



**AMAZONE**

# Original operating manual

Pneumatic pack top seed drill

Centaya 3000 Special



SmartLearning



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**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:



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



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



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

### 1.1.2 Further instructions

CMS-T-00002416-A.1



- ▶ 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-00010157-A.1

## 2.1 Basic safety instructions

CMS-T-00010159-A.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-00010294-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-00010295-A.1

#### Dangers areas on the implement

The following basic dangers are encountered in the danger areas:

The implement and its work tools move during operation.

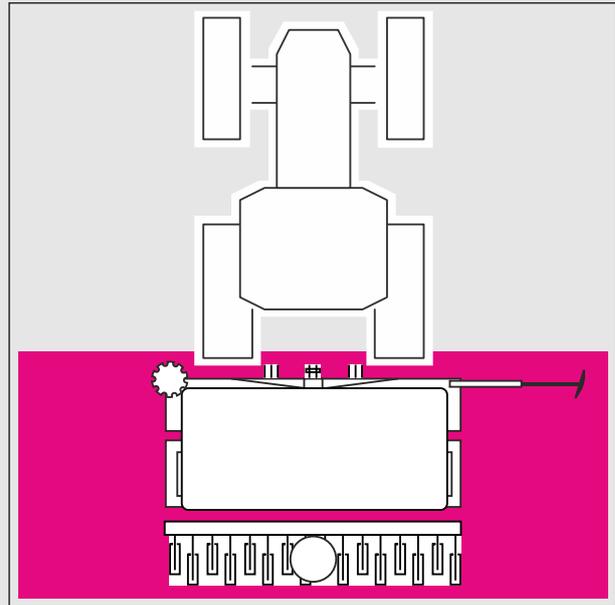
Hydraulically raised implement parts can descend unnoticed and slowly.

The tractor and implement can roll away unintentionally.

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

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

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



CMS-I-00007027

### 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

#### 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-00010158-A.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.

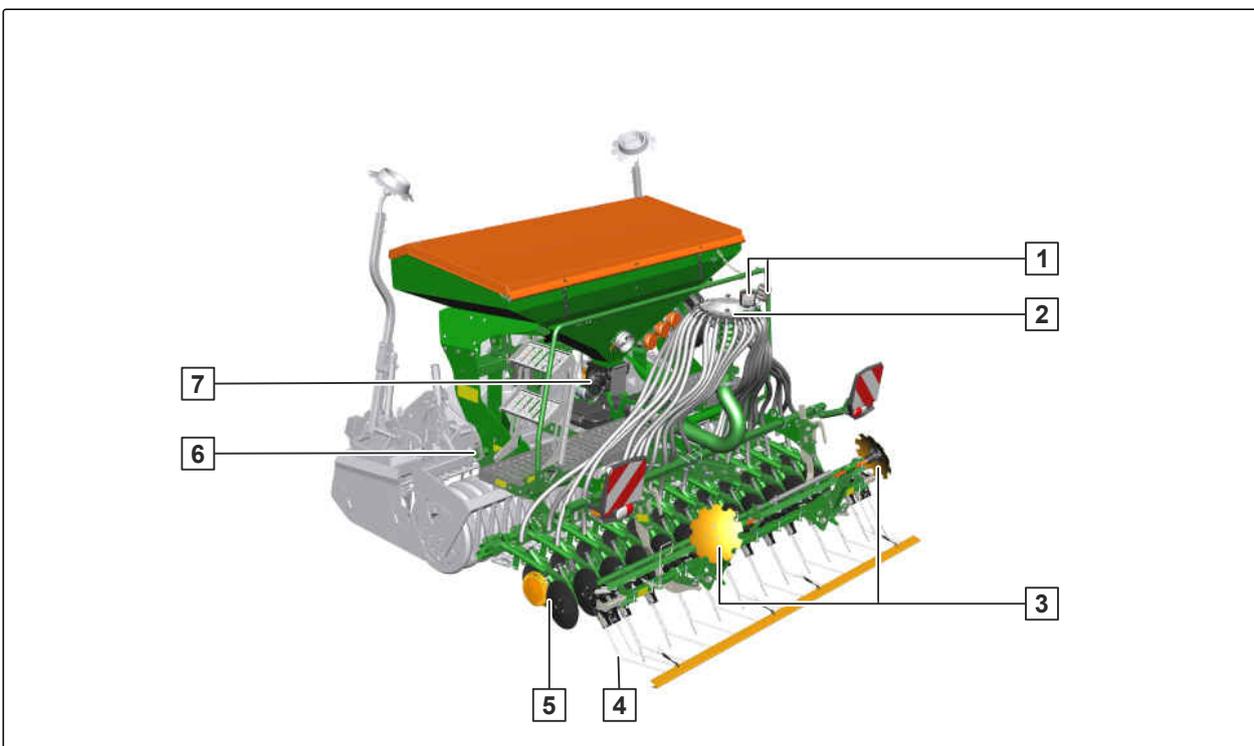
# Product description

# 4

CMS-T-00009762-A.1

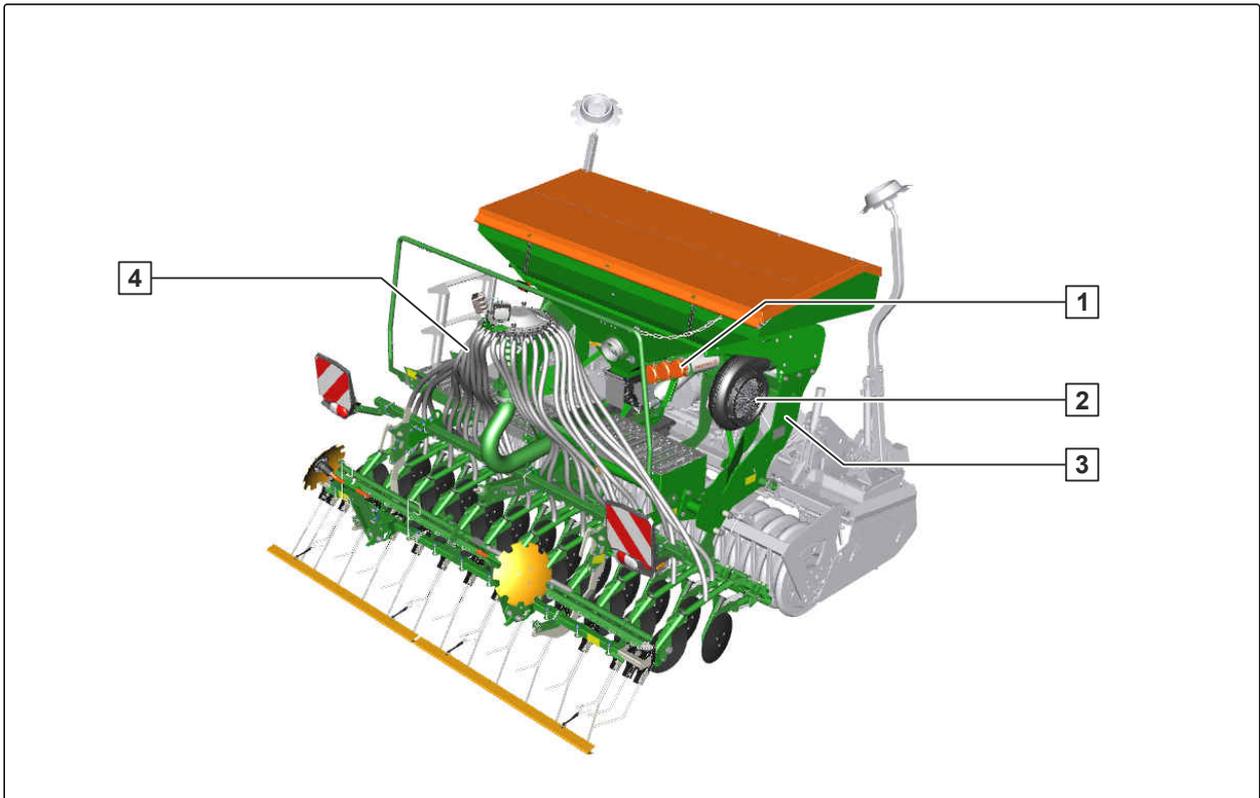
## 4.1 Implement overview

CMS-T-00009764-A.1



CMS-I-00006840

- |                           |                                     |
|---------------------------|-------------------------------------|
| <b>1</b> Work floodlights | <b>2</b> Segment distributor head   |
| <b>3</b> Tramline marker  | <b>4</b> Exact following harrow     |
| <b>5</b> Seeding coulter  | <b>6</b> QuickLink catching sockets |
| <b>7</b> Metering unit    |                                     |



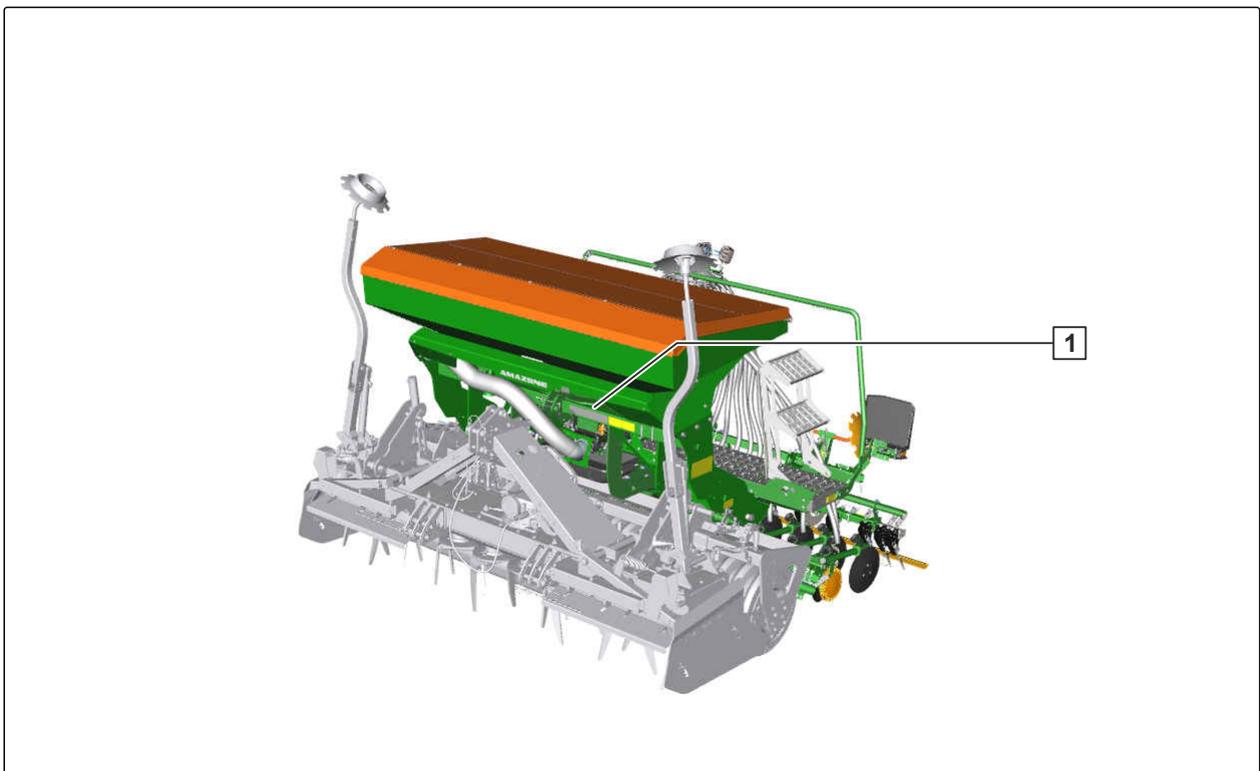
CMS-I-00006841

**1** Threaded cartridge

**2** Fan

**3** Rating plate

**4** Seed line hoses

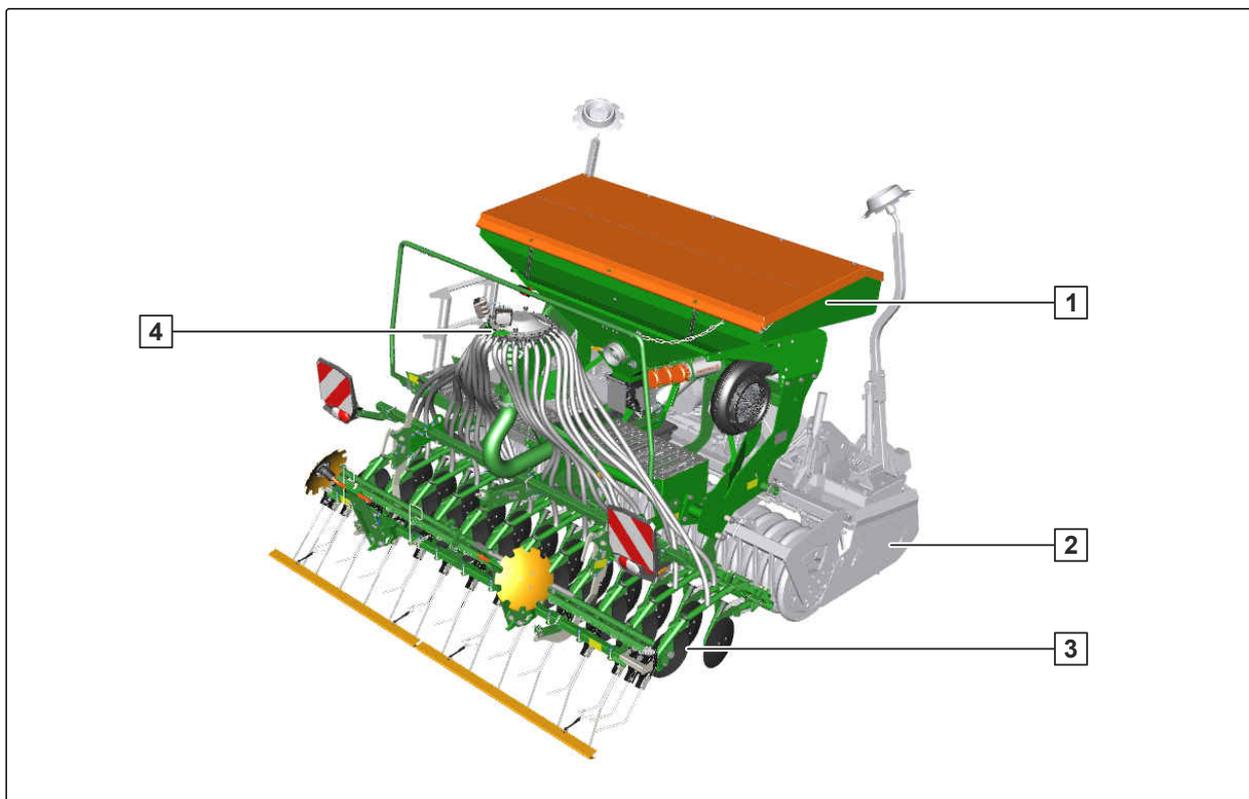


CMS-I-00006842

**1** Cabinet for hydraulic hose lines

## 4.2 Function of the implement

CMS-T-00009765-A.1



CMS-I-00006849

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-00009766-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
- Mounting kit for radar sensor
- Suction guard screen
- Hopper extension 500 l
- Tramline segments
- Low level sensor

- Control valve and hydraulic system for tramline marker
- Swivelling charging sieve
- Cyclone separator

