with the socket wrench **3**.
13. Park the socket wrench in the holder **2**.
14. Turn the bearing cover **1**.



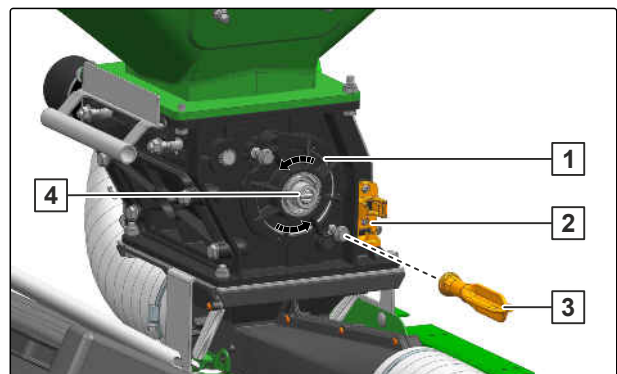
CMS-I-00005253

15. Pull off the bearing cover **2**.
16. *When the hopper is closed off with the sliding shutter,*
pull the metering roller **1** out of the metering unit.
17. Clean the metering housing and the metering roller.
18. *When the metering housing and the metering roller have been cleaned,*
reinstall the metering roller.



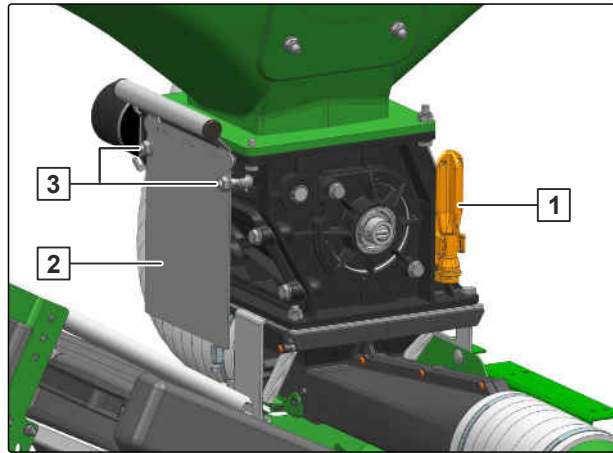
CMS-I-00005308

19. Align the catch **4** on the bearing cover **1** with the drive shaft.
20. Install the bearing cover.
21. Tighten the bolts with the socket wrench **3**.
22. Park the socket wrench in the holder **2**.



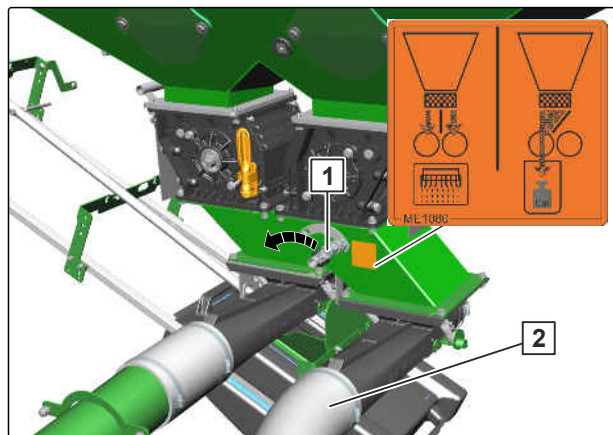
CMS-I-00005254

23. Park the sliding shutter **1** on the metering unit housing.
24. Swivel the bolts **3** in front of the sliding shutter.
25. Tighten the bolts with the socket wrench **2**.
26. *If the implement has two metering units,* clean the second metering unit **1** as well.