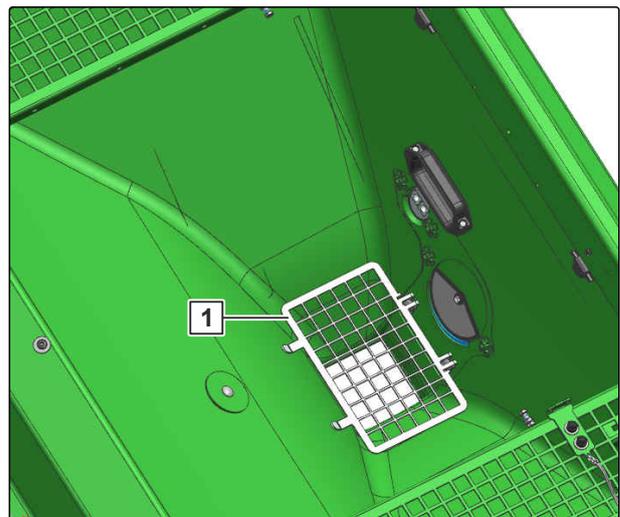
## 4.4 Protective equipment

CMS-T-00009769-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

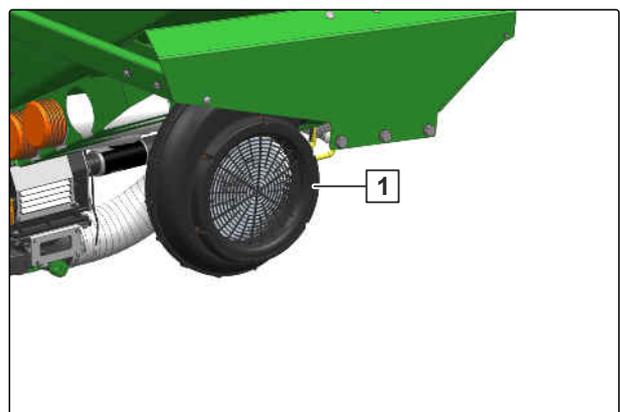


CMS-I-00005315

### 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

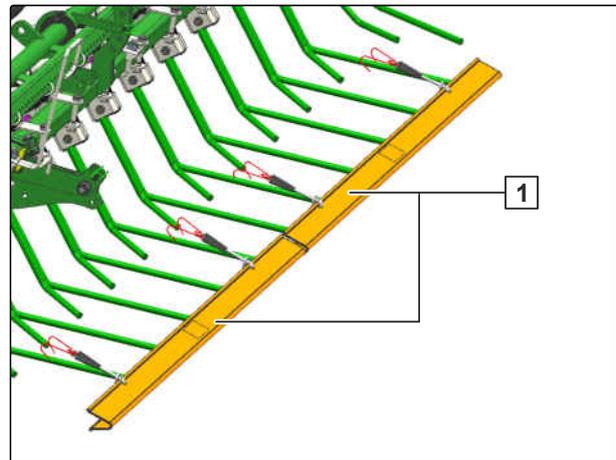


CMS-I-00005368

### 4.4.3 Road safety bars

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

CMS-T-00007937-B.1



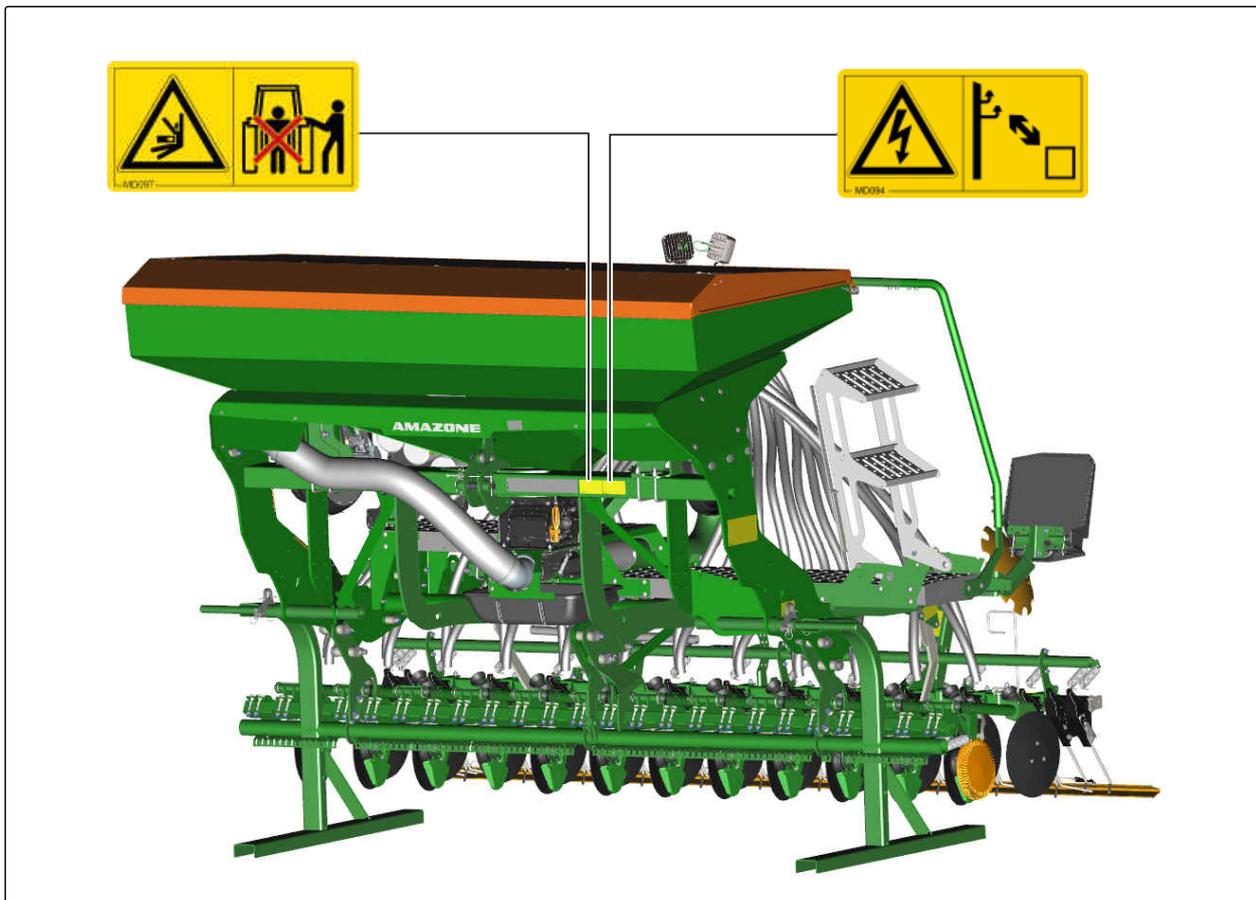
CMS-I-00005527

## 4.5 Warning symbols

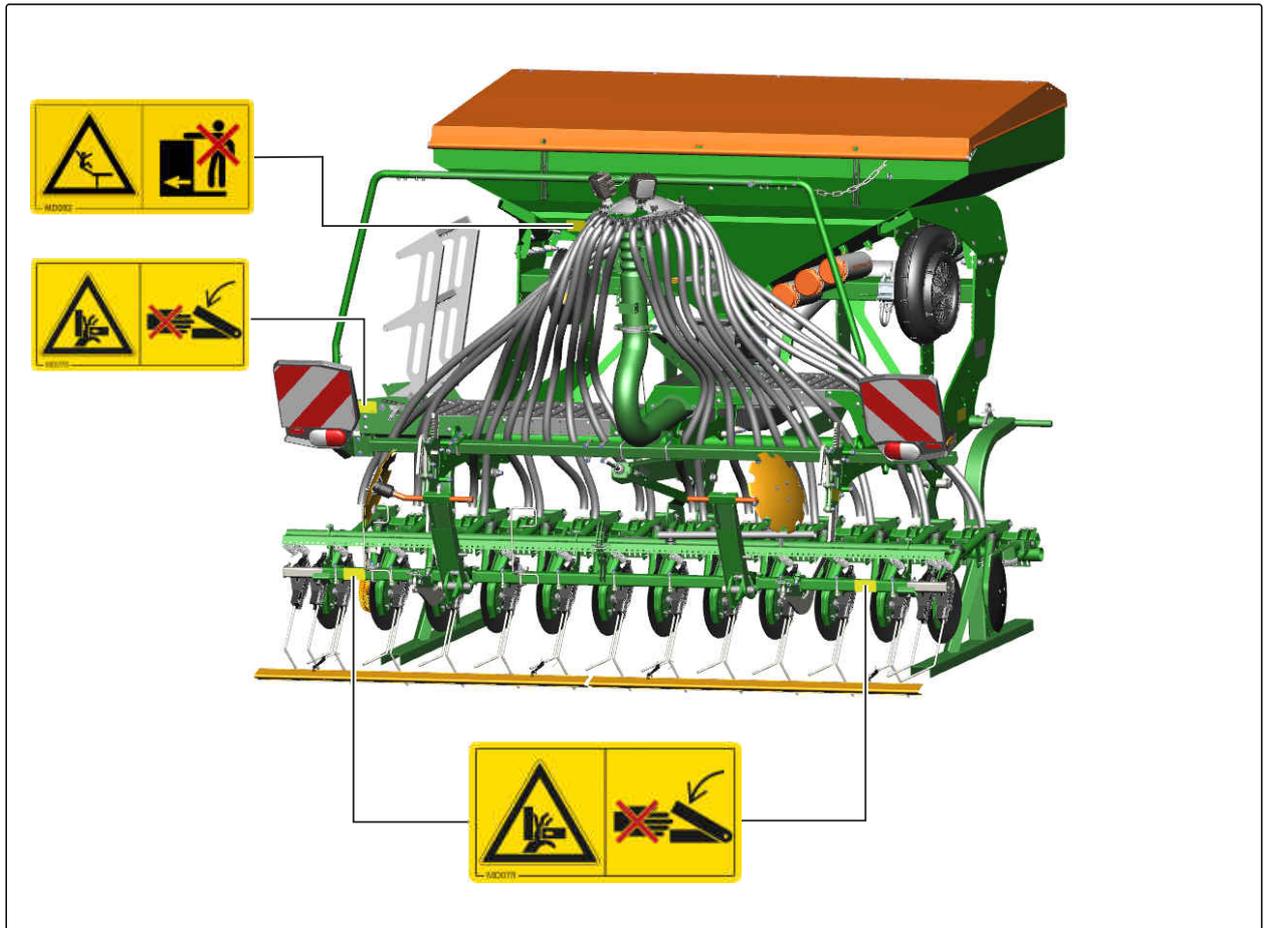
CMS-T-00009770-A.1

### 4.5.1 Positions of the warning symbols

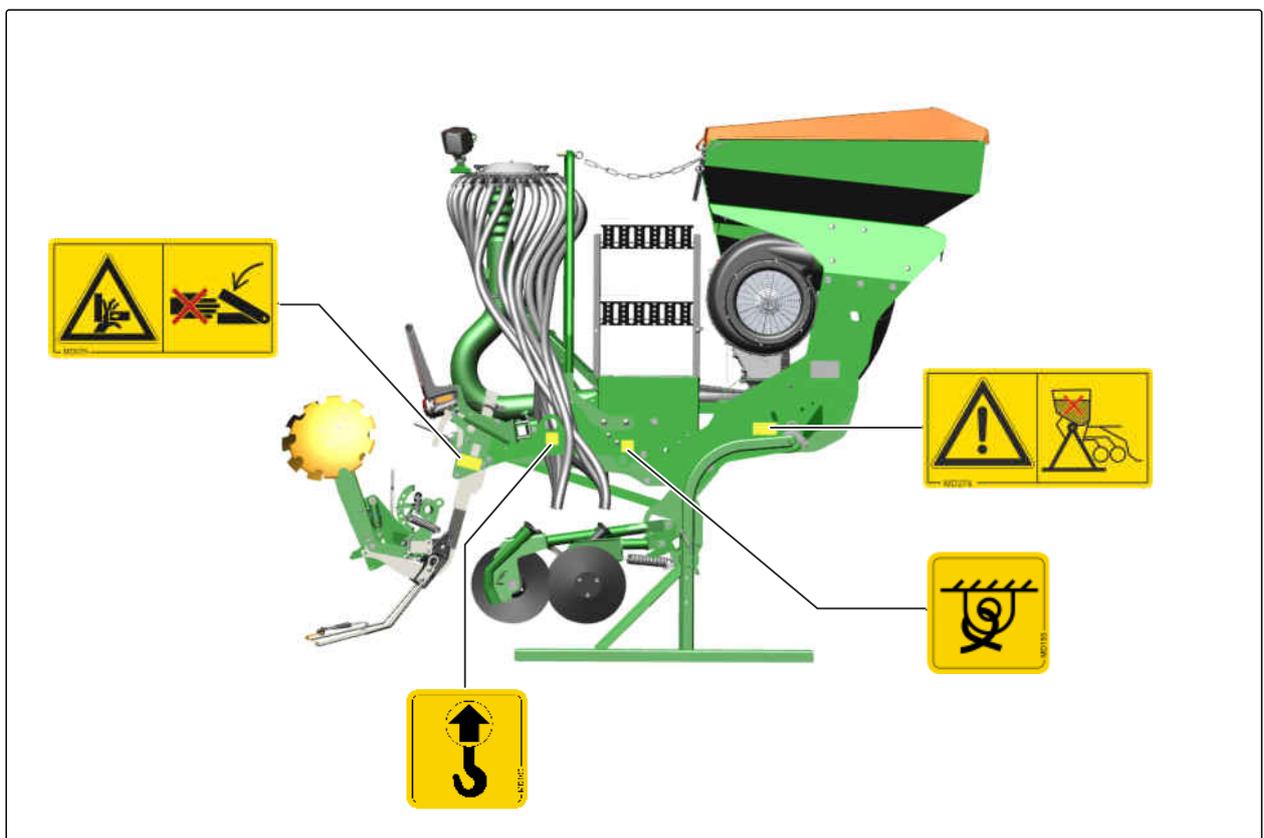
CMS-T-00009857-A.1



CMS-I-00006972

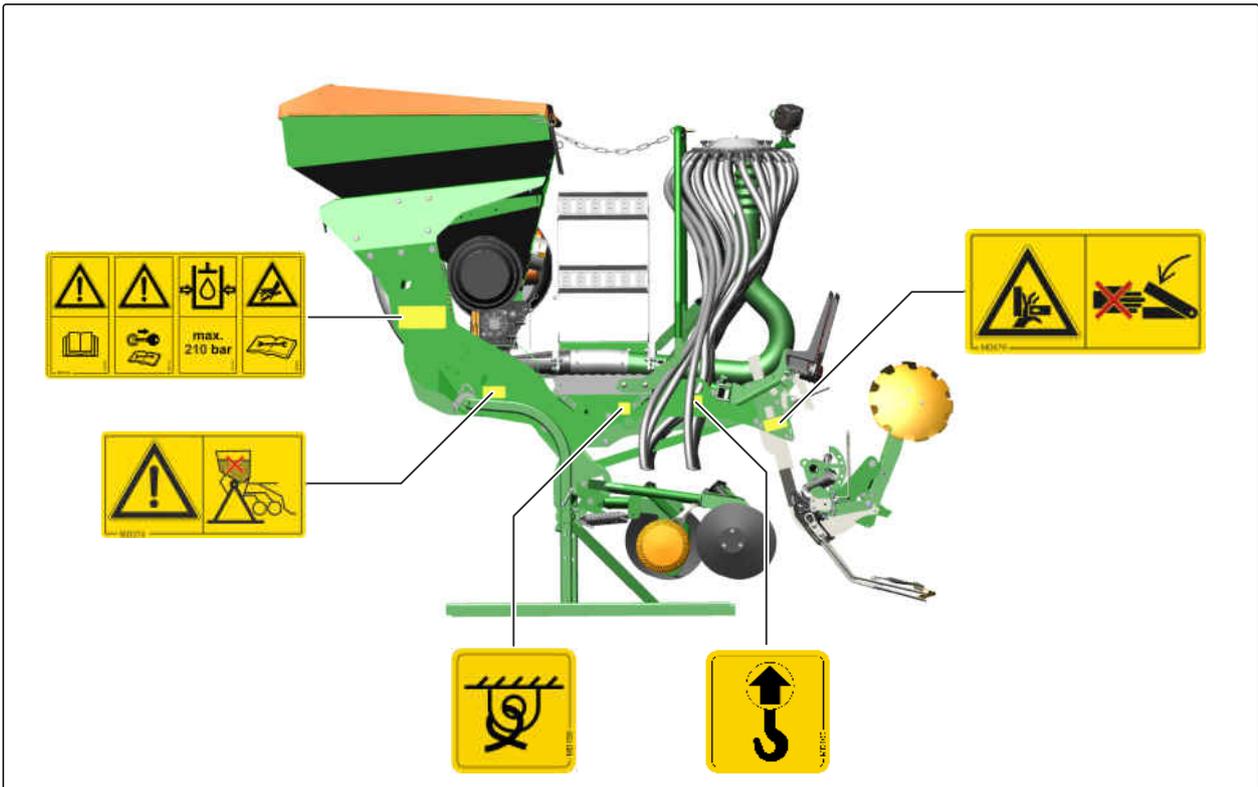


CMS-I-00006976

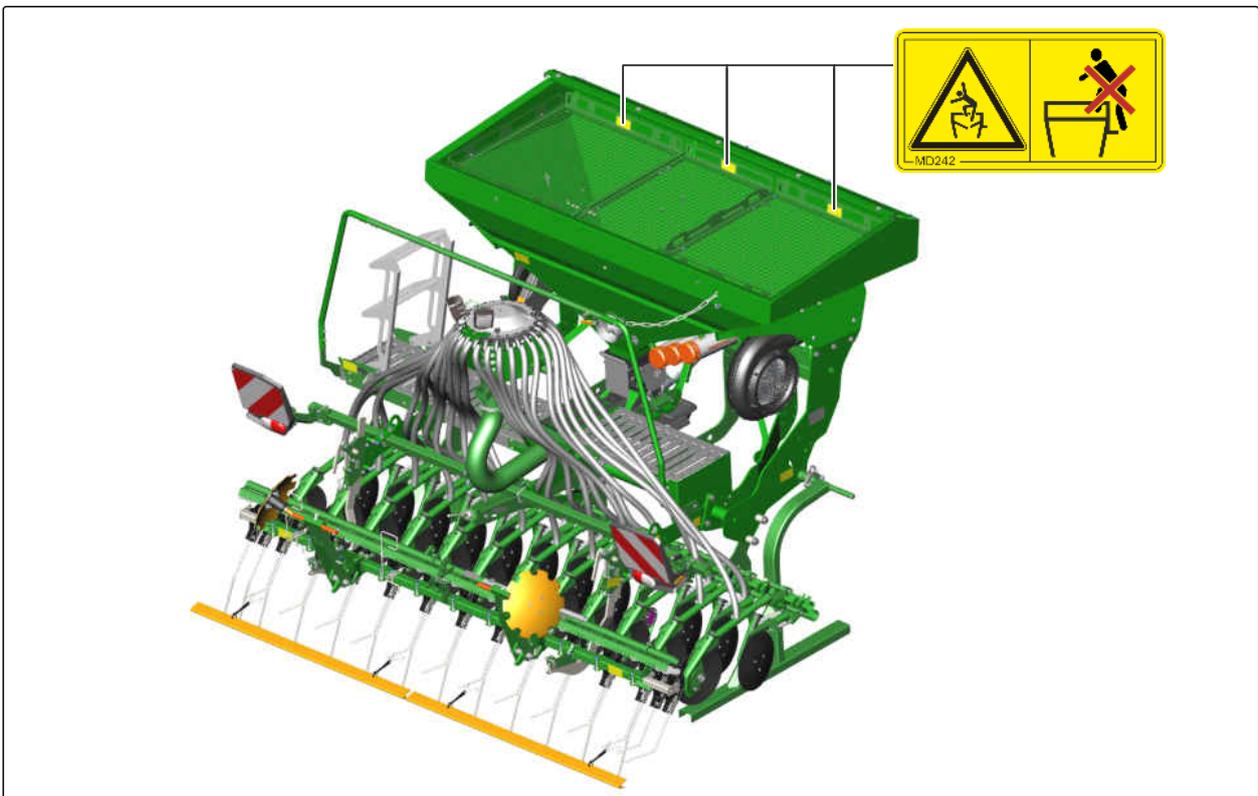


CMS-I-00006977

4 | Product description  
Warning symbols



CMS-I-00006978



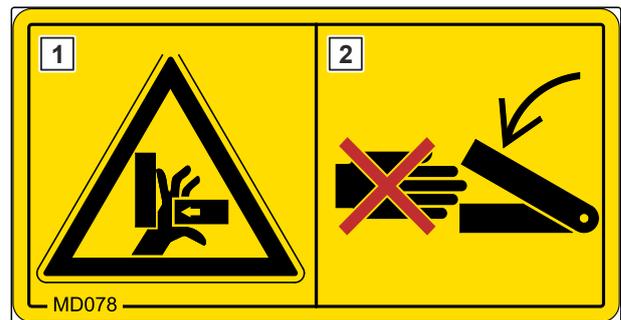
CMS-I-00006984

### 4.5.2 Layout of the warning symbols

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

A warning symbol consists of two fields:

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



CMS-I-00000416

### 4.5.3 Description of the warning symbols

#### 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-0000074

#### 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.*

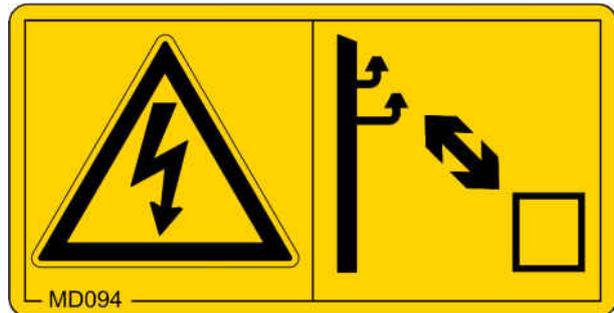


CMS-I-00004664

**MD094**

**Danger due to transmission lines**

- ▶ Never touch transmission lines with the implement.
- ▶ Maintain an adequately safe distance from electrical transmission lines, especially when folding or unfolding implement parts.
- ▶ Please note that the voltage can flash over when the distance is too small.



CMS-I-000692

**MD 097**

**Risk of crushing between the tractor and the implement**

- ▶ *Before you actuate the tractor hydraulic system, instruct persons away from the area between the tractor and the implement.*
- ▶ Actuate the tractor hydraulic system only from the designated work station.



CMS-I-000139

**MD 082**

**Risk of falling from tread surfaces and platforms**

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



CMS-I-000081

**MD 242**

**Risk of injury due to breaking charging sieve**

- ▶ Never climb onto the charging sieve

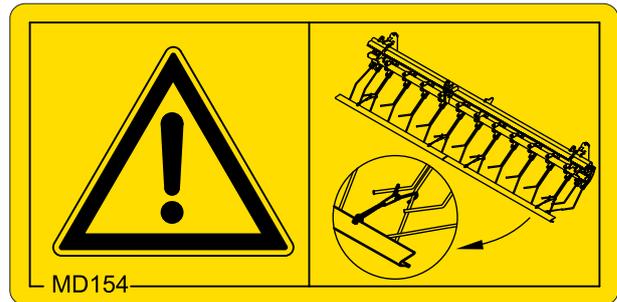


CMS-I-00005074

### 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

### 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.

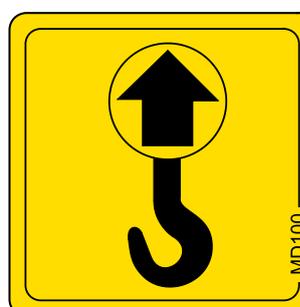


CMS-I-00000486

**MD 100**

**Risk of accidents due to improperly attached lifting gear**

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

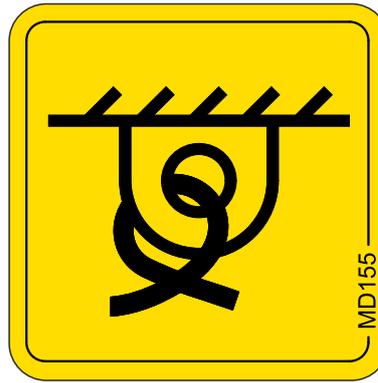


CMS-I-0000089

## MD 155

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

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



CMS-I-00000450

## 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 Threaded cartridge

CMS-T-00001776-D.1

The threaded cartridge contains the following items:

- Documents
- Aids

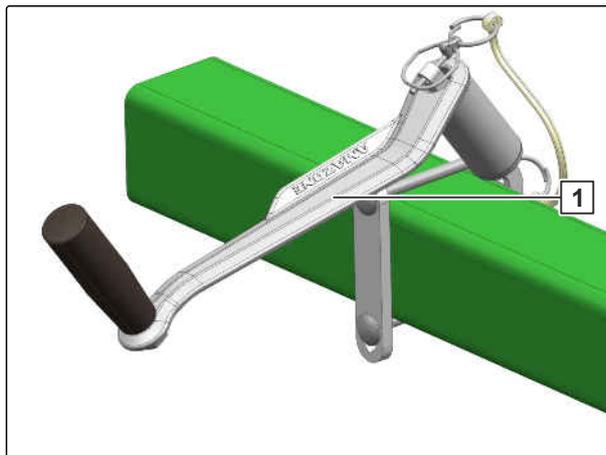


CMS-I-00002306

## 4.8 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.

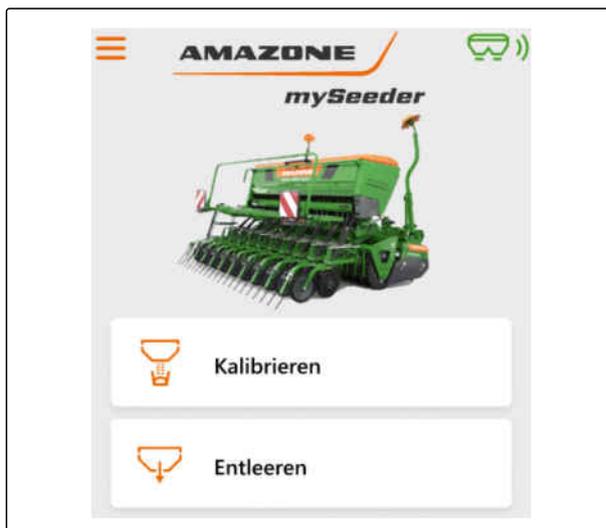


CMS-I-00001082

## 4.9 mySeeder app

CMS-T-00006215-C.1

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



CMS-I-00004418

The mySeeder app can be obtained from the Apple App Store or the Google Play Store. To do so, use the QR code or the link [www.amazone.de/qrcode\\_mySeeder](http://www.amazone.de/qrcode_mySeeder).

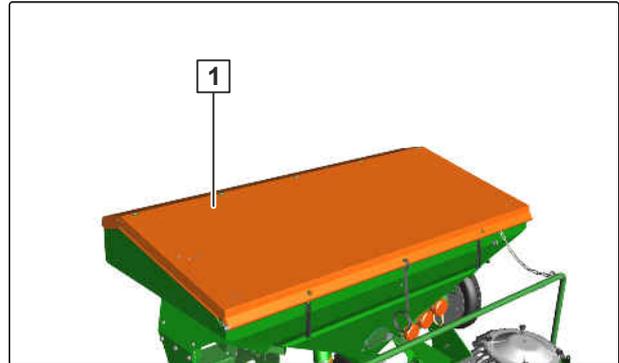


CMS-I-00004417

## 4.10 Hopper

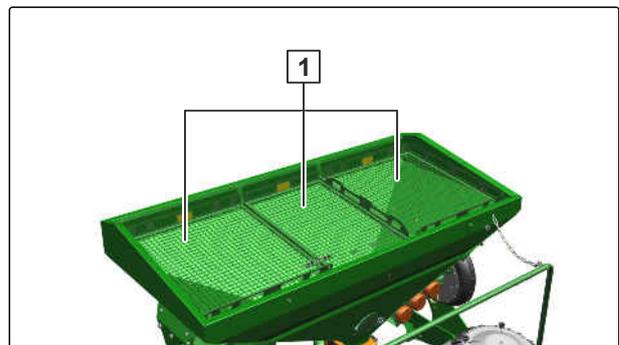
CMS-T-00009771-A.1

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



CMS-I-00006896

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

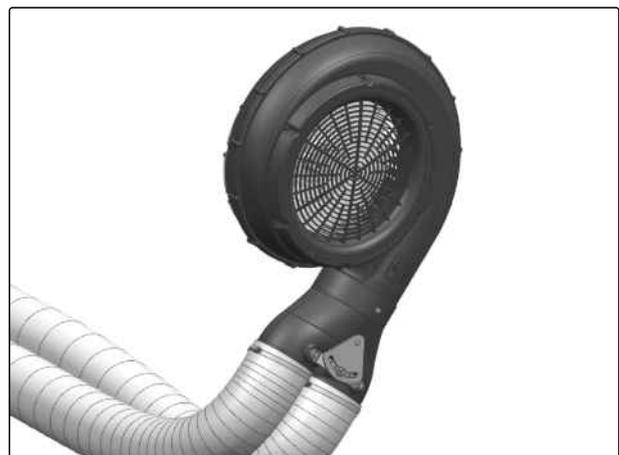


CMS-I-00006777

## 4.11 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

## 4.12 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

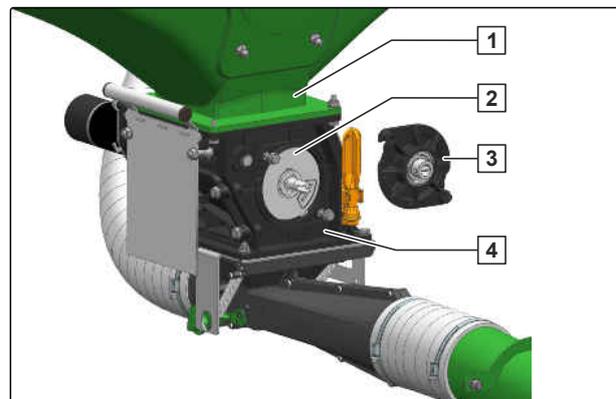
## 4.13 Metering system

CMS-T-00009772-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

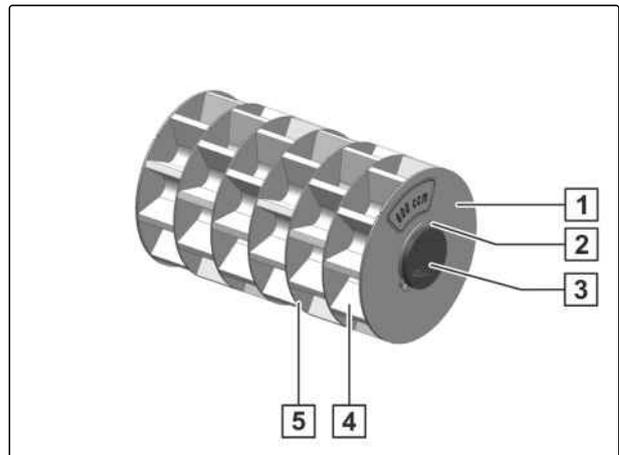
A metering unit is installed under each hopper tip. The metering roller is electrically driven and can be exchanged. The metered material falls into the sluice or injector and is directed by the air current to the distributor head and then on to the coulters. As soon as the implement is raised when turning 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