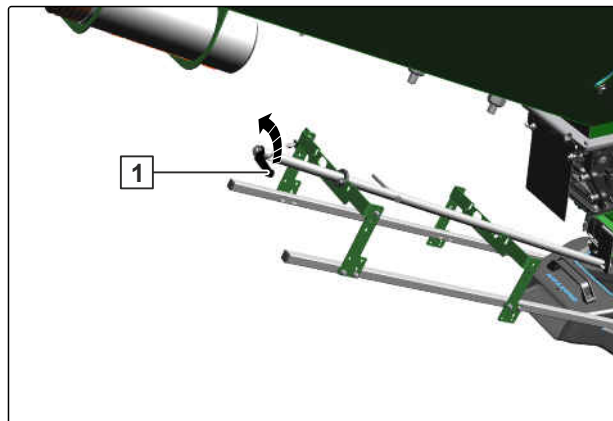
CMS-I-00005255

27. Activate the conveyor section **2** with the lever **1**.



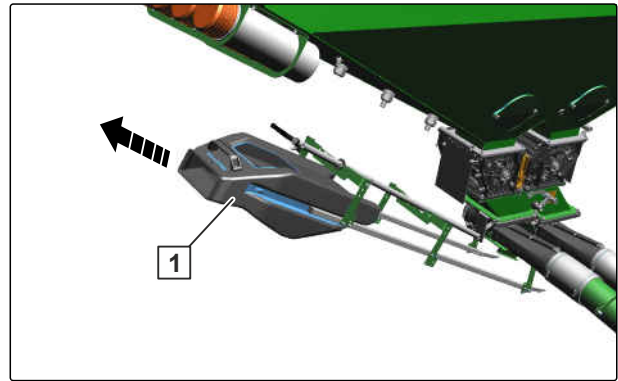
CMS-I-00006490

28. *To close the calibration flap,* actuate the lever **1**.



CMS-I-00006381

29. Take the calibration bucket **1** from the guide rails.
30. Empty the calibration bucket.
31. Turn the calibration bucket.
32. Slide the calibration bucket into the guide rails and put in parking position.



CMS-I-00006377

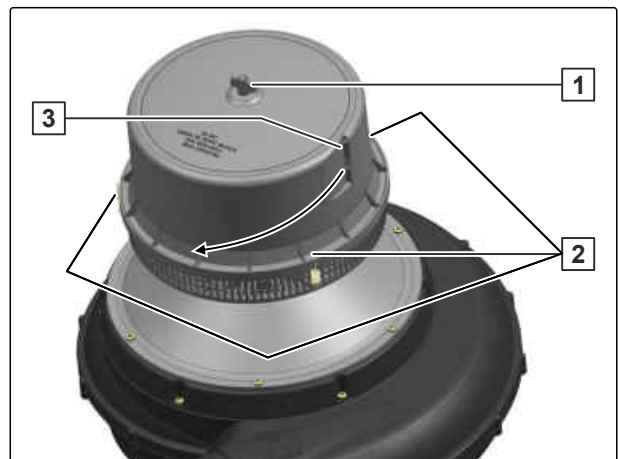
10.1.15 Cleaning the cyclone separator

CMS-T-00003779-C.1

- Wrench** **INTERVAL**
- Every 10 operating hours
or
daily

For the cyclone separator to work, the separator opening **3** must be free of impurities.

1. Check the separator opening **3**.
2. *If the separator opening is clogged, open the clips **2**.*
3. Loosen the wing nut **1**.
4. Remove the cover and clean it.
5. Install the cover with the wing nut.
6. Fasten the suction cage with the clips.



CMS-I-00002765

10.1.16 Checking the top link pin and lower link pin

CMS-T-00002330-G.1

- Wrench** **INTERVAL**
- daily

1. Check the top link pins and lower link pins for cracks or broken areas.

Permissible wear	2 mm
------------------	------

2. Replace the pins if there is significant wear.

10.1.17 Checking the hydraulic hose lines

CMS-T-00002331-C.1



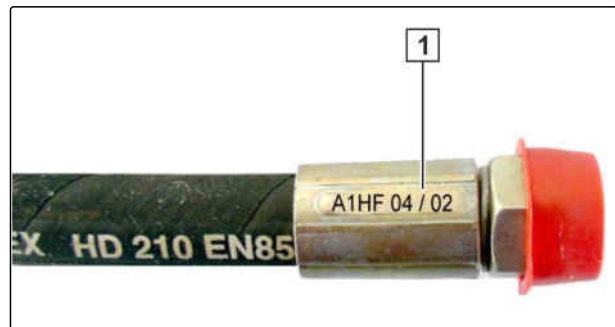
INTERVAL

- 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.

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

3. Check the manufacturing date **1**.



CMS-I-00000532

4. Have any worn, damaged or aged hydraulic hose lines immediately replaced at a specialist workshop.
5. Retighten loose bolted connections.

10.1.18 Checking the RoTeC furrow former

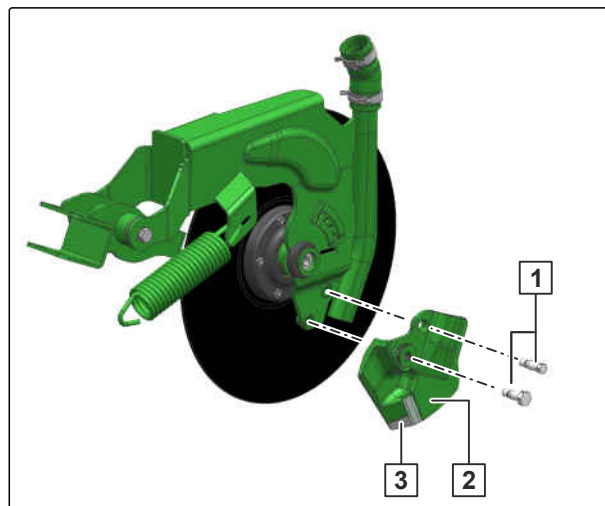
CMS-T-00007482-A.1



INTERVAL

- Every 50 operating hours
or
weekly

1. Remove the depth control disc or depth control wheel.
2. *If the carbide plate **3** is worn,* replace the furrow former.
3. *To replace the furrow former,* Remove the bolts **1** and dispose of them.
4. Replace the worn furrow former **2**.
5. Install the new bolts **1**. The bolts for the furrow former are coated and may not be reused.