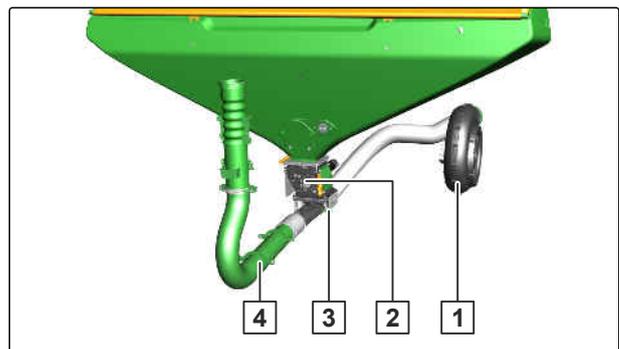
CMS-I-00002549

### 4.13.3 Conveyor section

CMS-T-00009773-A.1

Single shoot, 1-chamber hopper

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

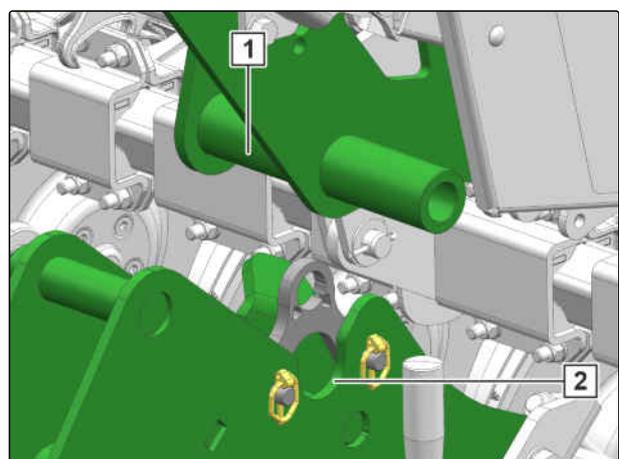


CMS-I-00006472

## 4.14 Mounting frame

CMS-T-00004881-B.1

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

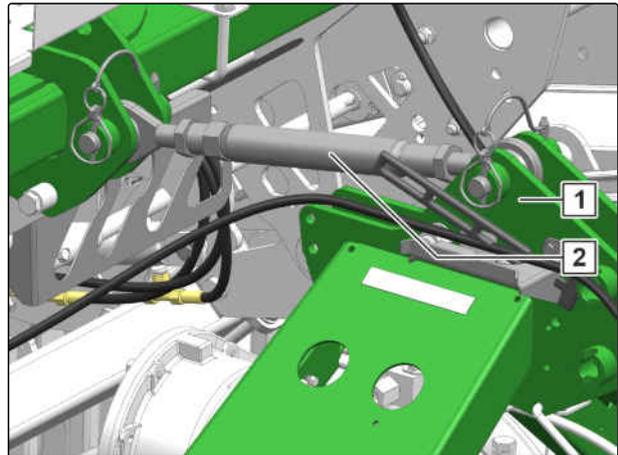


CMS-I-00003592

## 4 | Product description

### Lighting

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



CMS-I-00004568

## 4.15 Lighting

CMS-T-00009776-A.1

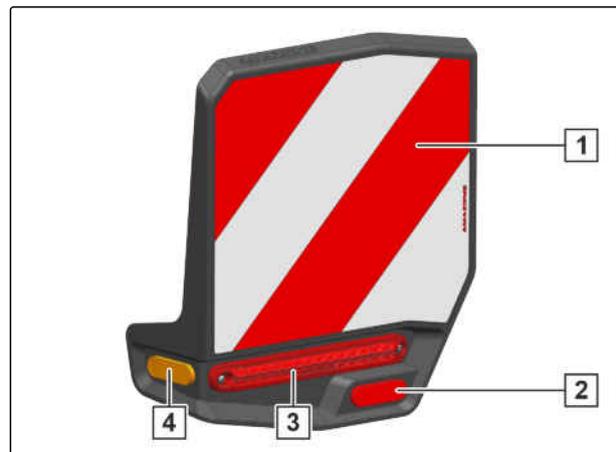
### 4.15.1 Lighting and identification for road travel

CMS-T-00010073-A.1

#### 4.15.1.1 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



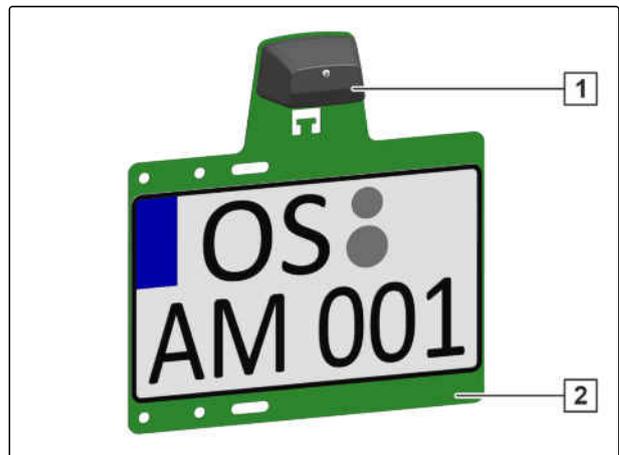
CMS-I-00004545

### **i** NOTE

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

#### 4.15.1.2 Additional license plate

- 1 Licence plate lighting
- 2 Licence plate holder

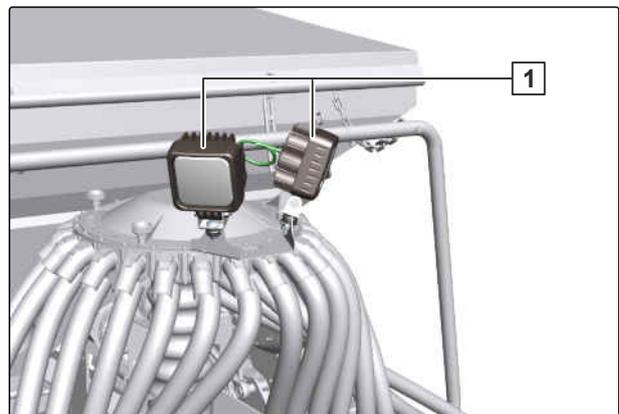


CMS-T-00003999-B.1

CMS-I-00003163

#### 4.15.2 Work lights

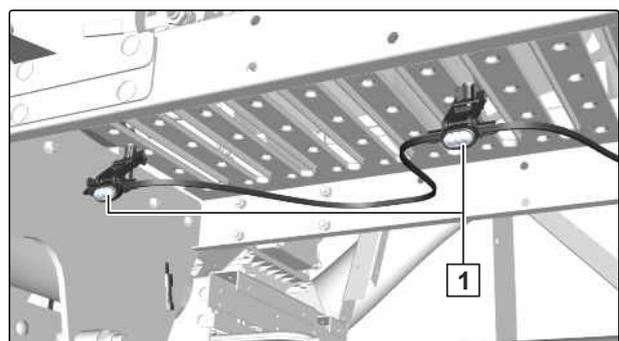
The work floodlights **1** make the working area more visible in the dark. The work floodlights are switched on and off via the control terminal or control computer.



CMS-T-00009795-A.1

CMS-I-00006845

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

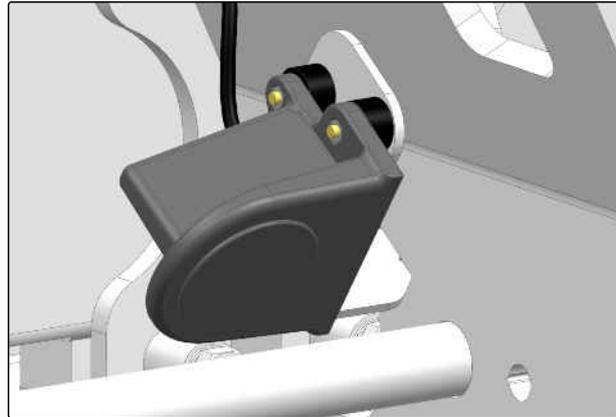


CMS-I-00006848

### 4.16 Radar sensor

CMS-T-00001778-B.1

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

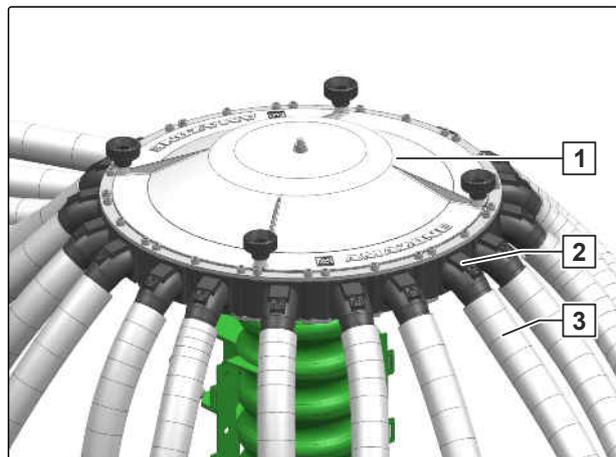


CMS-I-00002221

### 4.17 Segment distributor head

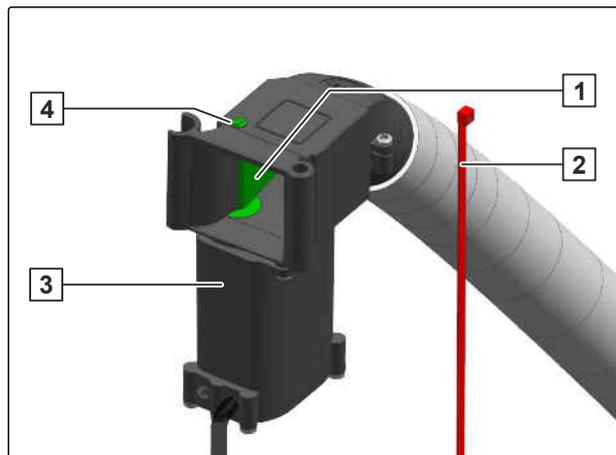
CMS-T-00007197-B.1

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

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 **2**. The arrow **4** shows whether the flap is closed or open.



CMS-I-00003165

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

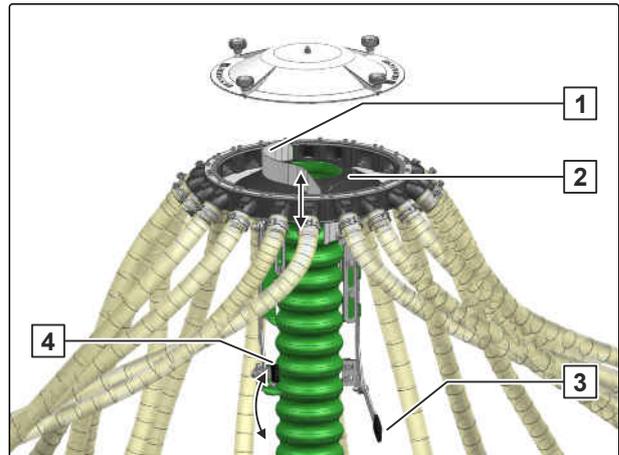
The tramline segments in the segment distributor head can be expanded, repositioned or replaced with segments without flaps.

## 4.18 One-sided switching

CMS-T-00004976-C.1

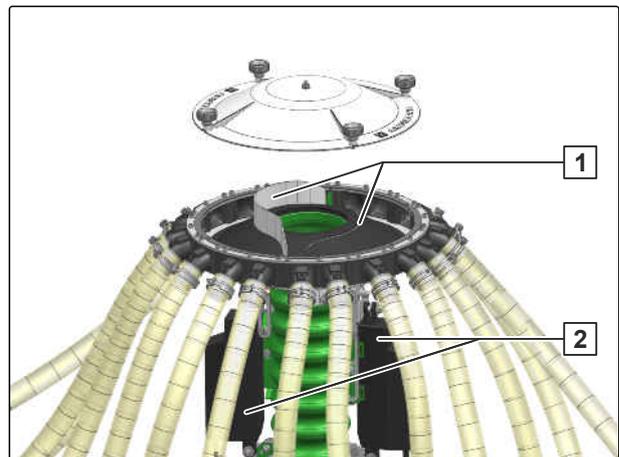
Some tramline rhythms require that the first field pass be done with half the working width.

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**.

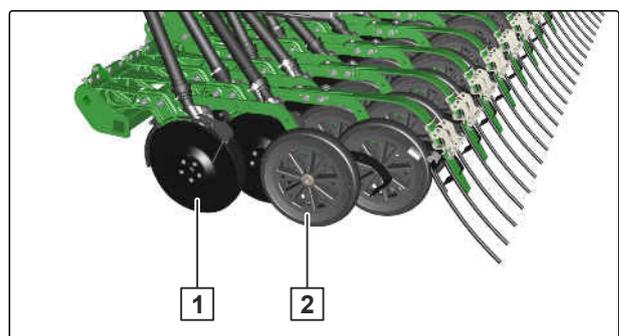


CMS-I-00003587

## 4.19 TwinTeC Special coulters

CMS-T-00008728-A.1

The TwinTeC Special coulters is a double-disc coulters that deposits seed and fertiliser on ploughed or mulched soil. The cutting discs **1** form the seed furrow. The metered material is guided between the concave discs and falls into the seed furrow. The depth control wheel **2** 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.



CMS-I-00005976

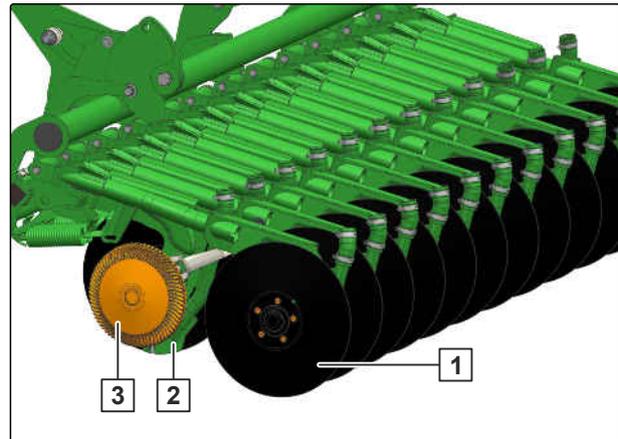
For soil tillage without seeding, the coulters can be lifted.

## 4.20 RoTeC coulters

CMS-T-00007307-A.1

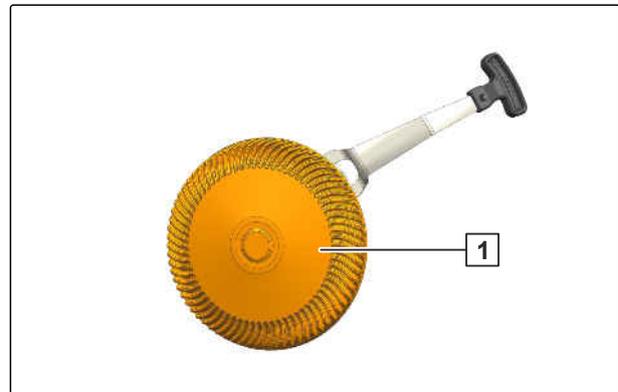
The RoTeC coulters are a single disc coulters for ploughed or mulched soils. The furrow former **2** and the cutting discs **1** shape the seed furrow, into which the metered material is dropped. The depth control discs or depth control wheel **3** limit the placement depth and clean the cutting discs.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

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



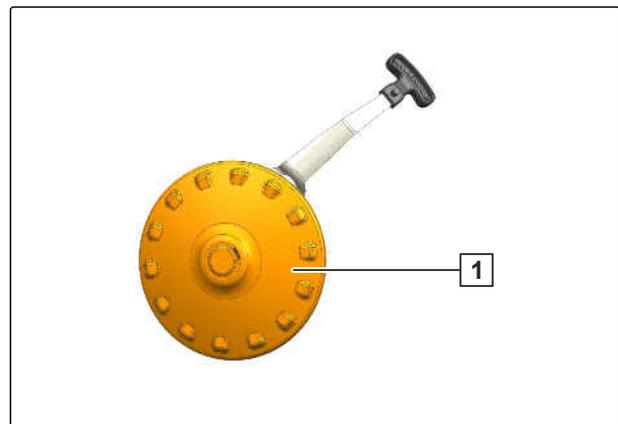
CMS-I-00005194

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

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-B.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.

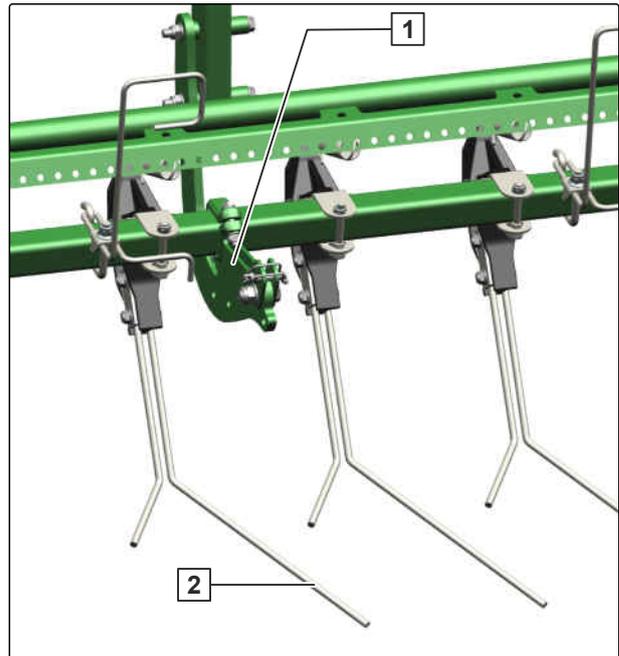
The position of the harrow tines can be adjusted.

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 lynch 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.



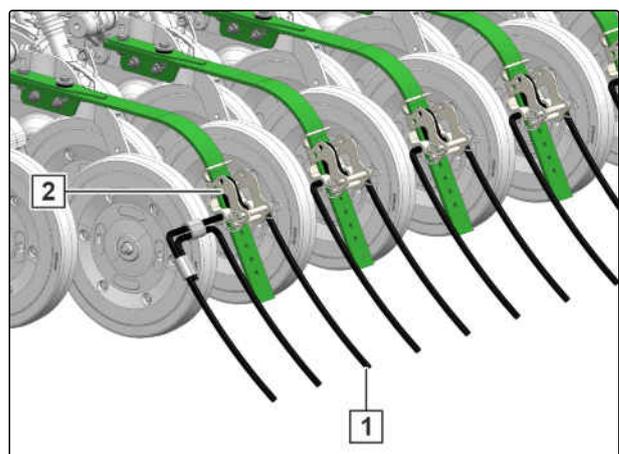
CMS-I-00004589

## 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.



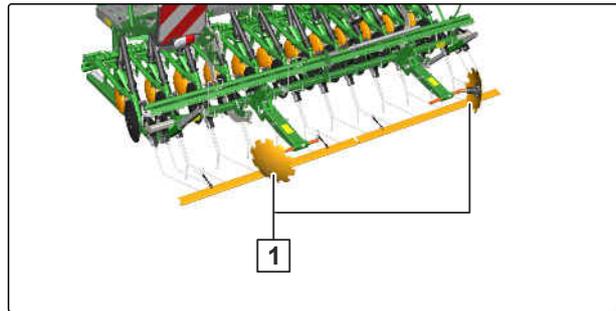
CMS-I-00004734

### 4.23 Tramline marker

CMS-T-00008736-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, a different number of discs can be installed on the implement. The track width and the pitch of the track discs can be adjusted.



CMS-I-00005978

### 4.24 Track marker

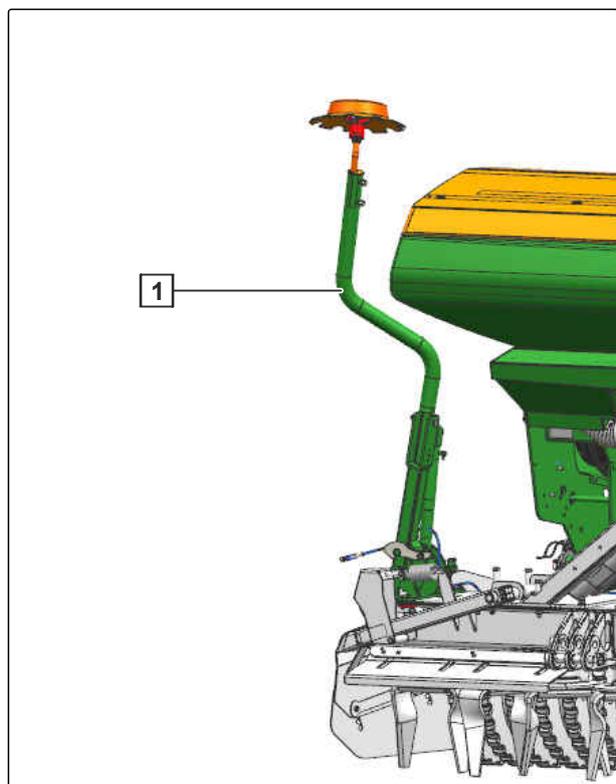
CMS-T-00007279-A.1

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

## Technical data

# 5

CMS-T-00009796-A.1

### 5.1 Hopper volume

CMS-T-00009797-A.1

Implement version	Hopper volume
Centaya 3000 Special (without extension)	1,000 l
Centaya 3000 Special (with extension)	1,500 l

### 5.2 Dimensions

CMS-T-00009798-A.1

Dimensions	Centaya 3000 Special
Transport width	3 m
Working width	3 m

### 5.3 QuickLink quick-coupling system

CMS-T-00010536-A.1

Working width of the implement	Distance of the QuickLink catching sockets
3 m	2,029 mm ± 3 mm

### 5.4 Optimal working speed

CMS-T-00009799-A.1

Seeding coulter	Working speed, depending on the soil tillage implement
TwinTeC Special coulter	8 km/h to 12 km/h
RoTeC coulter	6 km/h to 12 km/h

## 5.5 Soil tillage tools

CMS-T-00009802-A.1

Dimensions	Centaya 3000 Special	
	with TwinTeC Special coulters	with RoTeC coulters
Number of rows	20	24
Row spacing	15 cm	12.5 cm

## 5.6 Noise development data

CMS-T-00009801-A.1

The details for the workplace-related emission values (sound pressure level) can be found the operating manual of your soil tillage implement.

The noise level mainly depends on the tractor.

## 5.7 Permitted mounting categories

CMS-T-00009800-A.1

Type	Mounting frame for the seed drill	3-point mounting frame of the carrying implement
Centaya 3000 Special	QuickLink	Category 3

## 5.8 Drivable slope inclination

CMS-T-00009804-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-00009803-A.1

Type	Engine rating
Centaya 3000 Special	Starting at 81 kW / 110 PS

<b>Electrical system</b>	
Battery voltage	12 V
Lighting socket	7-pin

<b>Hydraulic system</b>	
Maximum operating pressure	210 bar
Tractor pump output	At least 10 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

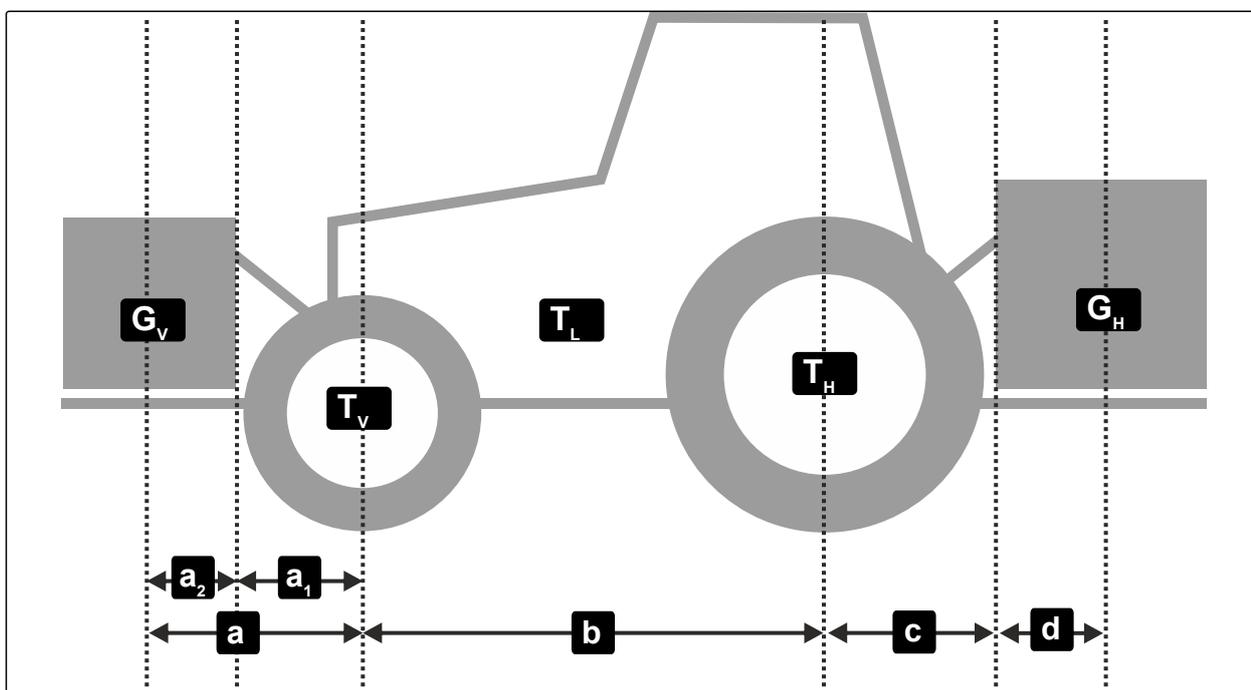
# Preparing the implement

# 6

CMS-T-00009992-A.1

## 6.1 Calculating the required tractor characteristics

CMS-T-0000063-E.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	

Designation	Unit	Description	Calculated values
a <sub>1</sub>	m	Distance between the centre of the front axle and the centre of the lower link connection	
a <sub>2</sub>	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.