CMS-I-00005243

10.2 Lubricating the implement

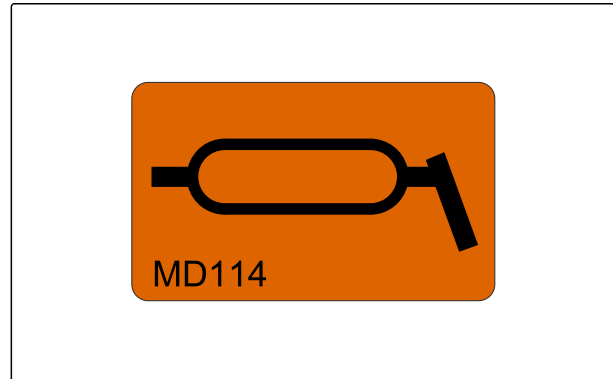
CMS-T-00007575-A.1



IMPORTANT

Implement damage due to improper lubrication

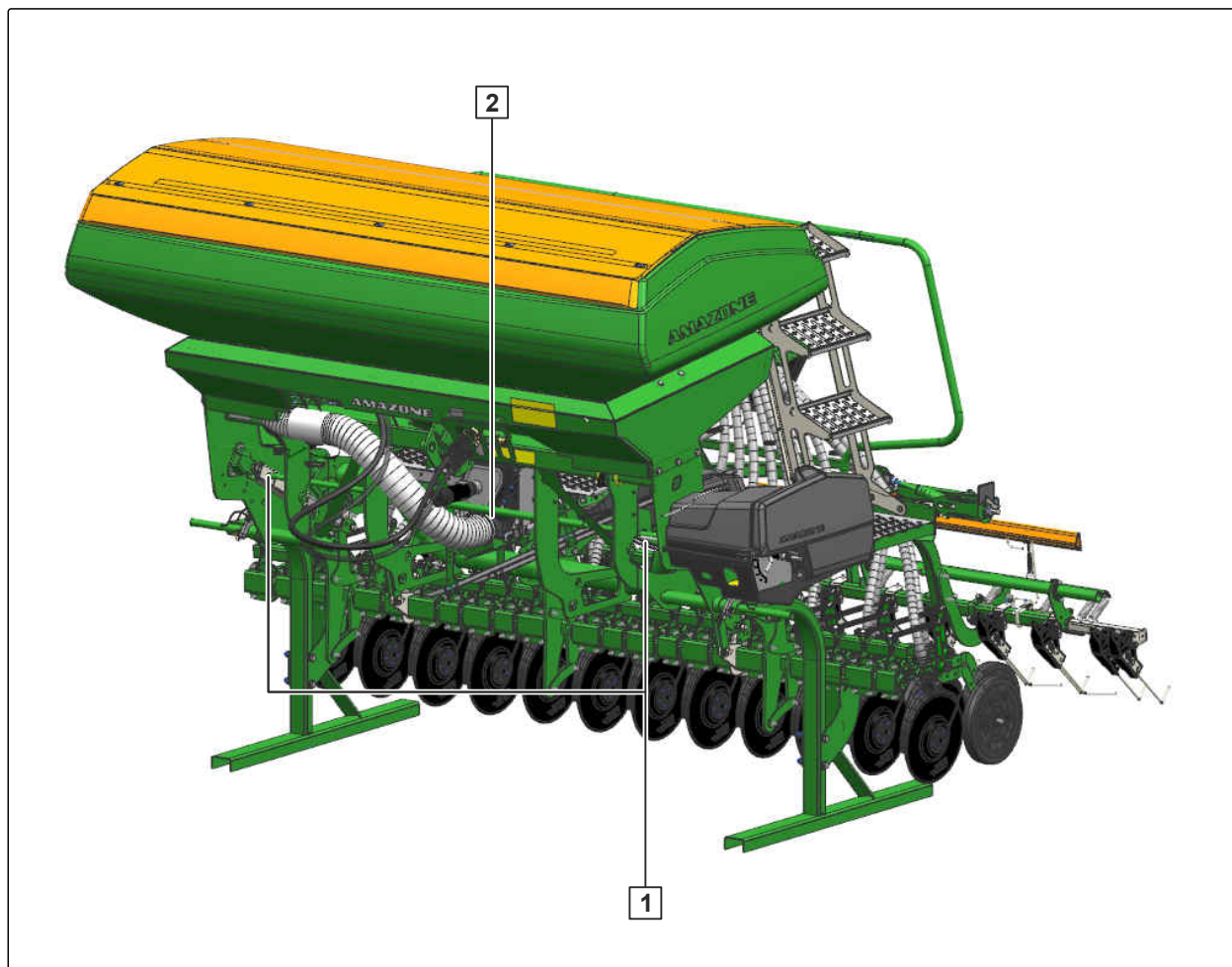
- ▶ Grease the implement at the marked lubrication points according to the lubrication schedule.
- ▶ *To ensure that dirt is not pressed into the lubrication points,* thoroughly clean the grease nipples and the grease gun.
- ▶ Only grease the implement with the lubricants listed in the technical data.
- ▶ Press the dirty grease completely out of the bearings.