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

G<sub>min</sub> = \_\_\_\_\_

G<sub>min</sub> =

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<sub>Vtat</sub> = \_\_\_\_\_

T<sub>Vtat</sub> =

CMS-I-00000516

**6 | Preparing the implement**  
**Calculating the required tractor characteristics**

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 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.

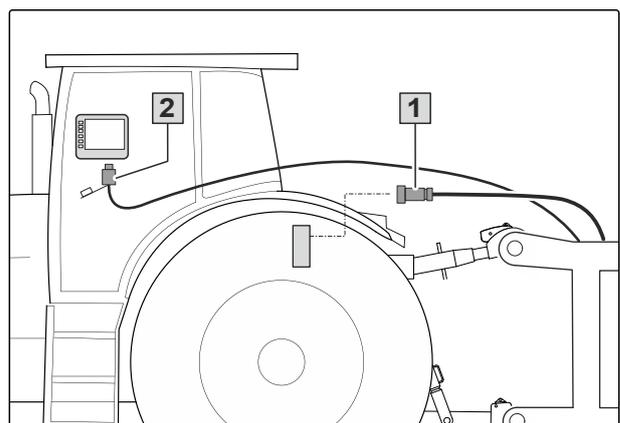
## 6.3 Coupling the implement

CMS-T-00009807-A.1

### 6.3.1 Coupling the ISOBUS or control computer

CMS-I-00003611-E.1

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

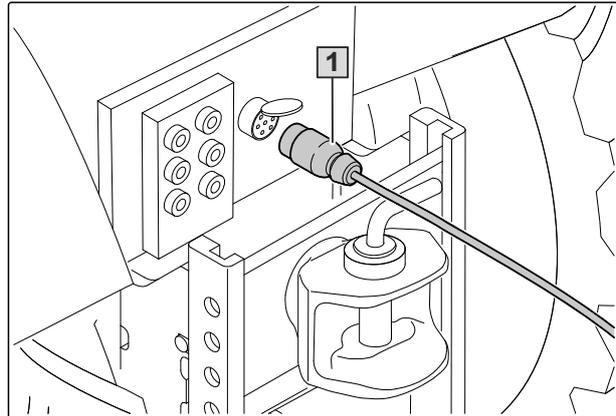


CMS-I-00006891

### 6.3.2 Coupling the power supply

CMS-T-00001399-F.1

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

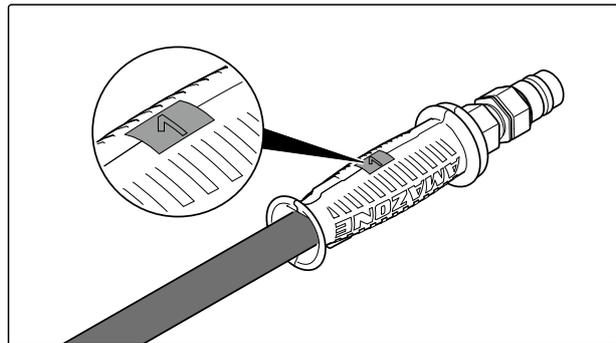


CMS-I-00001048

### 6.3.3 Coupling the hydraulic hose lines

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.

CMS-T-00009866-A.1



CMS-I-00000121

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

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

Designation		Function			Tractor control unit	
Yellow			Tramline marker	Lifting	Single-acting	
Green			Coulter pressure	Increase	Double-acting	
			Seed rate increase	Reduce		
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.

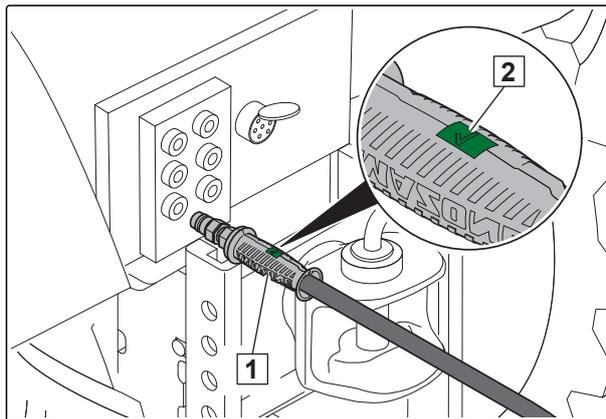
## 6 | Preparing the implement

### 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 or pinching points.

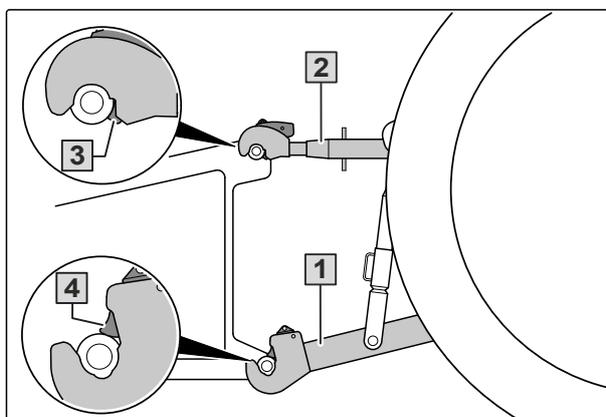


CMS-I-00001045

### 6.3.4 Coupling the 3-point mounting frame

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-T-00001400-G.1



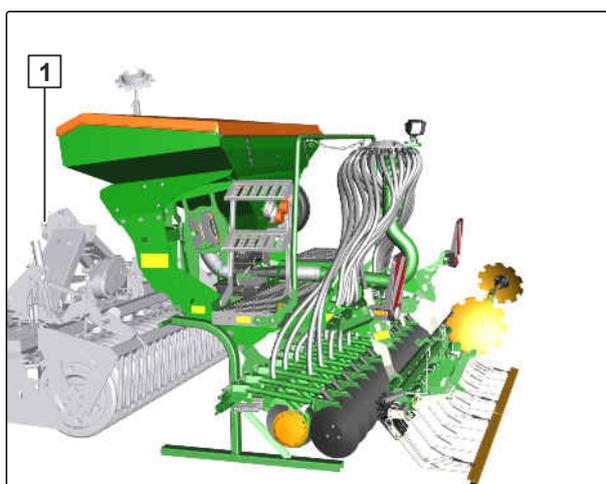
CMS-I-00001225

### 6.3.5 Coupling the Centaya pack top seed drill

1. Slowly drive the tractor with the coupled soil tillage implement **1** under the pack top seed drill.

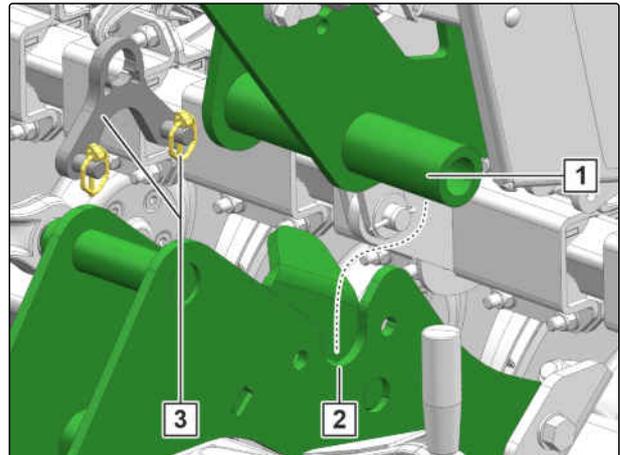
➔ The QuickLink pins for the pack top seed drill are lined up with the QuickLink catching sockets of the soil tillage implement.

CMS-T-00009821-A.1



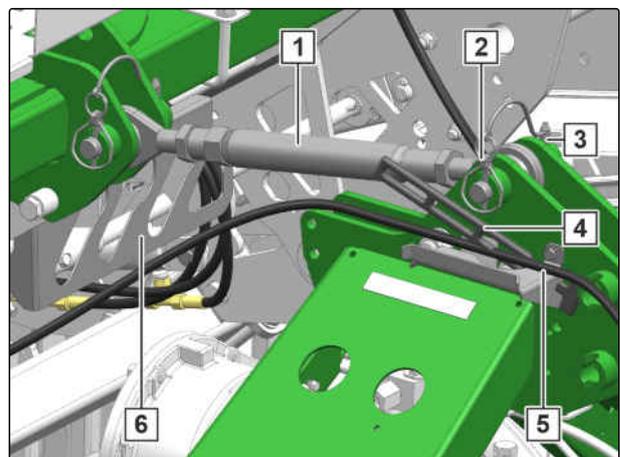
CMS-I-00006856

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.



CMS-I-00006782

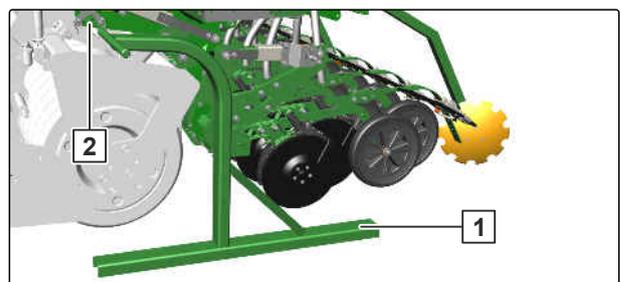
On the KE/KX/KG rotary cultivator with 1-tube roller frame, the top link is adjusted to a length of 445 mm.

On the KE/KX/KG rotary cultivator with 2-tube roller frame, the top link is adjusted to a length of 505 mm.

9. Adjust the top link to the desired length.
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.*



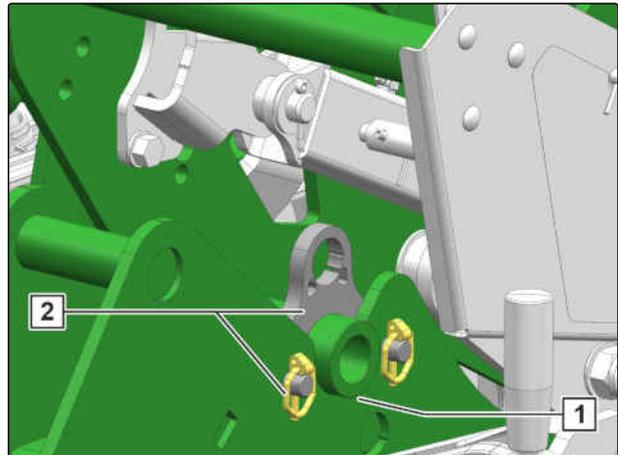
CMS-I-00007204

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

## 6 | Preparing the implement

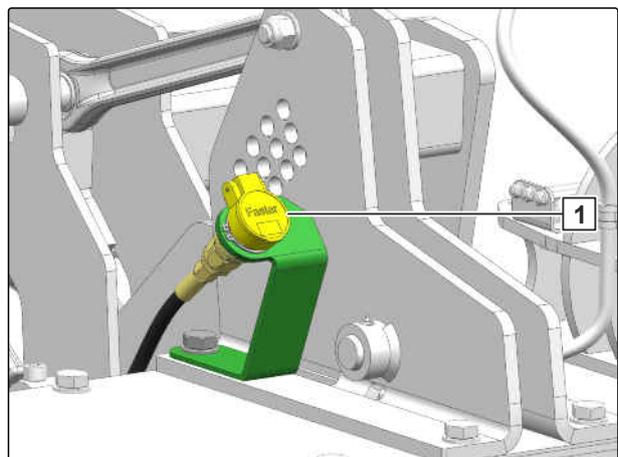
### Coupling the implement

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



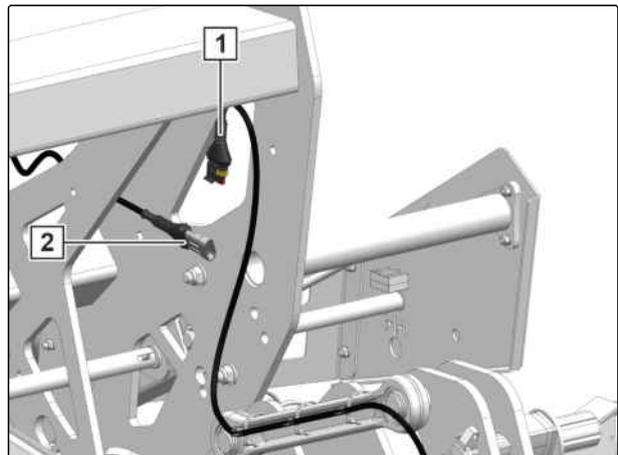
CMS-I-00003593

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



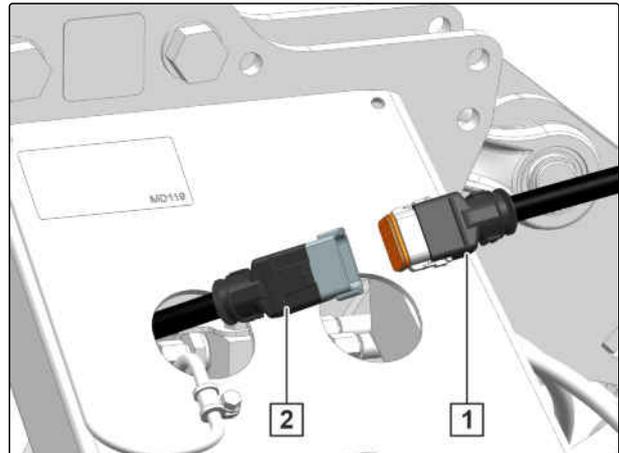
CMS-I-00003485

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

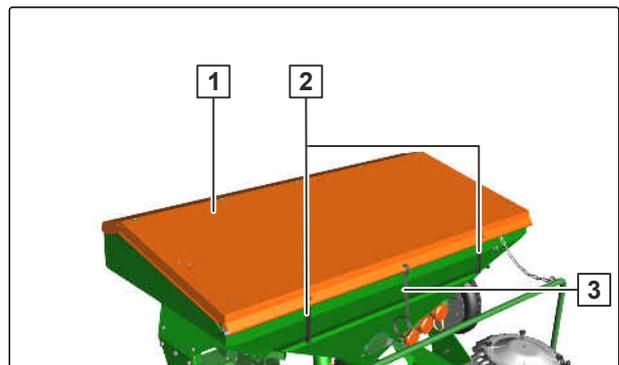
## 6.4 Preparing the implement for operation

CMS-T-00009808-A.1

### 6.4.1 Opening and closing the roller tarpaulin

CMS-T-00009945-A.1

1. Hold onto the belt **3**.
2. Release the straps **2** 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.



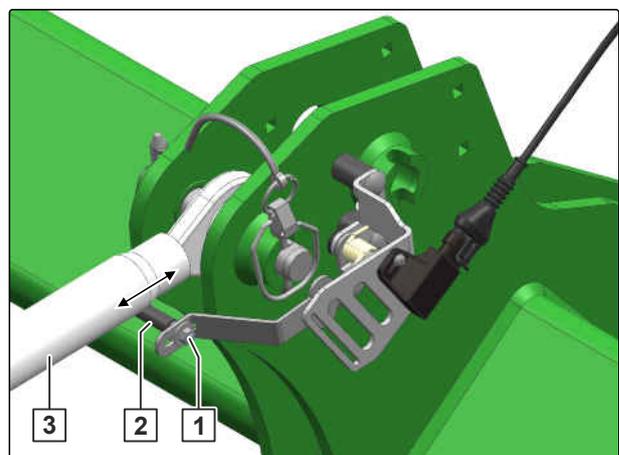
CMS-I-00006780

### 6.4.2 Adjusting the working position sensor

CMS-T-00003625-E.1

The working position sensor monitors the implement position in the three-point hydraulic system and switches the metering drives. The lever length is adjustable.

1. Loosen the nut **1**.
2. Place the lever **2** on an level contact surface on the top link **3**.
3. Tighten the nut.
4. *To ensure that the working position sensor is resting on a level surface,*  
completely lift and lower the implement.



CMS-I-00002608

## 6 | Preparing the implement

### Preparing the implement for operation

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.

#### 6.4.3 Setting the fill level sensor

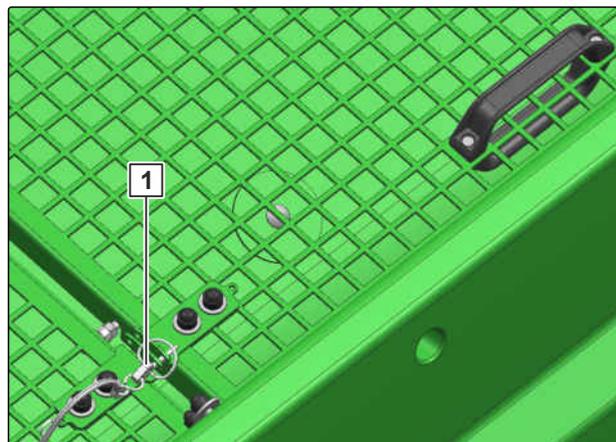
CMS-T-00009822-A.1

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.

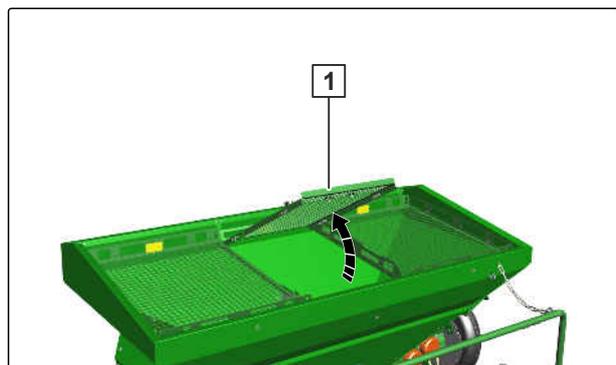
At higher spread rates, the fill level sensor must be attached in the upper area of the hopper.

1. Open the roller tarpaulin.
2. Remove the linch pin **1**.



CMS-I-00005314

3. Take out the charging sieve **1**.



CMS-I-00006778

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

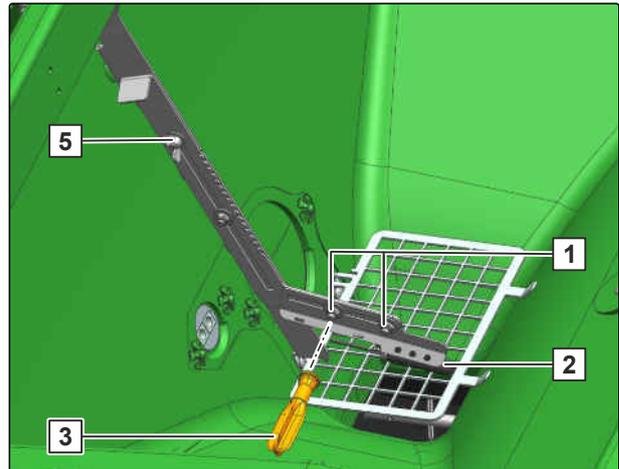
➔ The fill level sensor **2** can be set vertically.

For seeds with high spread 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 fill level sensor is installed in the lower area, the warning message appears very late.

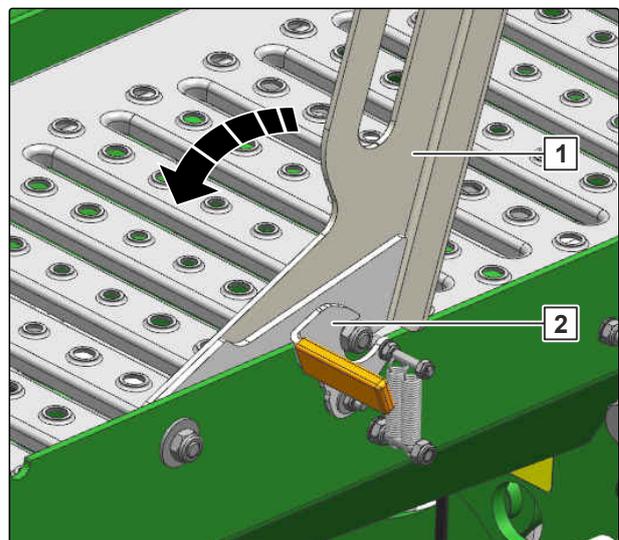
#### 6.4.4 Filling the hopper

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-00009947-A.1

CMS-I-00005277

## 6 | Preparing the implement

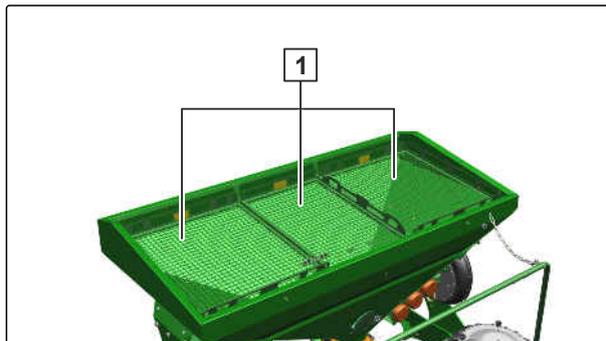
### Preparing the implement for operation

5. Depending on the implement equipment, fill the hopper through the hopper sieve **1**

or

fill the hopper directly.

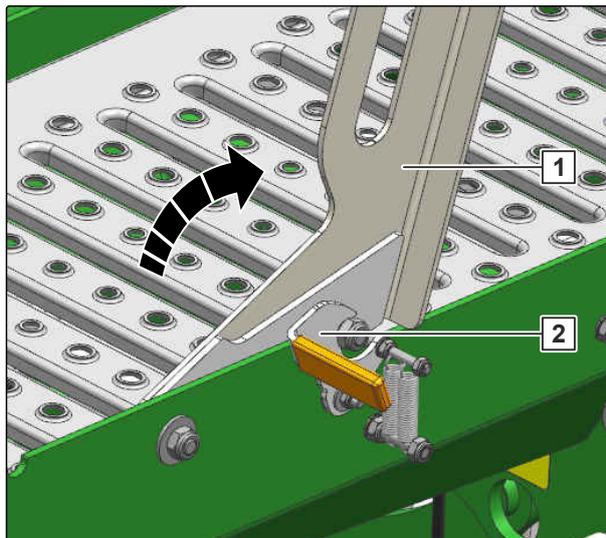
6. Close the roller tarpaulin.



CMS-I-00006777

7. Swivel up the loading board **1**.

8. Secure the loading board with the locking mechanism **2**.



CMS-I-00005281

### 6.4.5 Adjusting the coulter pressure on the TwinTeC Special coulters

CMS-T-00010310-A.1

#### 6.4.5.1 Adjusting the coulter pressure mechanically

CMS-T-00010311-A.1

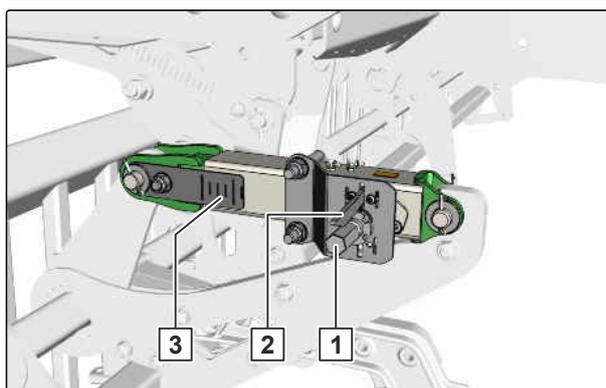
#### **i** NOTE

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

1. Lift the implement.

The coulter pressure is adjusted with two adjustment spindles. The adjustment spindles are located on the right and left side of the implement respectively.