CMS-I-00002270

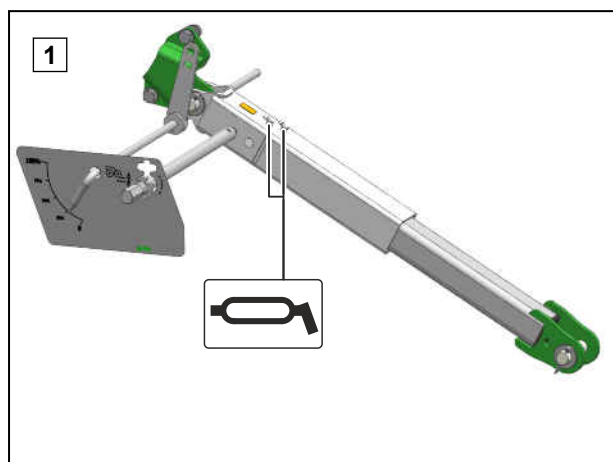
10.2.1 Overview of lubrication points

CMS-T-00007576-A.1



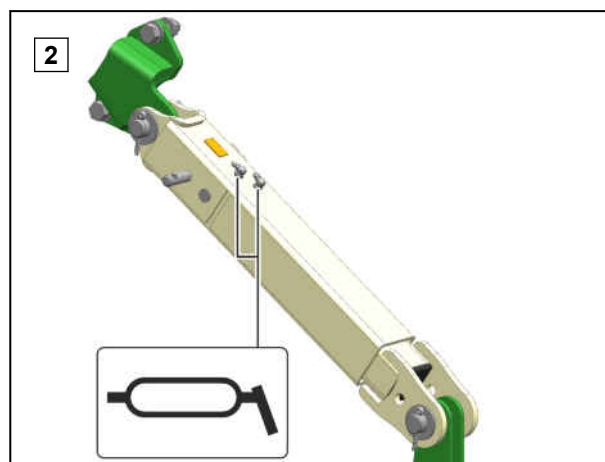
CMS-I-00005329

Every 100 operating hours



CMS-I-00005328

Centaya 3000, Centaya 3500 and Centaya 4000



CMS-I-00003231

Centaya 4000

10.3 Cleaning the implement

CMS-T-00000593-E.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 300 mm between the high-pressure nozzle and the machine.
- ▶ 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.

Loading the implement

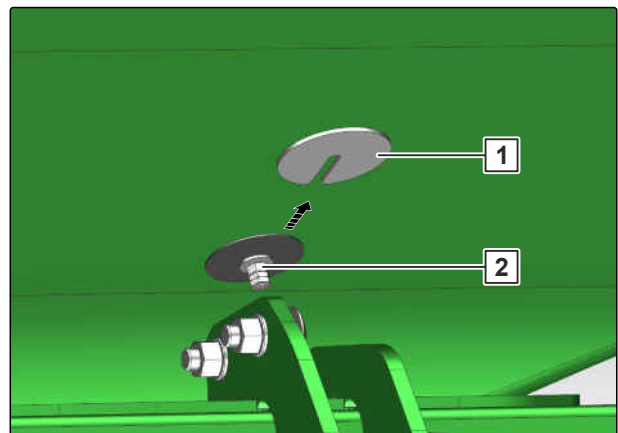
11

CMS-T-00007583-A.1

11.1 Installing a lashing point in the hopper

CMS-T-00007618-A.1

1. loosen the nut **2**.
2. Remove the plate **1**.

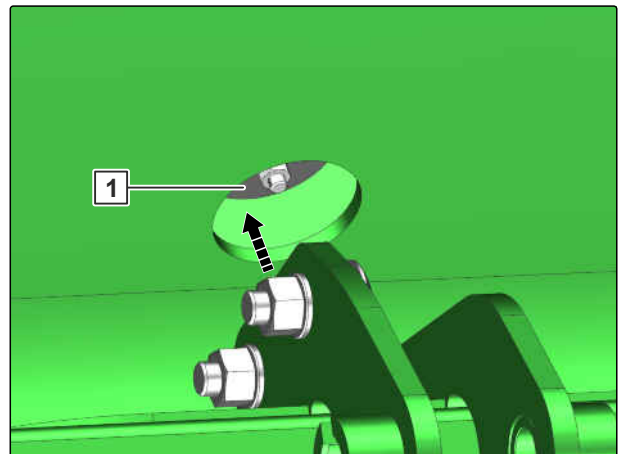


CMS-I-00005346

3. *Depending on the implement equipment,*
press in the rubber plug **1**

or

remove the plastic cap.



CMS-I-00005347

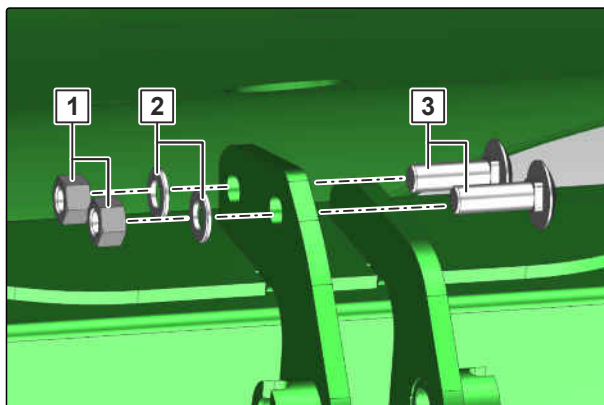
11 | Loading the implement

Installing a lashing point in the hopper

4. Loosen the nuts **1**.

5. Remove the washers **2**.

6. Remove the bolts **3**.



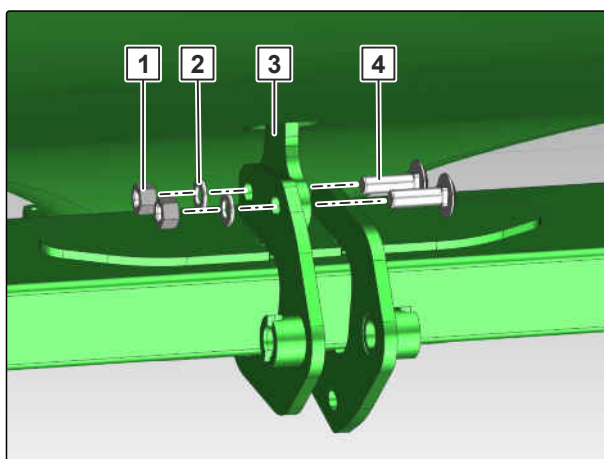
CMS-I-00005349

7. Attach the loading hook **3**.

8. Install the bolts **4**.

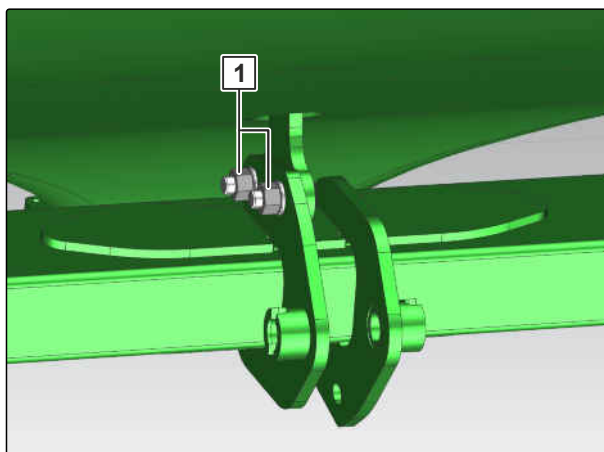
9. Install the washers **2**.

10. Install the nuts **1**.



CMS-I-00005353

11. Tighten the nuts **1**.



CMS-I-00005354

11.2 Lifting the implement

CMS-T-00007584-A.1

The implement has 3 lashing points for slings for lifting.

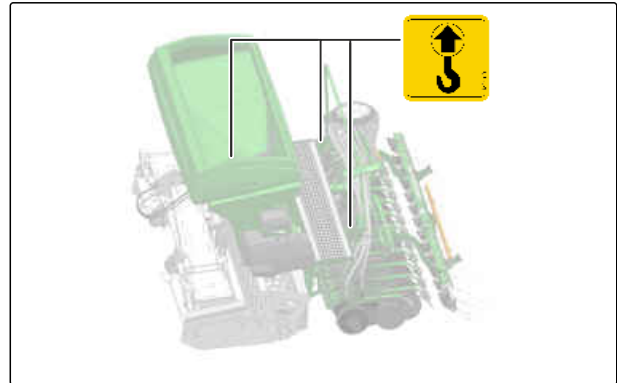


WARNING

Risk of accidents due to improperly attached slings for lifting

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

- ▶ Only attach the slings for lifting at the marked lashing points.
- ▶ *To determine the required load-bearing capacity of the slings,* observe the specifications in the following table.