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



CMS-I-00007037

3. *To reduce the coulter pressure,*  
turn the universal operating tool counter-  
clockwise

or

*To increase the coulter pressure,*  
turn the universal operating tool clockwise.

4. The scale **3** serves as orientation.
5. Take off the universal operating tool and allow the  
catch **2** to engage in a groove of the grid.
6. *To check the setting,*  
seed for approx. 30 m at working speed and then  
check the work pattern.

#### 6.4.5.2 Adjusting the coulter pressure hydraulically

CMS-T-00004361-C.1



#### NOTE

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



#### 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*".
2. *Adjust the values for the coulter pressure on implements without Comfort hydraulic system,*  
see ISOBUS software operating manual "*Coulter pressure settings*".

## 6 | Preparing the implement

### Preparing the implement for operation

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.

### 6.4.6 Adjusting the coulter pressure on the RoTeC coulter

CMS-T-00010309-A.1

#### 6.4.6.1 Adjusting the coulter pressure mechanically

CMS-T-00008917-A.1

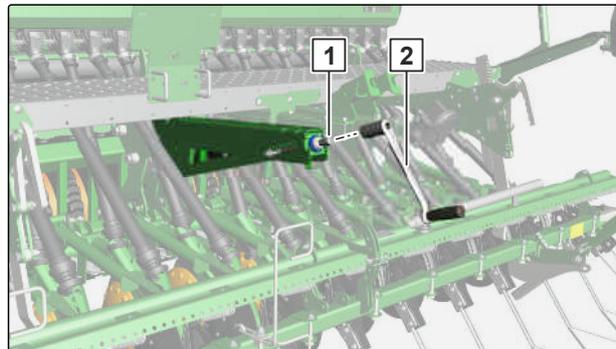
1. Put the universal operating tool **2** on the adjustment spindle **1**.

2. To reduce the coulter pressure, turn the universal operating tool counter-clockwise **-**.

or

To increase the coulter pressure, turn the universal operating tool clockwise **+**.

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



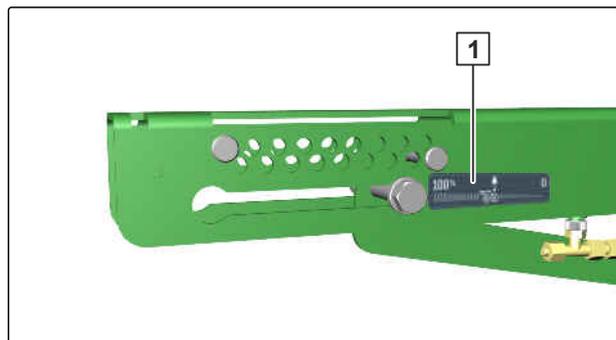
CMS-I-00006157

#### 6.4.6.2 Adjusting the coulter pressure hydraulically

CMS-T-00008940-A.1

The coulter pressure can be adapted to the soil during operation when changing to heavy or soft soil. Two pins in an adjuster segment act as the stop for the hydraulic cylinder.

The scale **1** serves as orientation for adjusting the pins.



CMS-I-00006171

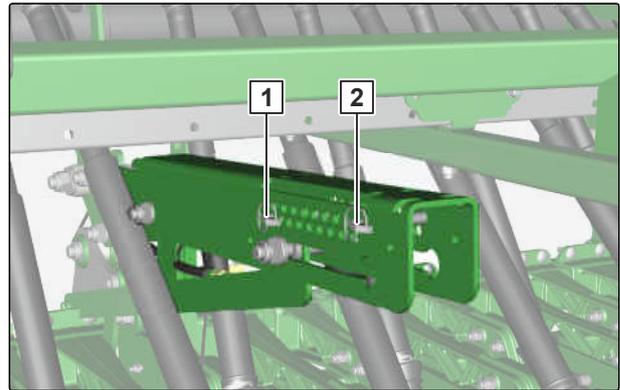


## WARNING

### 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.*



CMS-I-00006168

1. *To define the maximum coulter pressure, insert the pin **2** in the desired position.*
2. *To define the minimum coulter pressure, insert the pin **1** in the desired position.*
3. *To increase the coulter pressure, actuate the "green 1" tractor control unit*

or

*To reduce the coulter pressure, put the "green" tractor control unit into float position.*



CMS-I-00005586

- ➔ The mechanical coulter pressure display on the implement shows the set coulter pressure.
4. *To check the setting, seed for approx. 30 m at working speed and then check the work pattern.*

### 6.4.7 Adjusting the seed rate increase

CMS-T-00010570-A.1

The seed rate can be increased if necessary. This can be the case e.g. when changing to heavy soils.

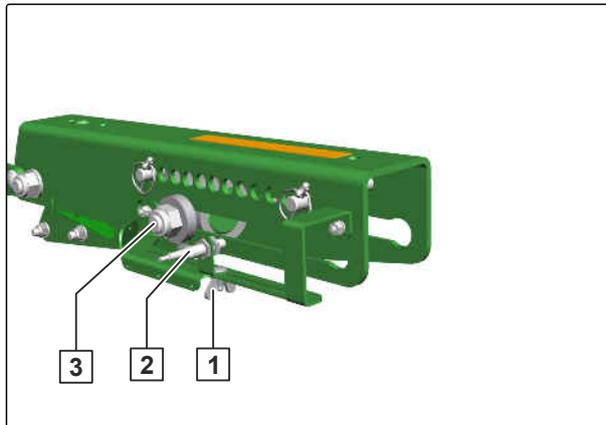


## REQUIREMENTS

Before the seed rate increase is set, the desired coulter pressure must be adjusted.

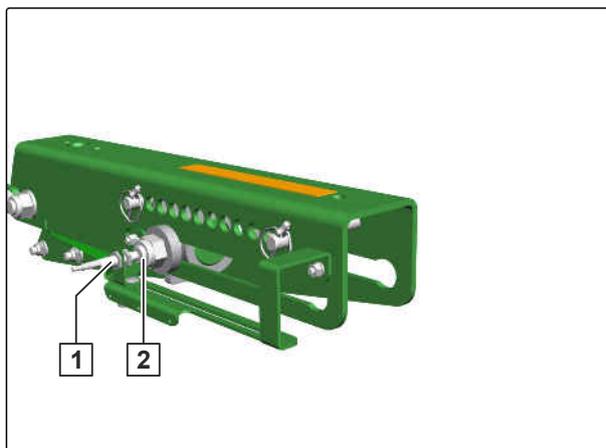
✓ Coulter pressure is adjusted

1. Loosen the wing nut **1**.
2. Slide the sensor **2** to the height of the bolt **3**.



CMS-I-00007209

➔ The sensor **1** is on the bolt **2** of the extended piston rod.



CMS-I-00007210

3. Tighten the wing nut.
4. To set the desired seed rate increase, see "ISOBUS software" operating manual

or

see "control computer" operating manual.

### 6.4.8 Adjusting the placement depth on the TwinTeC Special coulter

CMS-T-00010104-A.1



## NOTE

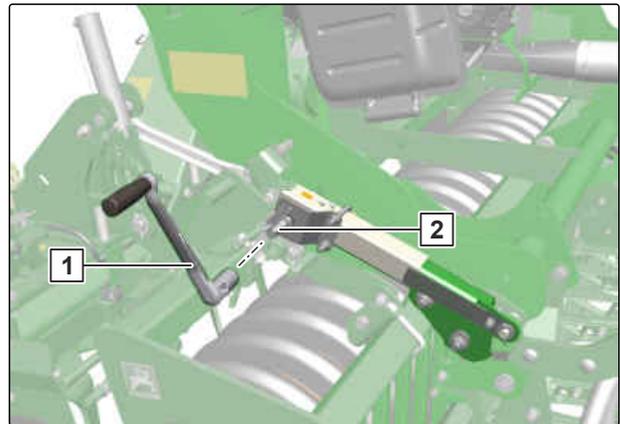
The adjustment of the seed placement depth must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

 **REQUIREMENTS**

- ✓ Adjusting the coulter pressure

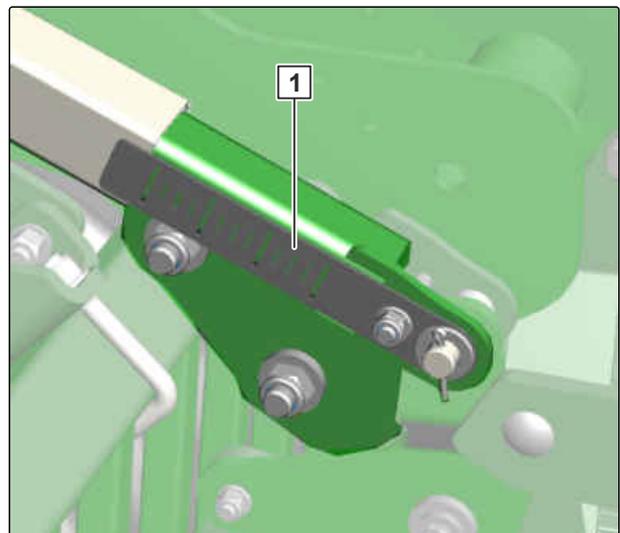
The seed placement depth is adjusted with two adjustment spindles. The adjustment spindles are located on the right and left side of the implement respectively.

1. Put the universal operating tool **1** on the adjustment shaft **2**.



CMS-I-00006883

The scale **1** serves as orientation.



CMS-I-00006884

2. *To reduce the coulter pressure,* turn the universal operating tool counter-clockwise **-**

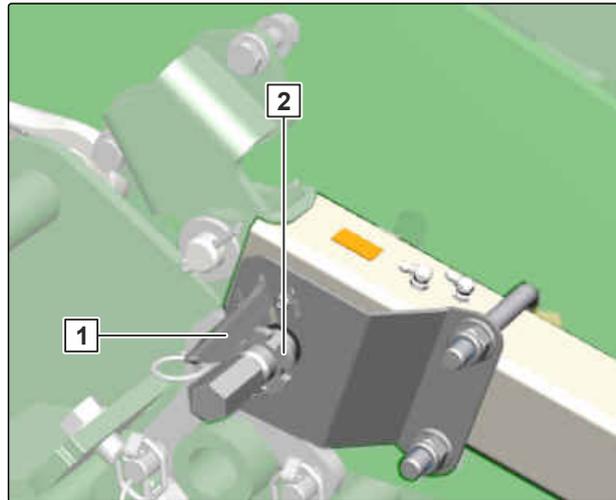
or

*To increase the coulter pressure,* turn the universal operating tool clockwise **+**.

## 6 | Preparing the implement

### Preparing the implement for operation

3. Position the grid **2** such that a groove is at the top.
4. Take off the universal operating tool and allow the catch **1** 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-00006889

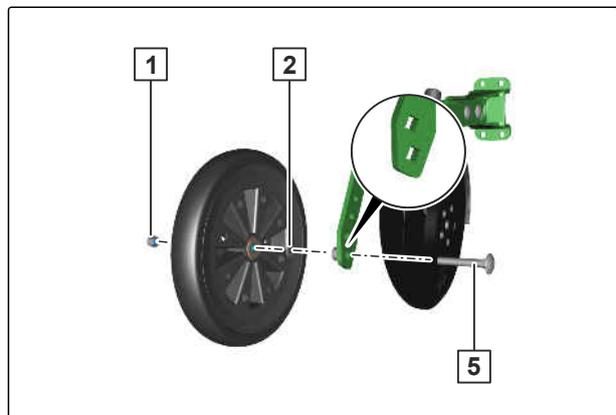
For fine seeds, cereals or legumes, the press roller must be installed at different positions.

6. Remove the nut **1**.
7. Remove the washer **2**.
8. Remove the bolt **5**.
9. *To spread fine seeds or cereals,* install the press rollers in the lower position.

or

*To spread legumes,* install the press rollers in the upper position.

10. Install the bolt **5**.
11. Install the washer **2**.
12. Install the nut **1** and tighten it.



CMS-I-00006162

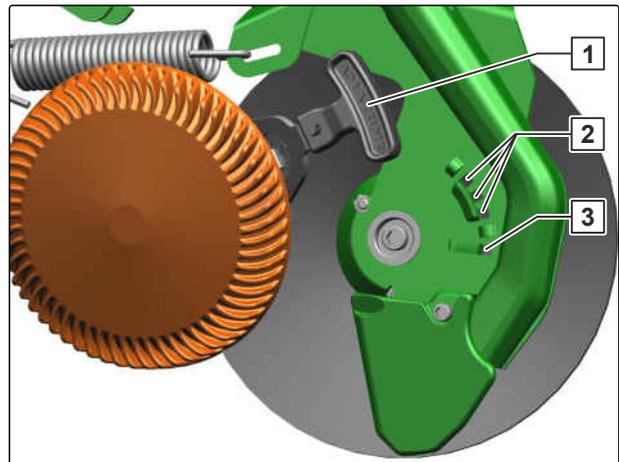
### 6.4.9 Adjusting the placement depth on the RoTeC coulter

CMS-T-00010255-A.1

The placement depth can be adjusted in three 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 completely removed.

#### **i** 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-00004587

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

or

*To completely remove the depth control disc or depth control wheel,*  
move the lever 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.

2. Set all of the depth control discs or depth control wheels at the same height or remove them 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 on the RoTeC coulter*".

## 6.4.10 Adjusting the coulters harrow

CMS-T-00006627-C.1

### 6.4.10.1 Moving the coulters harrow into working position

CMS-T-00009568-B.1

#### 6.4.10.1.1 Moving the coulters harrow into the shallow working position

CMS-T-00009569-A.1

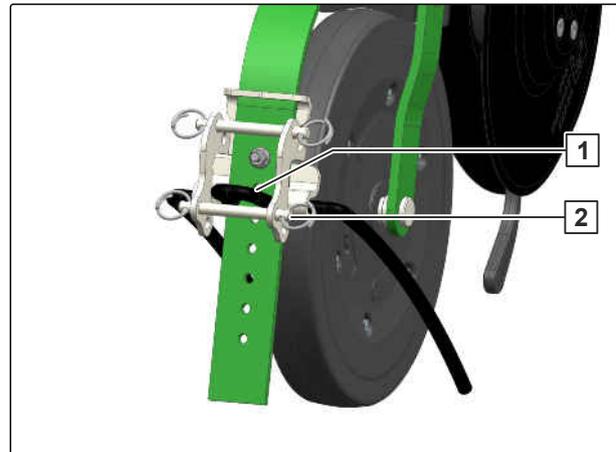
When driving in reverse, the harrow tine **1** folds to the front and rests on the locking pin **2**. As a result, the harrow tine does not protrude into the neighbouring coulters.



#### IMPORTANT

**Damage to the coulters due to folded harrow tines**

- ▶ Do not remove the locking pin.



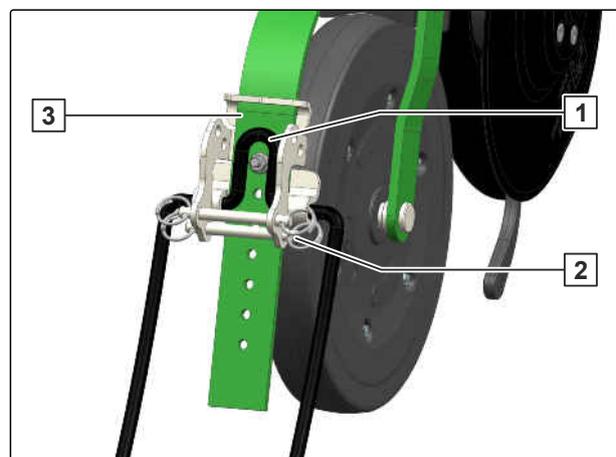
CMS-I-00003184



#### 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

### 6.4.10.1.2 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**

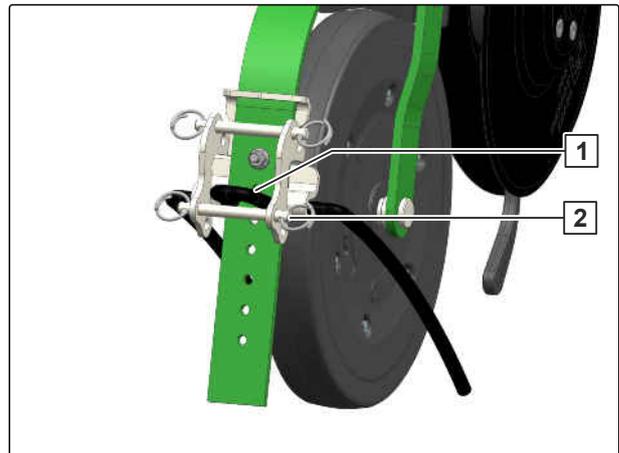
- ▶ Do not remove the locking pin.



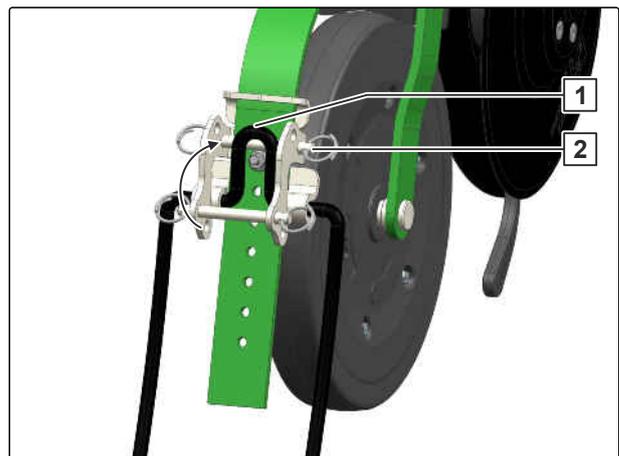
#### NOTE

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-00003184



CMS-I-00003186

### 6.4.10.1.3 Moving the coulter harrow into the steep working position

CMS-T-00009571-A.1

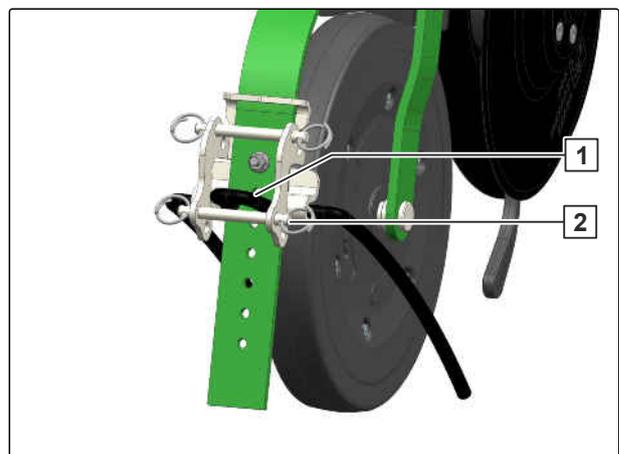
When driving in reverse, the harrow tine **1** folds to the front and rests on the locking pin **2**. As a result, the harrow tine does not protrude into the neighbouring coulters.



#### IMPORTANT

**Damage to the coulters due to folded harrow tines**

- ▶ Do not remove the locking pin.

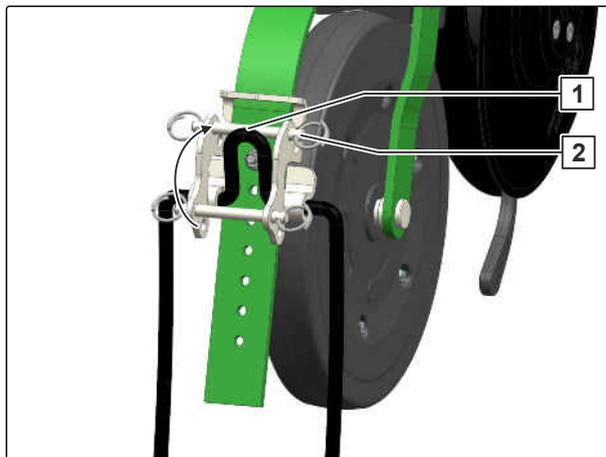


CMS-I-00003184

**i** 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.

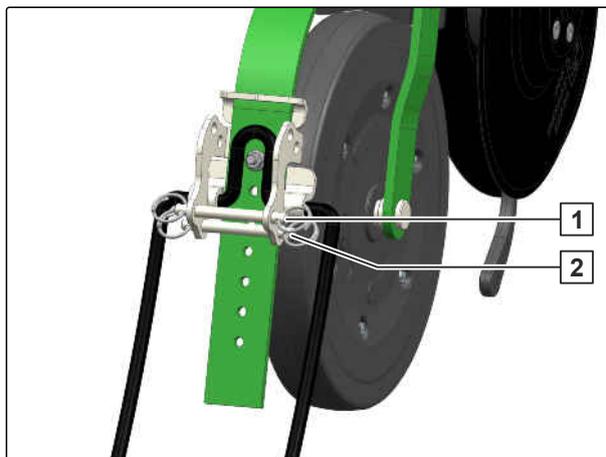
1. Lift the implement.
2. To move the harrow tine **1** to the steep working position, install the pin **2** in the hole shown.  
➔ The harrow tine is resting on the pin.
3. To check the setting, seed for approx. 30 m at working speed and then check the work pattern.



CMS-I-00003185

**6.4.10.2 Deactivating the harrow tines**

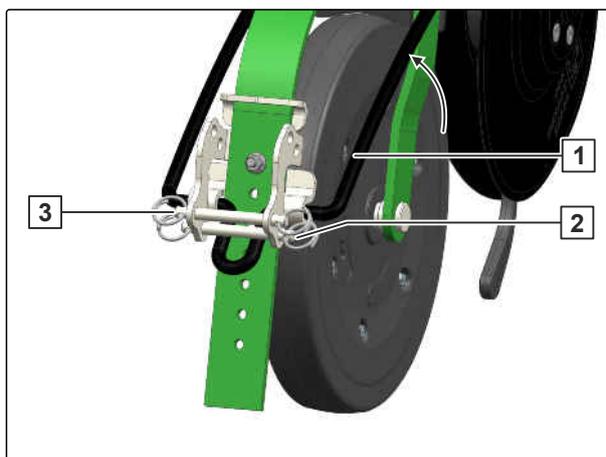
1. Lift the implement.
2. Remove the pins **1** and **2**.



CMS-T-00004370-C.1

CMS-I-00003188

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



CMS-I-00003183

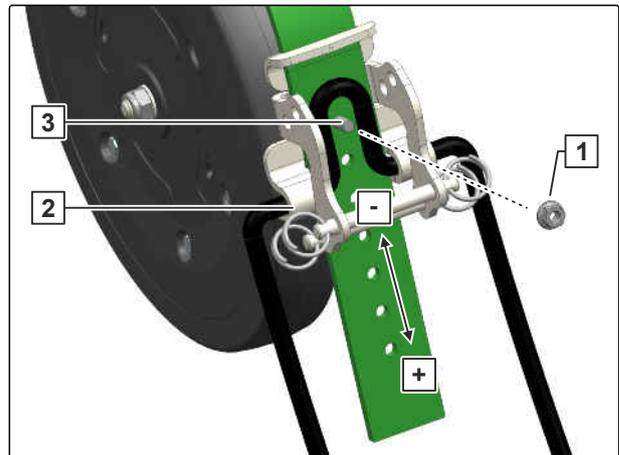
### 6.4.10.3 Adjusting the harrow height

CMS-T-00006457-A.1

#### **i** 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

### 6.4.11 Adjusting the exact following harrow

CMS-T-00008776-A.1

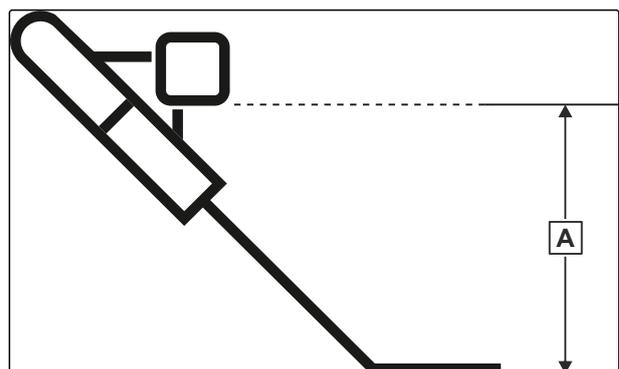
#### 6.4.11.1 Adjusting the position of the exact following harrow tines

CMS-T-00008780-A.1

When the exact following harrow is properly adjusted, the harrow tines rest horizontally on the ground and have 50-80 mm downward play.

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

Depending on the equipment, the exact following harrows can be adjusted with removable bolts or using the universal operating tool. Both versions are listed here.



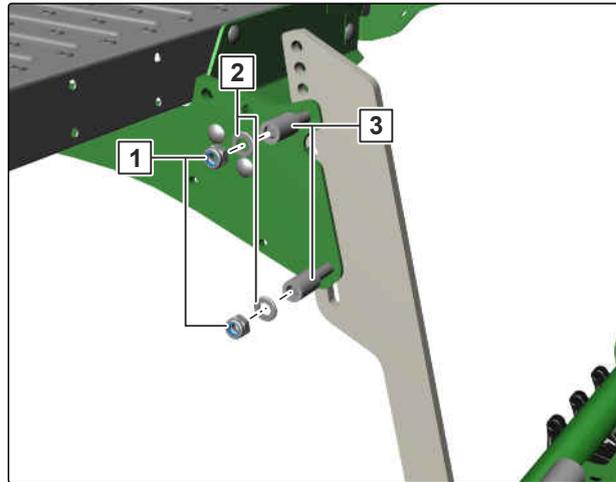
CMS-I-00004668

## 6 | Preparing the implement

### Preparing the implement for operation

The following actions show the adjustment option by removing the bolts.

1. *To be able to remove the bolts,*  
Loosen the nuts **1**.
2. Remove the washers **2**.
3. Remove the bushes **3**.

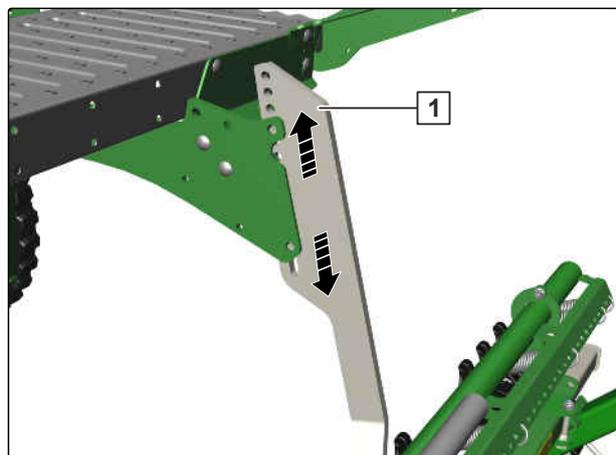


CMS-I-00006021

4. *To set the exact following harrow higher,*  
move the holding arm **1** up.

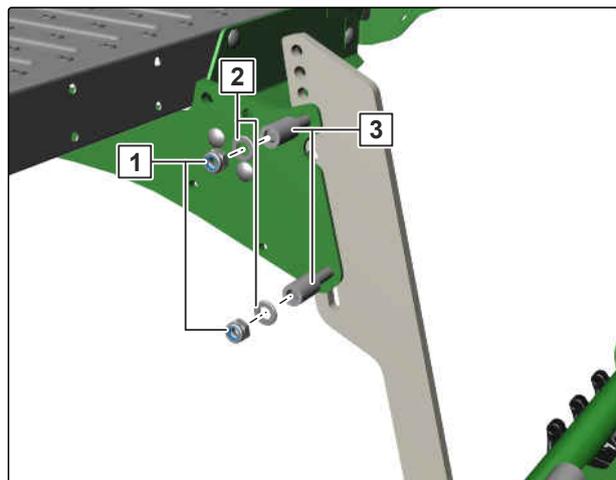
or

*To set the exact following harrow deeper,*  
move the holding arm **1** down.



CMS-I-00006022

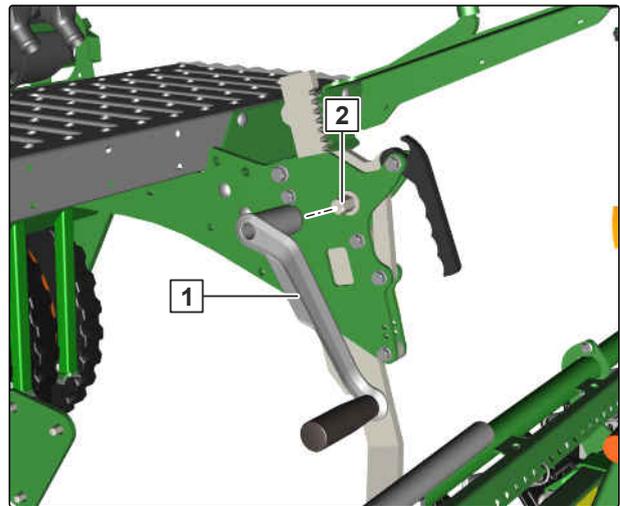
5. Install the bushes **3**.
6. Install the washers **2**.
7. Install the bolts **1**.
8. Tighten the bolts.
9. *To check the setting,*  
seed for approx. 30 m at working speed and then  
check the work pattern.



CMS-I-00006021

The following actions show the adjustment option by removing the bolts.

10. Put the universal operating tool **1** on the adjustment spindle **2**.

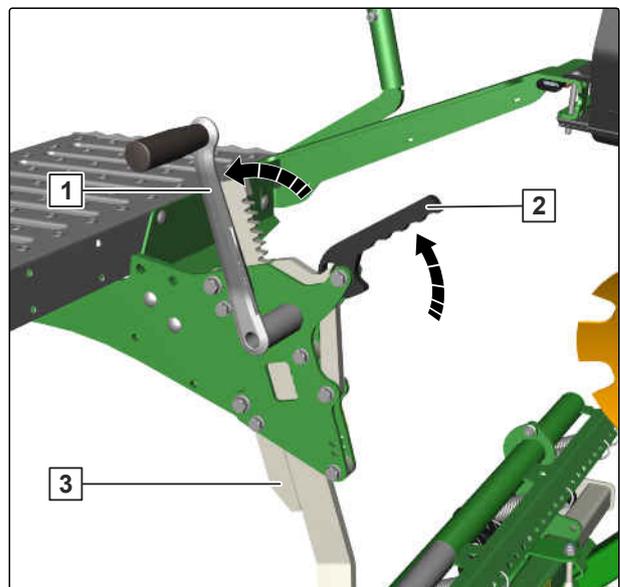


CMS-I-00006028

11. To unlock the holding arm **3**, pull the handle **2** up and hold it.
12. To set the exact following harrow deeper, turn the universal operating tool counter-clockwise

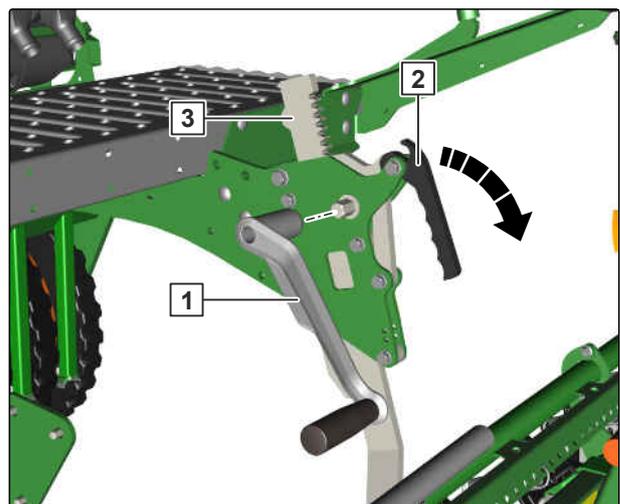
or

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



CMS-I-00006062

13. To lock the holding arm **3**, fold the handle **2** down.
14. To check the setting, seed for approx. 30 m at working speed and then check the work pattern.



CMS-I-00006063

### 6.4.11.2 Adjusting the exact following harrow pressure

CMS-T-00010528-A.1

#### 6.4.11.2.1 Adjusting the exact following harrow pressure hydraulically

CMS-T-00008781-A.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.

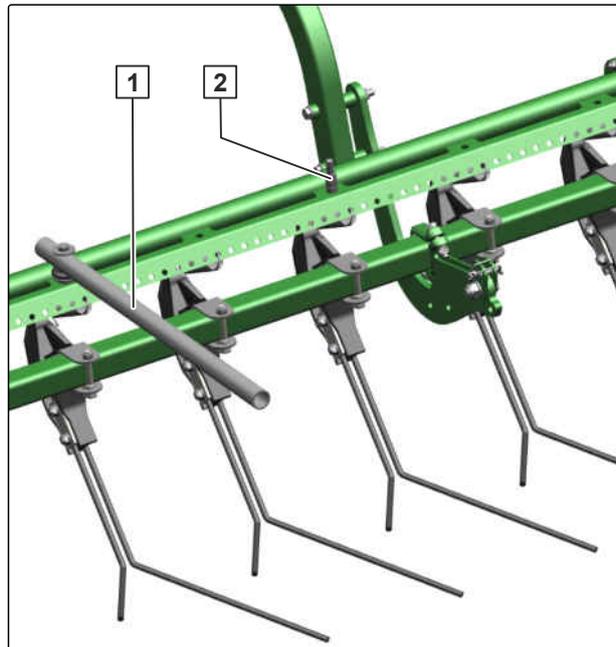
To make adjustments, the minimum pressure and the maximum pressure of the exact following harrow must first be determined by mechanical pegging.

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.

#### **i** NOTE

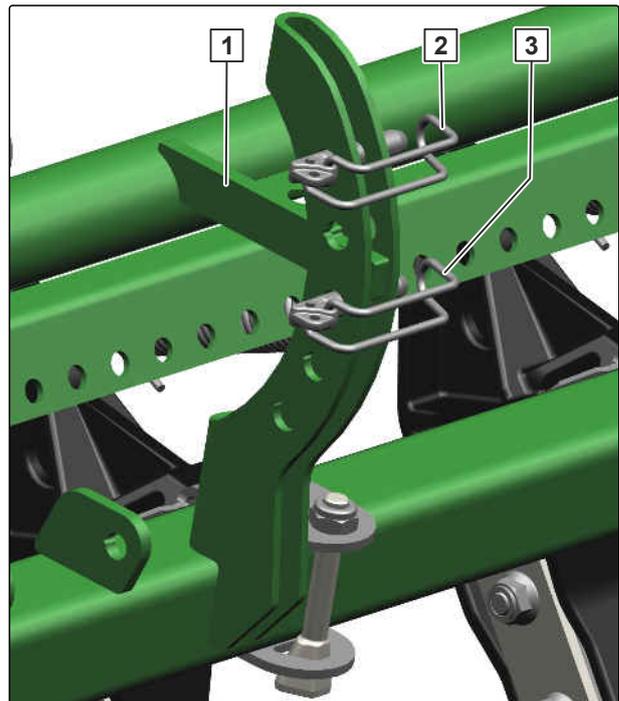
The adjustment of the exact following harrow pressure must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation.

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,*  
put the "green" tractor control unit into float position.

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

#### 6.4.11.2 Adjusting the exact following harrow pressure mechanically

CMS-T-00006333-D.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.

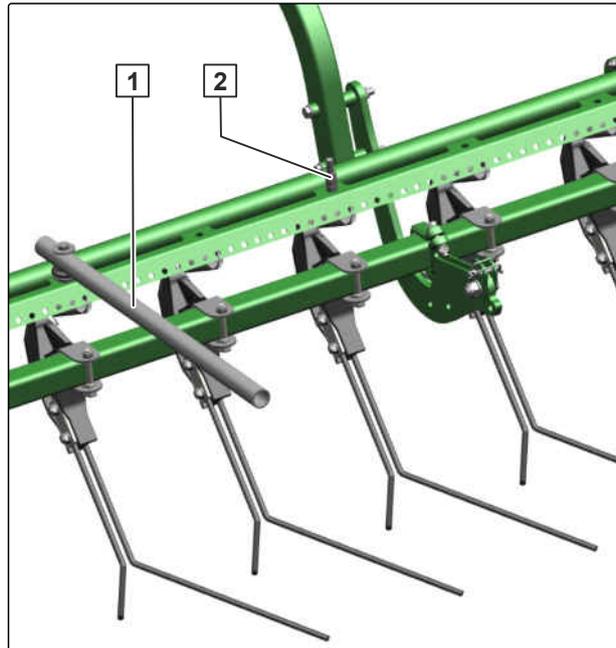
## 6 | Preparing the implement

### Preparing the implement for operation

#### NOTE

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

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



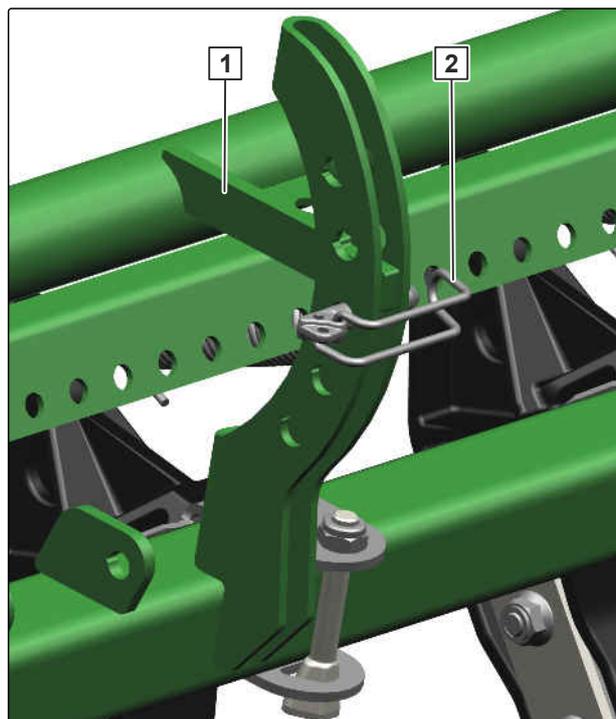
CMS-I-00004673

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

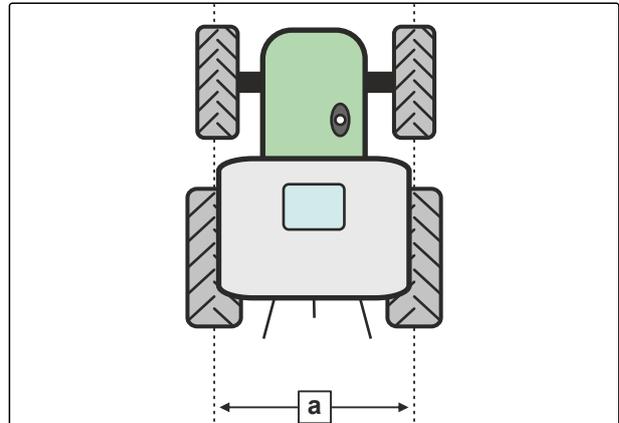
## 6.4.12 Adjusting the tramline marker

CMS-T-00008810-A.1

### 6.4.12.1 Adjusting the track width

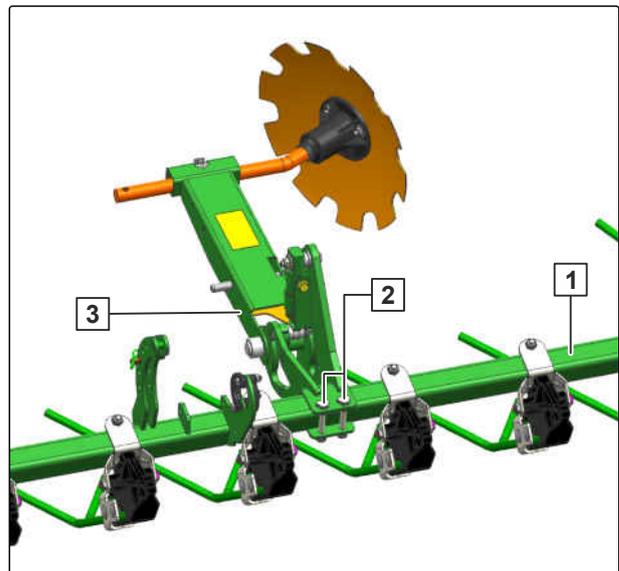
CMS-T-00007403-A.1

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.*

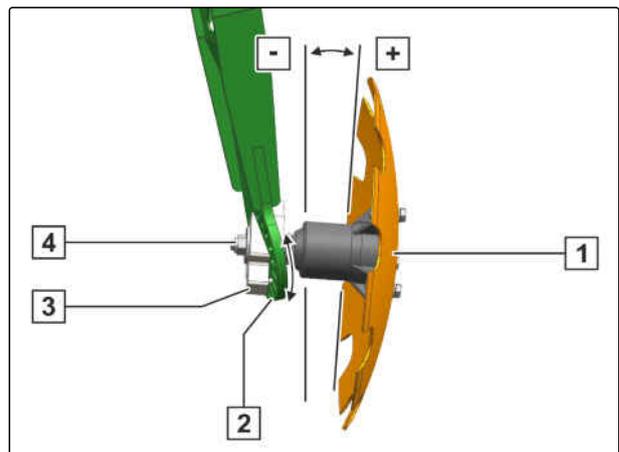


CMS-I-00005172

### 6.4.12.2 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

## 6 | Preparing the implement

### Preparing the implement for operation

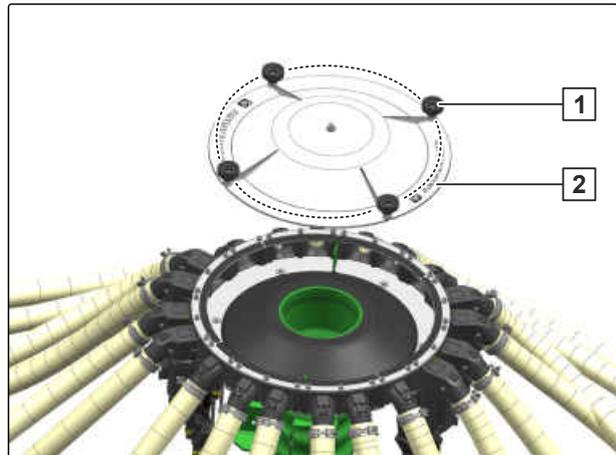
4. Tighten the nut.
5. *To check the setting,*  
seed for approx. 30 m at working speed and then  
check the work pattern.

#### 6.4.13 Adjusting the row spacing

CMS-T-00004489-D.1

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-I-00003190

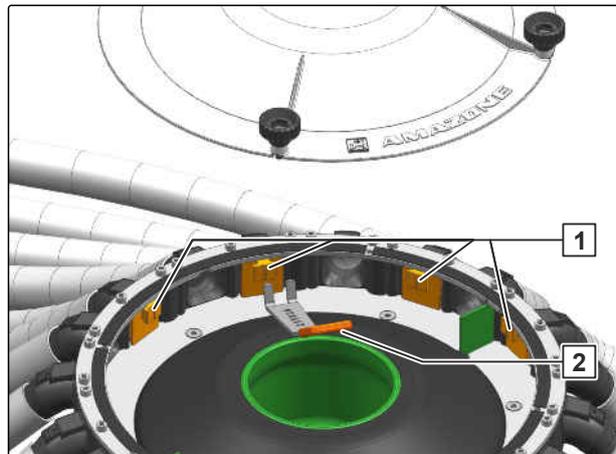
#### **i** NOTE

A maximum of 50 percent of the seed outlets may  
be closed off, otherwise the seed is not deposited  
in the furrow.

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.

### 6.4.14 Setting up the speed sensor

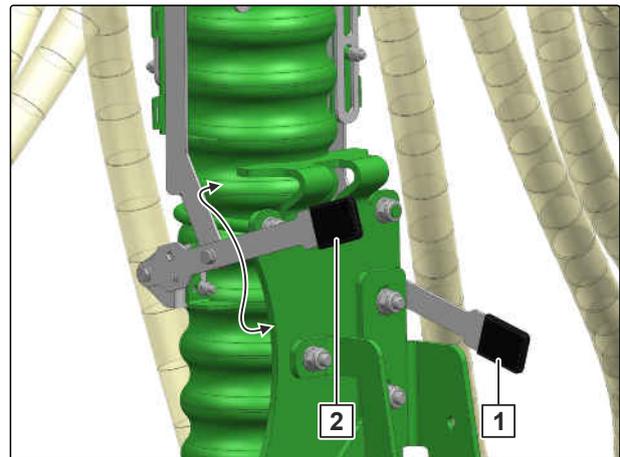
CMS-T-00003210-E.1

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.*"

### 6.4.15 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.

### 6.4.16 Using the loading board steps

CMS-T-00007020-C.1

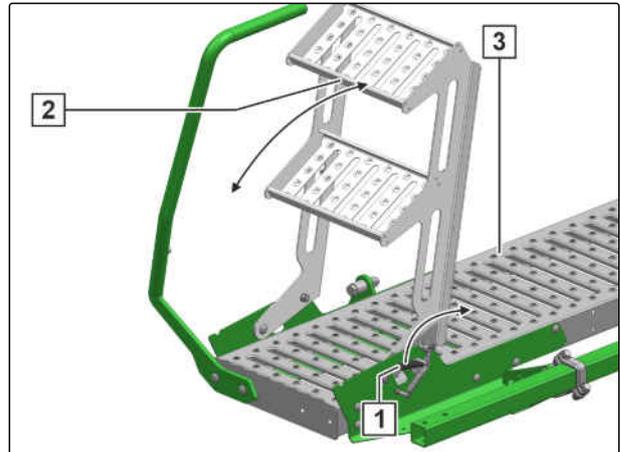
#### ✓ REQUIREMENTS

- ✓ 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.

➔ The transport lock locks automatically.