CMS-I-00005342

Required load-bearing capacity per sling	4000 kg
--	---------

1. Attach the slings for lifting on the intended lashing points.
2. Slowly lift the implement.

11.3 Lashing the implement

CMS-T-00007585-A.1

The implement has 3 lashing points for lashing straps.



WARNING

Risk of accident due to improper lashing

It is not permitted to lash the implement on the parking supports or jacks.

- ▶ Do not lash the implement on the parking supports or jacks.



CMS-I-00005359



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-00005358



CMS-I-00005357



REQUIREMENTS

- ✓ The Centaya pack top seed drill is coupled with a soil tillage implement

1. Put the implement on the transport vehicle.
2. Attach the lashing straps at the marked points.
3. Lash down the implement in compliance with the national regulations for load securing.

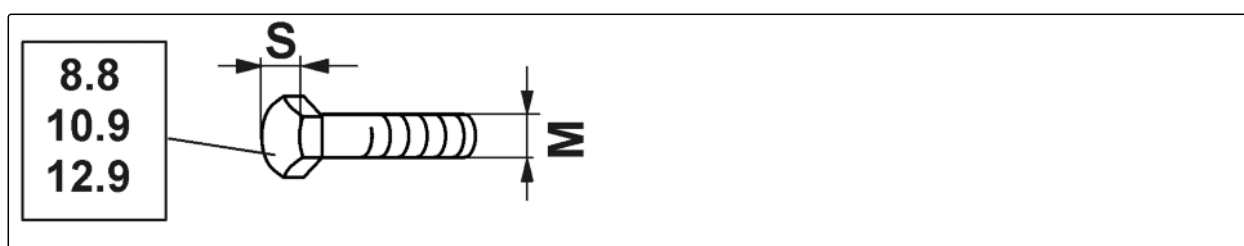
Appendix

12

CMS-T-00007647-A.1

12.1 Bolt tightening torques

CMS-T-00007648-A.1



CMS-I-000260

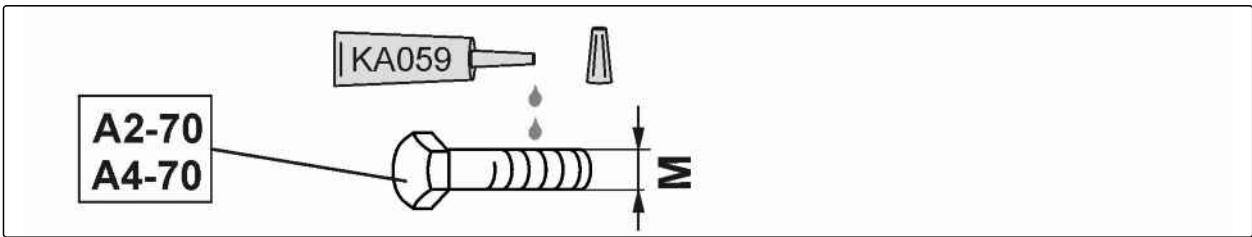


NOTE

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

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

M	S	Nm		
		8.8	10.9	12.9
M22	32	550	780	930
M22x1.5		610	860	1050
M24	36	710	1000	1200
M24x2		780	1100	1300
M27	41	1050	1500	1800
M27x2		1150	1600	1950
M30	46	1450	2000	2400
M30x2		1600	2250	2700



CMS-I-00000065

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

12.2 Other applicable documents

CMS-T-00007649-A.1

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

Directories

13

13.1 Glossary

CMS-T-00000513-B.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.

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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