6. Check whether the transport lock is properly locked.



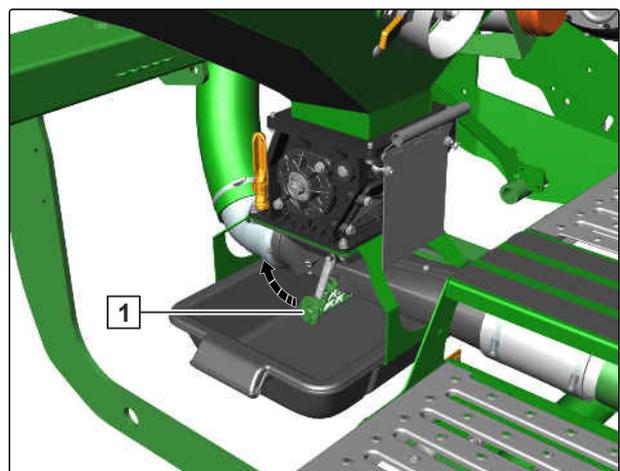
CMS-I-00004942

### 6.4.17 Preparing the metering unit for operation

CMS-T-00009826-A.1

#### 6.4.17.1 Putting the metering unit into operation

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



CMS-T-00010369-A.1

CMS-I-00006791

**6 | Preparing the implement**  
**Preparing the implement for operation**

**6.4.17.2 Selecting the metering roller**

CMS-T-00007509-B.1

Spreading material	Metering volume in cm <sup>3</sup>									
	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						
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						

Spreading material	Metering volume in cm <sup>3</sup>									
	3.75	7.5	20	40	120	210	350	600	660	880
Triticale						X		X		X
Wheat						X	X	X		X
Vetches			X	X		X				
Fertiliser (granular)							X		X	

### **i** 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.

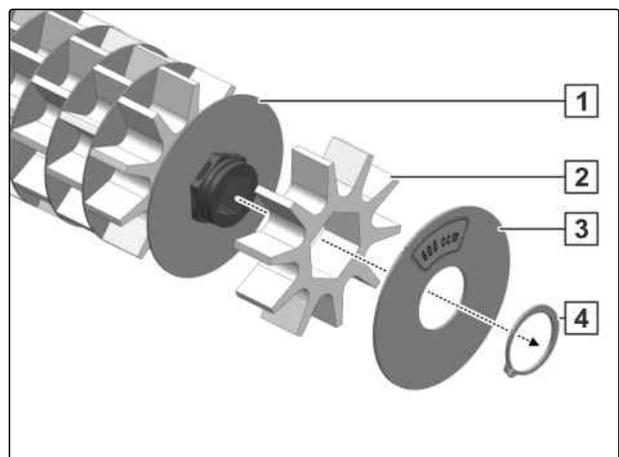
1. Select the metering roller according to the spreading material, see table.
2. *To install the desired metering roller, see section "Changing the metering roller".*
3. *To perform the calibration, see "Calibrating the metering unit".*

#### 6.4.17.3 Enlarging the metering chambers

CMS-T-00003564-E.1

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

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

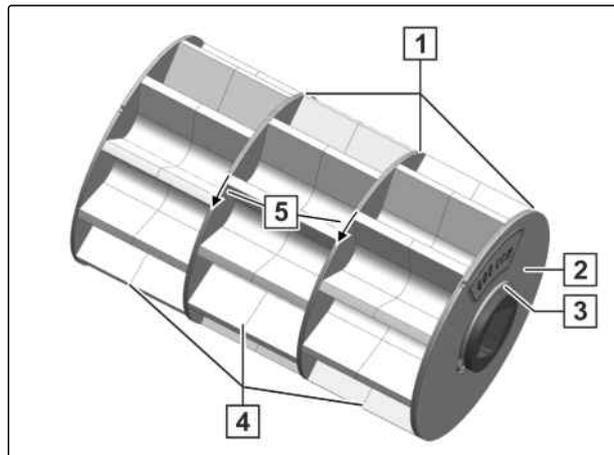


CMS-I-00002550

## 6 | Preparing the implement

### Preparing the implement for operation

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



CMS-I-00002551

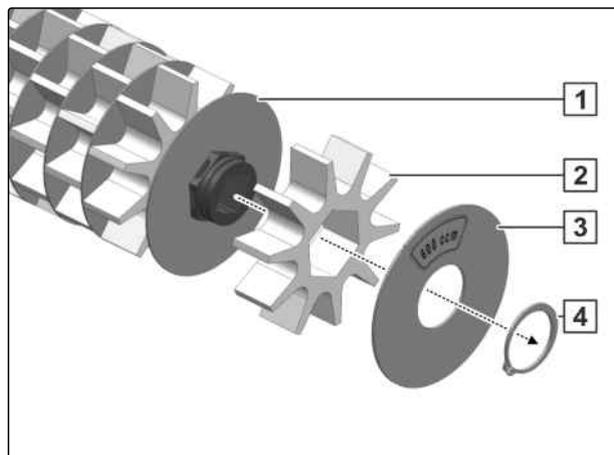
#### 6.4.17.4 Adjusting the metering volume

CMS-T-00003614-D.1

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

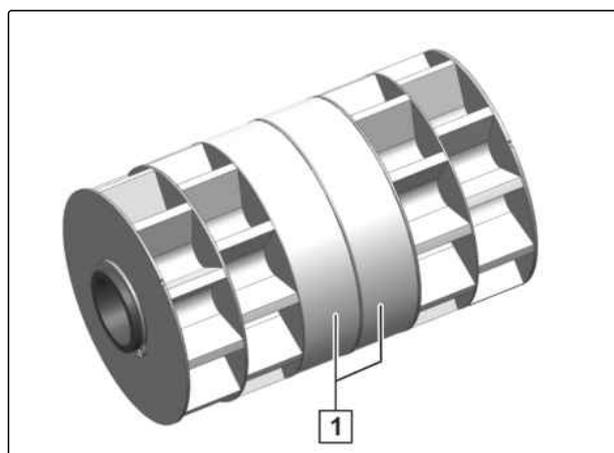
You must select a metering roller volume that is not too large or too small, but that is sufficient to spread the required quantity of spreading material.

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.

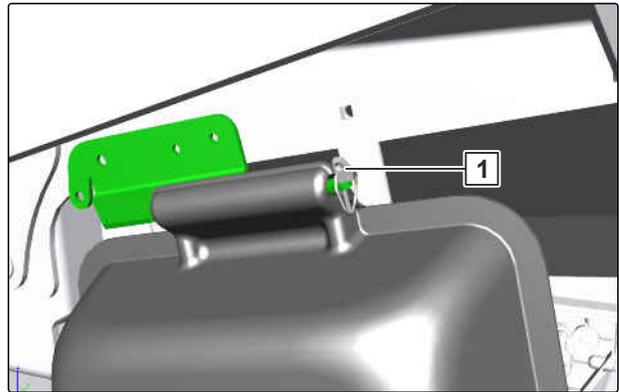


CMS-I-00002552

#### 6.4.17.5 Changing the metering roller

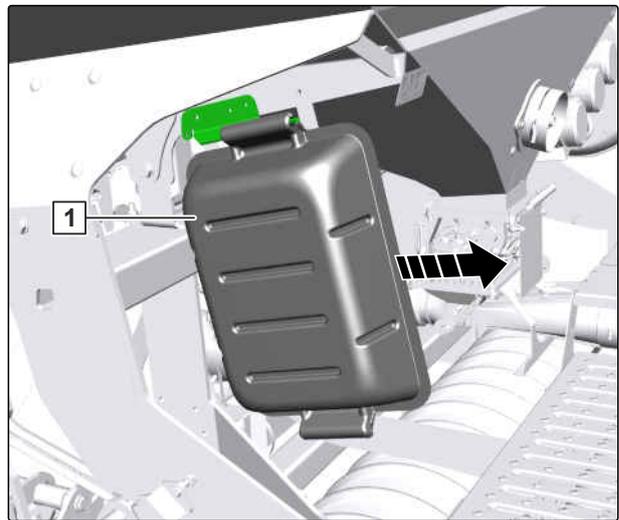
1. Switch off the fan.
2. To unlock the calibration bucket, remove the linch pin **1** from the holder.

CMS-T-00010070-A.1



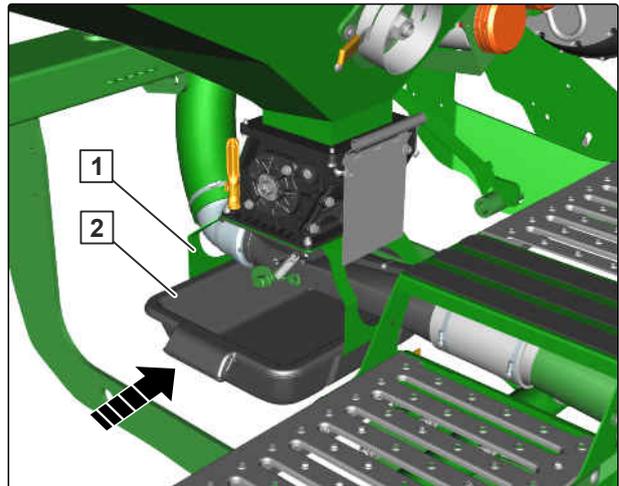
CMS-I-00006873

3. Take the calibration bucket **1** out of the holder.



CMS-I-00006874

4. Slide the calibration bucket **2** into the guide rails **1** so that the calibration bucket is positioned underneath the metering unit.

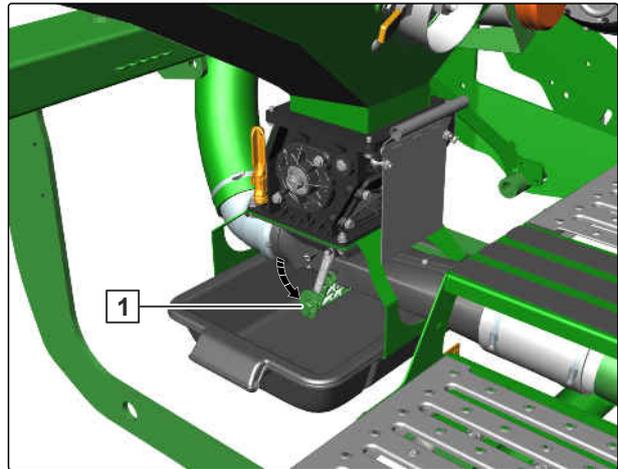


CMS-I-00006785

## 6 | Preparing the implement

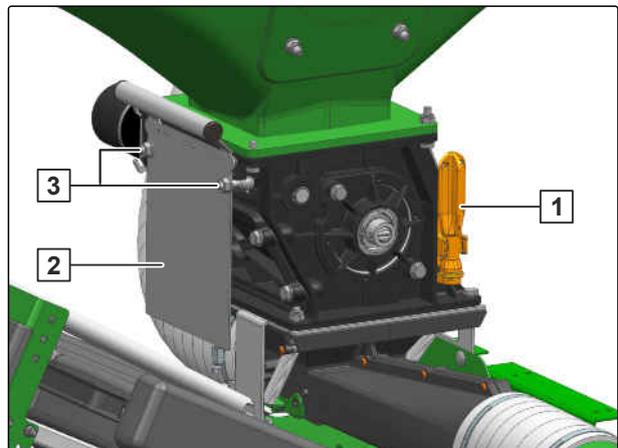
### Preparing the implement for operation

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



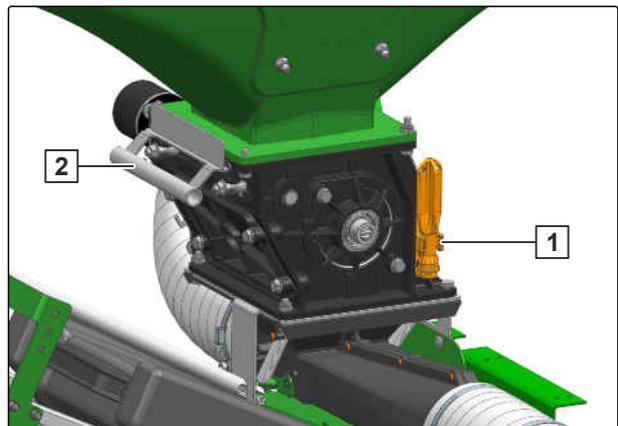
CMS-I-00006787

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".



CMS-I-00005259

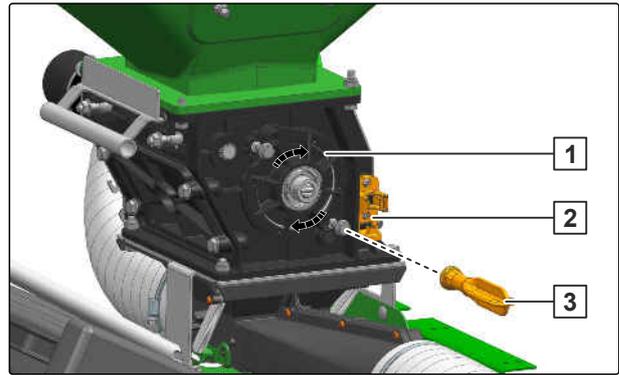
or

see "control computer" operating manual.

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

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

14. Turn the bearing cover **1**.

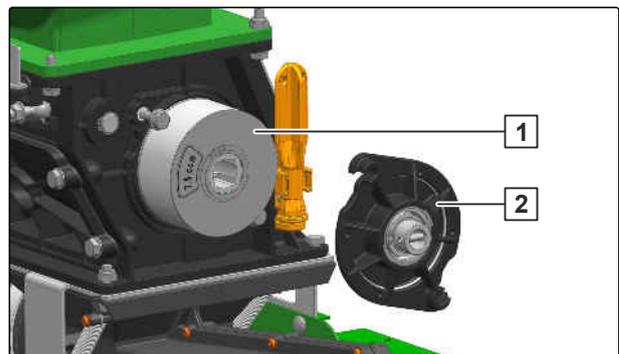


CMS-I-00005253

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

16. Pull the metering roller **1** out of the metering unit.

17. Install the new metering roller.



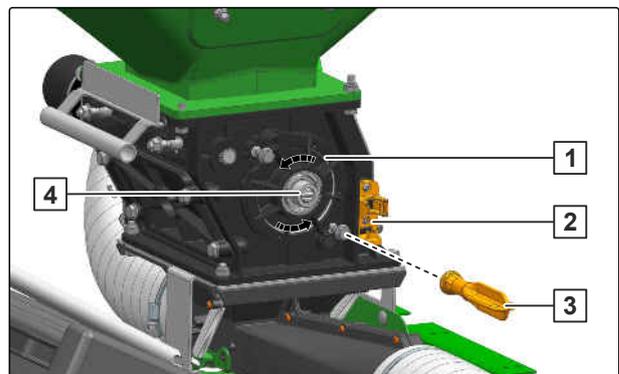
CMS-I-00005256

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**.

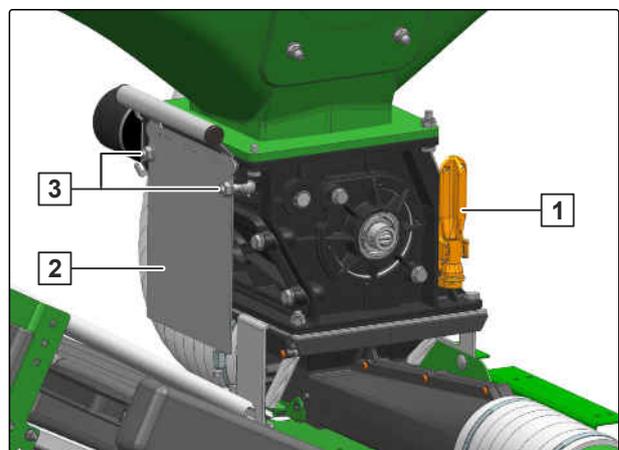


CMS-I-00005254

22. park the sliding shutter **2** on the metering unit housing.

23. Swivel the bolts **3** in front of the sliding shutter.

24. Tighten the bolts with the socket wrench **1**.

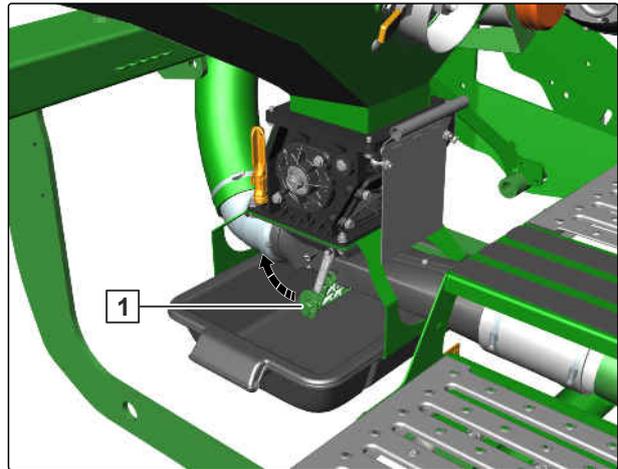


CMS-I-00005255

## 6 | Preparing the implement

### Preparing the implement for operation

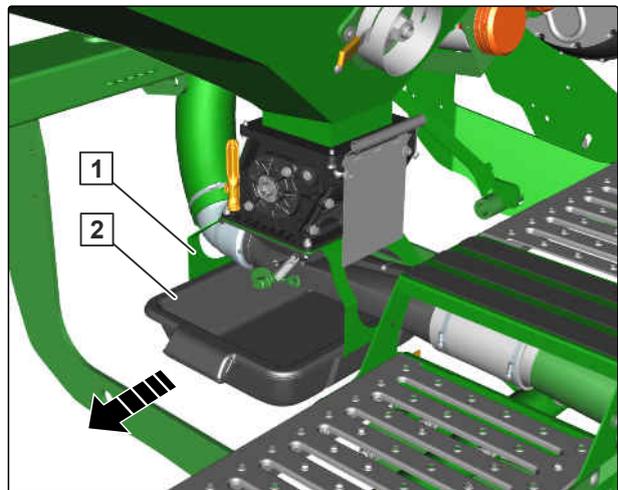
25. Close the calibration flap **1**.



CMS-I-00006791

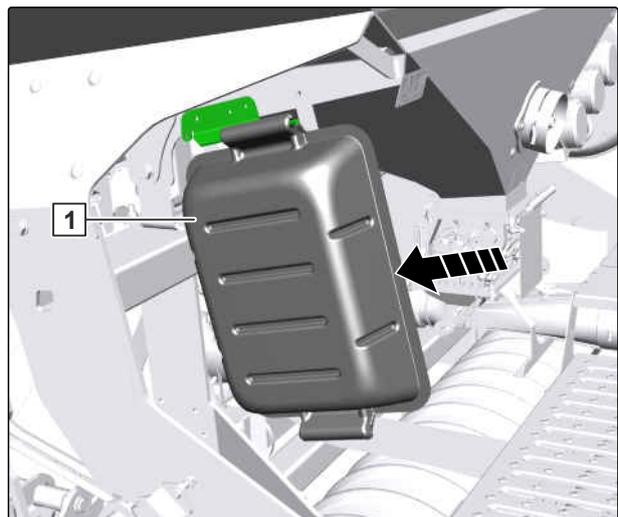
26. Take the calibration bucket **2** from the guide rails **1**.

27. Empty the calibration bucket.



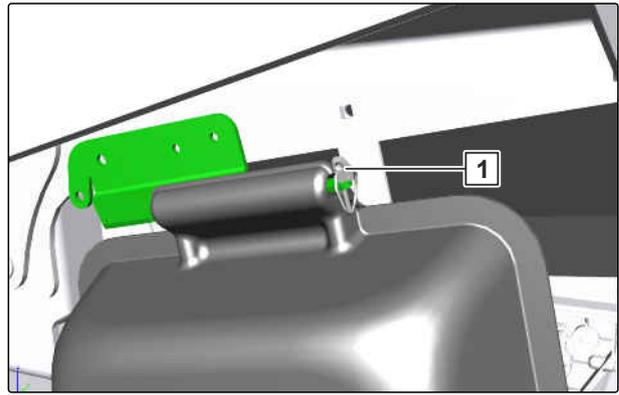
CMS-I-00006792

28. Put the calibration bucket **1** in the parking position.



CMS-I-00006875

29. To lock the calibration bucket, attach the linch pin **1** onto the holder.



CMS-I-00006873

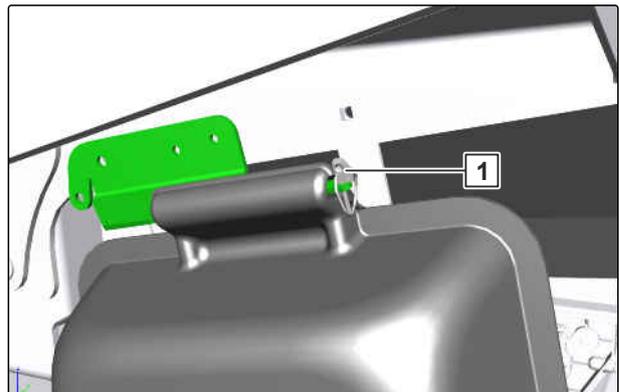
#### 6.4.17.6 Calibrating the metering unit

CMS-T-00009977-A.1

##### REQUIREMENTS

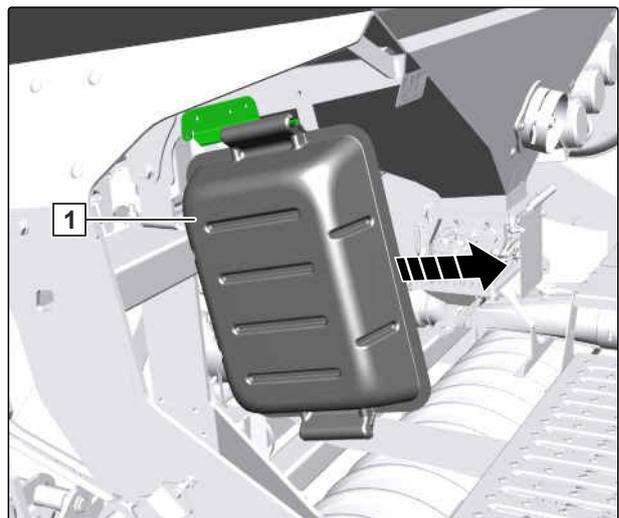
- ✓ The hopper is at least one quarter filled with spreading material

1. To unlock the calibration bucket, remove the linch pin **1** from the holder.



CMS-I-00006873

2. Take the calibration bucket **1** out of the holder.

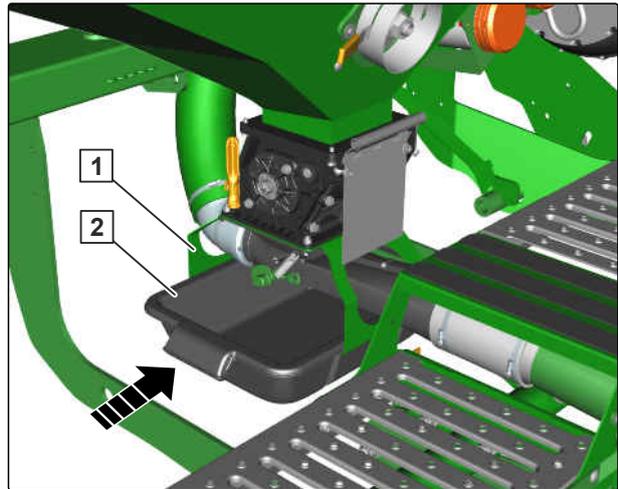


CMS-I-00006874

## 6 | Preparing the implement

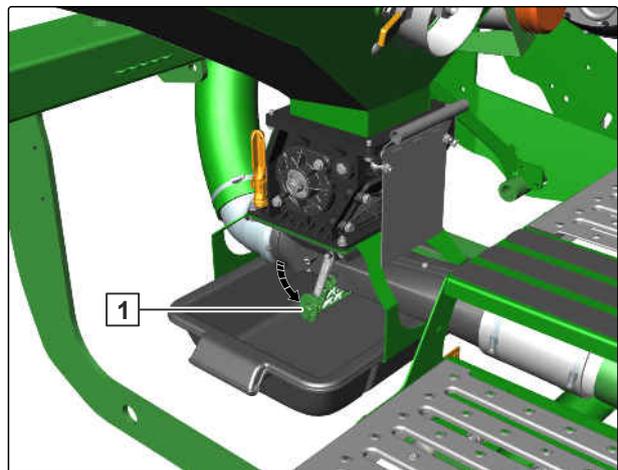
### Preparing the implement for operation

- Slide the calibration bucket **2** into the guide rails **1** so that the calibration bucket is positioned underneath the metering unit.



CMS-I-00006785

- Open the calibration flap **1**.



CMS-I-00006787

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

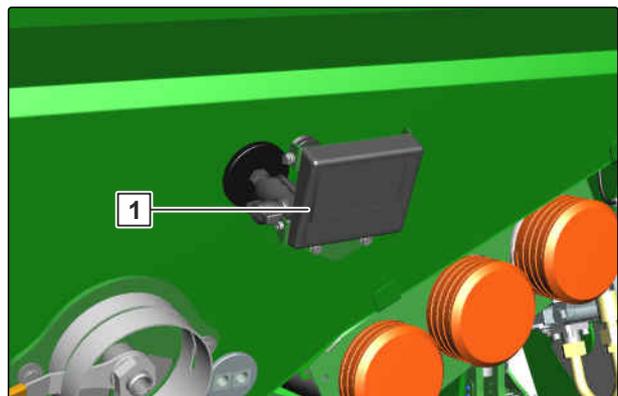
or

see "control computer" operating manual.

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

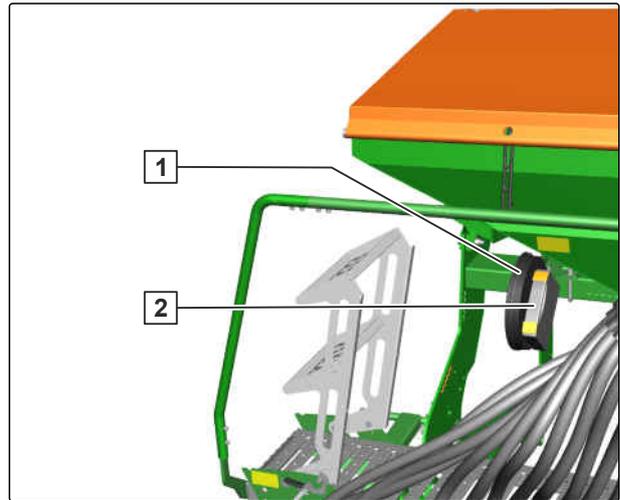
or

see "control computer" operating manual.



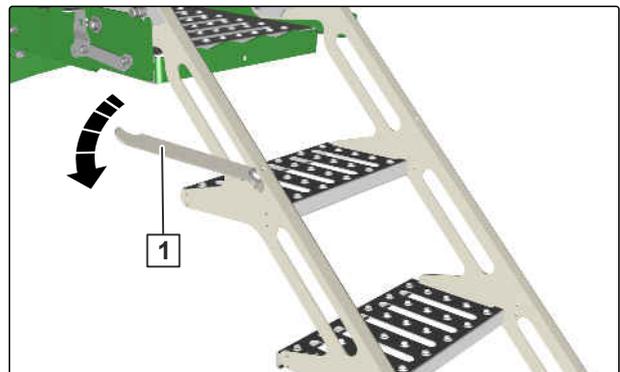
CMS-I-00006860

7. Take the collapsible bucket **1** and calibration scale **2** out of the mount.



CMS-I-00006783

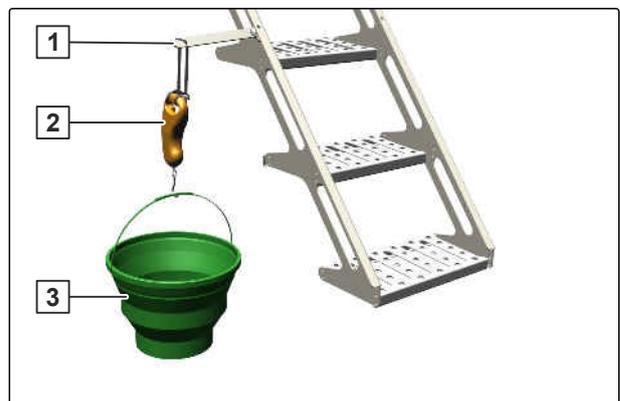
8. Fold down the bracket **1** on the ascent.



CMS-I-00005700

9. Hang the scale **2** on the bracket **1** on the ascent.

10. Hang the collapsible bucket **3** on the scale.

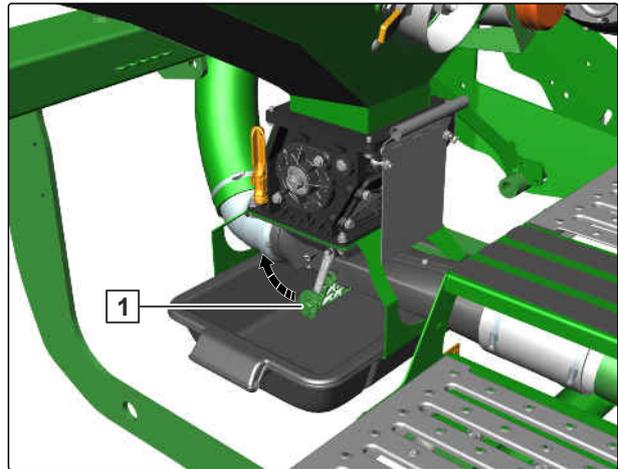


CMS-I-00005716

## 6 | Preparing the implement

### Preparing the implement for operation

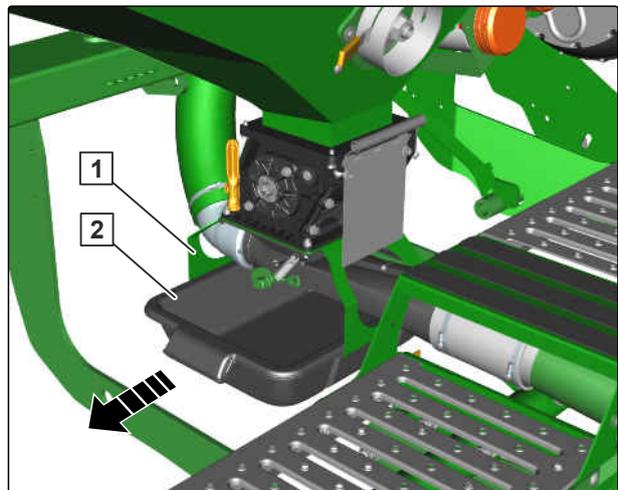
11. Close the calibration flap **1**.



CMS-I-00006791

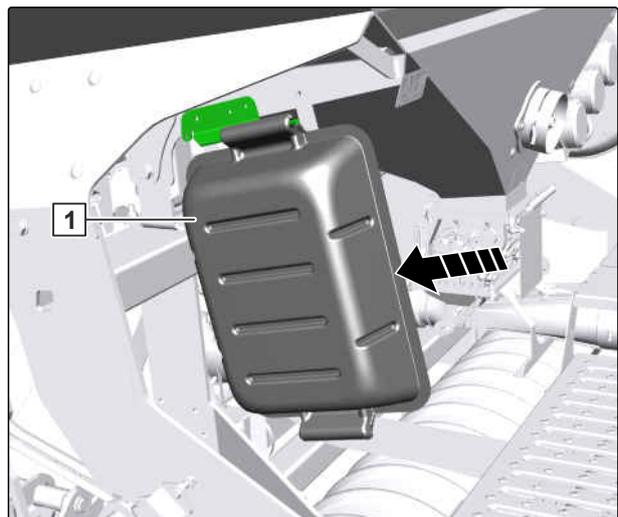
12. Take the calibration bucket **2** from the guide rails **1**.

13. Pour the seed from the calibration bucket into the collapsible bucket.



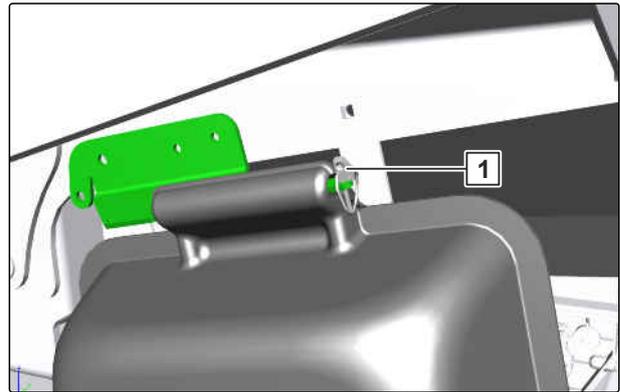
CMS-I-00006792

14. Put the calibration bucket **1** in the parking position.



CMS-I-00006875

15. To lock the calibration bucket, attach the linch pin **1** onto the holder.



CMS-I-00006873

## 6.5 Preparing the machine for road travel

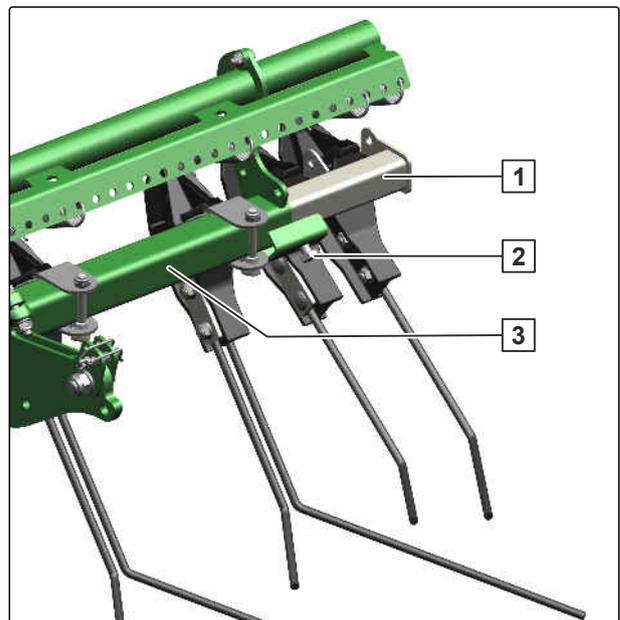
CMS-T-00009809-A.1

### 6.5.1 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

### 6.5.2 Folding the tramline marker on the exact following harrow

CMS-T-00007448-B.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.

## 6 | Preparing the implement

### Preparing the machine for road travel

1. To deactivate tramline control, see ISOBUS software operating manual

or

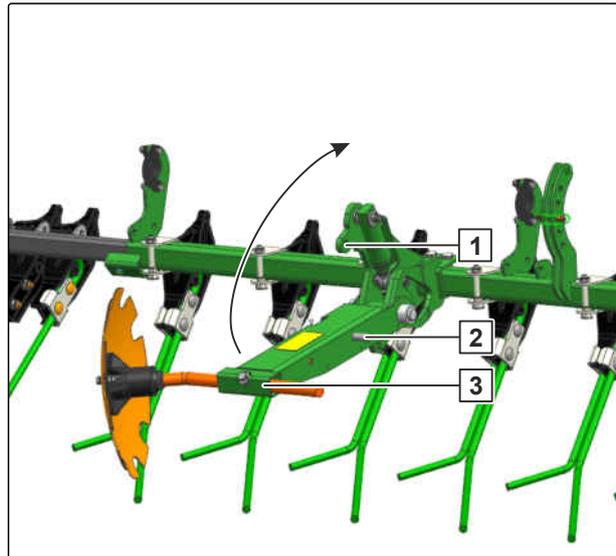
see control computer operating manual.

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**.

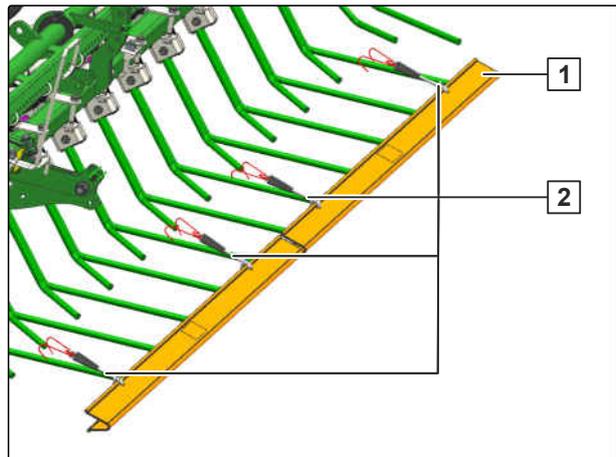


CMS-I-00005176

### 6.5.3 Putting the road safety bars on the exact following harrow

CMS-T-00007449-D.1

1. Remove coarse dirt from the tines.
2. Push the road safety bars **1** over the tines.
3. Secure the road safety bars with the tensioners **2**.
4. Check for firm seating.
5. If the tensioners do not provide enough tension, guide the tensioner through the tine coils.



CMS-I-00005185

## Using the implement

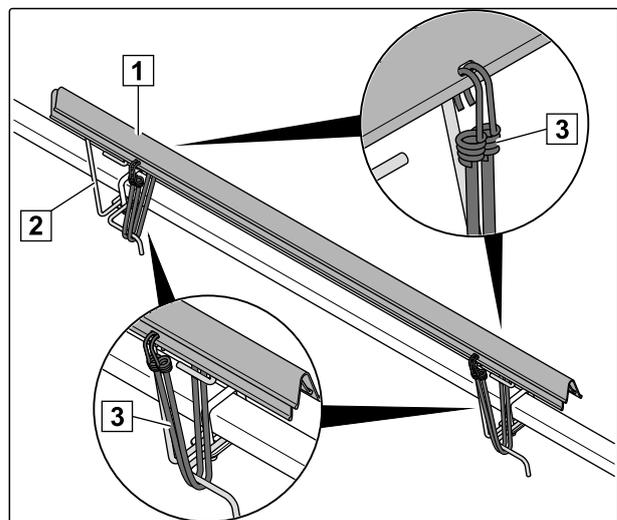
# 7

CMS-T-00009810-A.1

### 7.1 Removing the road safety bars

CMS-T-00000091-C.1

1. Remove the road safety bars from the rear harrow.
2. Turn the traffic safety bars **1** by 180°, place on top of each other on the brackets **2**.
3. Secure the road safety bars with tensioners **3**.



CMS-I-00000518

### 7.2 Moving the exact following harrow into working position

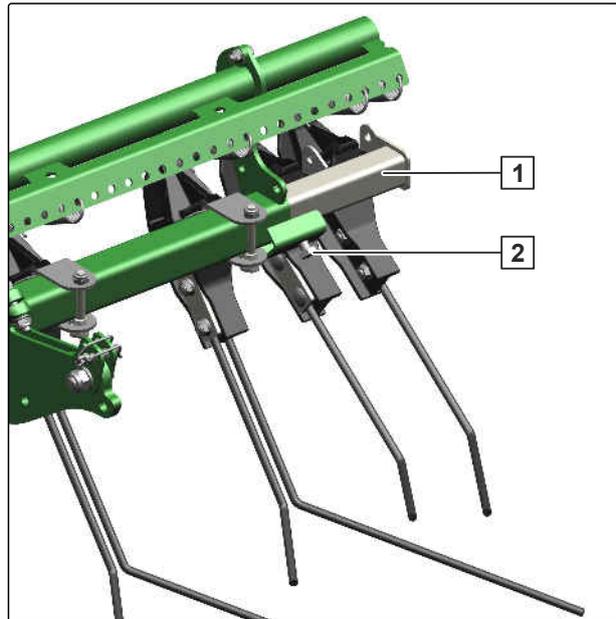
CMS-T-00006334-A.1

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.

## 7 | Using the implement

### Unfolding the tramline marker

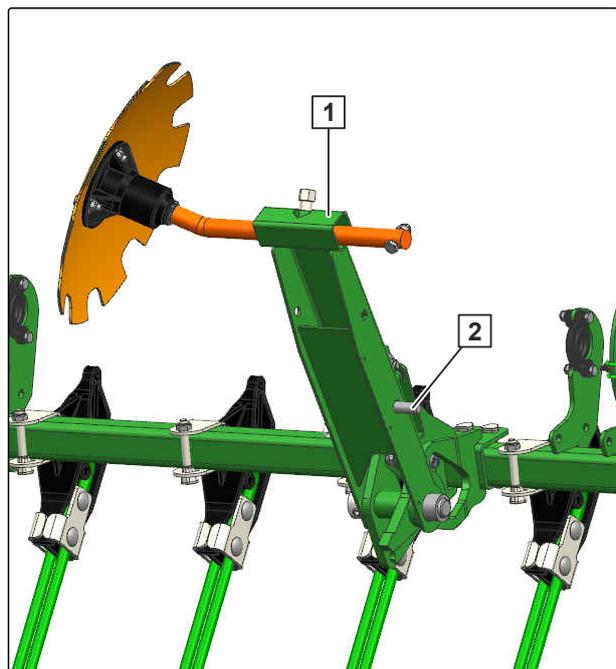
1. Loosen the bolt **2** with the universal operating tool.
2. Push the sliding element **1** outwards.
3. Tighten the bolt **2** with the universal operating tool.
4. Make the same setting for the other side of the implement.
5. *To check the setting,*  
seed for approx. 30 m at working speed and then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



CMS-I-00004674

### 7.3 Unfolding the tramline marker

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

### 7.4 Using the implement

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.

CMS-T-00004492-C.1

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.

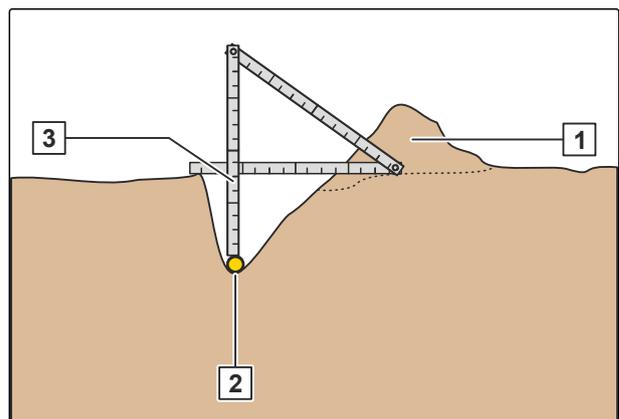
### **i** NOTE

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

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

## 7.5 Checking the placement depth

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-T-00004517-C.1

CMS-I-00003257

## 7.6 Turning on the headlands

### **i** 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.

CMS-T-00004491-B.1

## 7 | Using the implement

### Performing maintenance work during operation

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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.

## 7.7 Performing maintenance work during operation

CMS-T-00010368-A.1

- ▶ Clean the suction guard screen or cyclone separator, see page 128.

## Eliminating faults

# 8

CMS-T-00009811-A.1

Errors	Cause	Solution
The TwinTeC coulter is not spreading seed	The seed outlet is slightly blocked.	<ul style="list-style-type: none"> <li>▶ Raise the implement.</li> <li>▶ Clean the seed outlet from below.</li> </ul>
	The seed outlet is strongly blocked.	see page 99
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 99
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 100
TwinTeC cutting discs are blocked	If the inner scraper is worn, the cutting discs are blocked by adhering soil.	see page 100
The RoTeC coulter is not spreading seed	The seed outlet is slightly blocked.	<ul style="list-style-type: none"> <li>▶ Raise the implement.</li> <li>▶ Clean the seed outlet from below.</li> </ul>
	The seed outlet is strongly blocked.	see page 101
The coulter harrow does not cover the seed sufficiently with fine soil	The angle of the coulter harrow is incorrectly set.	▶ See "Adjusting the TwinTeC coulter" > "Adjusting the harrow angle"
	The height of the coulter harrow is incorrectly set.	▶ See "Adjusting the TwinTeC coulter" > "Adjusting the harrow height"
	The harrow tines of the coulter harrow are worn.	see page 101

Errors	Cause	Solution
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 102
	The harrow tines are not aligned parallel to the ground.	▶ See "Adjusting the exact following harrow" > "Adjusting the position of the exact following harrow tines"
	The exact following harrow pressure is incorrectly set	▶ See "Adjusting the exact following harrow" > "Adjusting the exact following harrow pressure mechanically" or "Adjusting the exact following harrow pressure hydraulically"
	The harrow tines are worn.	see page 102
The electric drives do not run or start running at the wrong time.	The switch points of the working position sensor are wrong.	▶ To configure the working position sensor, see "Configuring the working position sensor".
The fan speed displayed on the control terminal or control computer is too high.	The hydraulic control unit is incorrectly adjusted.	see page 102
The metering shaft speed displayed on the control terminal or control computer is too low.	The metering roller is rotating stiffly.	▶ To check the metering unit, see "Calibrating the spread rate".
	The metering roller is blocked by foreign objects in the metering unit housing.	▶ To clean the metering unit, see "Cleaning the metering unit".
The lighting for road travel has a malfunction.	Lamp or lighting supply line is damaged.	▶ Replace the lamp. ▶ Replace the lighting supply line.

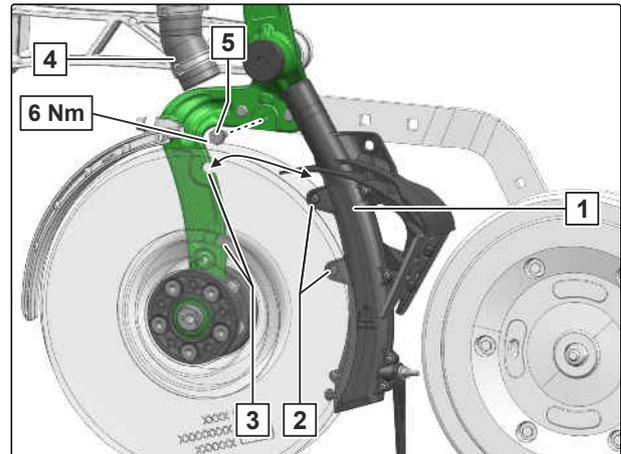
### The TwinTeC coulter is not spreading seed

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

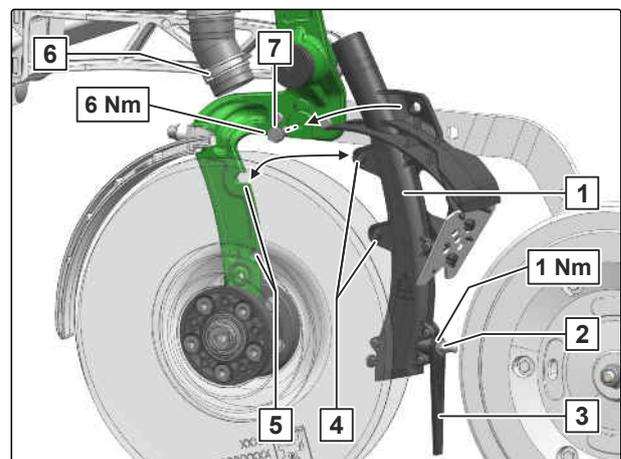
### The TwinTeC coulter does not guide the seed precisely into the furrow

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

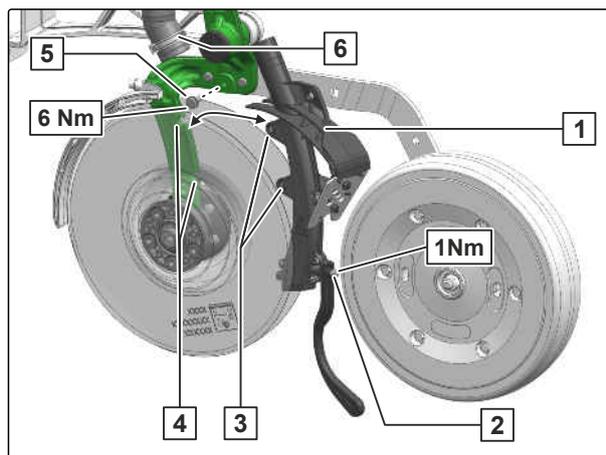


CMS-I-00003242

### 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.

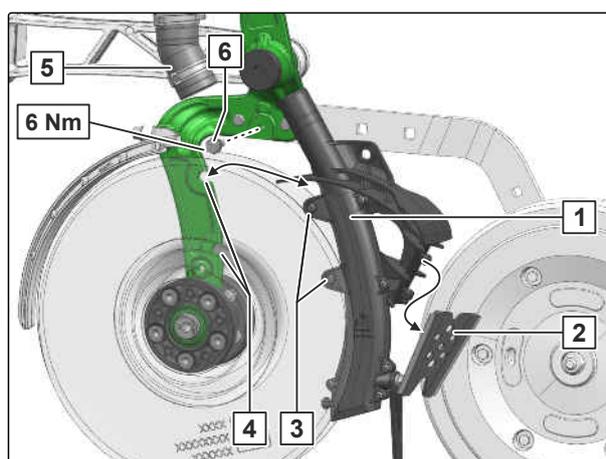


CMS-I-00003260

### TwinTeC cutting discs are blocked

CMS-T-00006595-C.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**.
7. Install the bolt.
8. Install the hose.

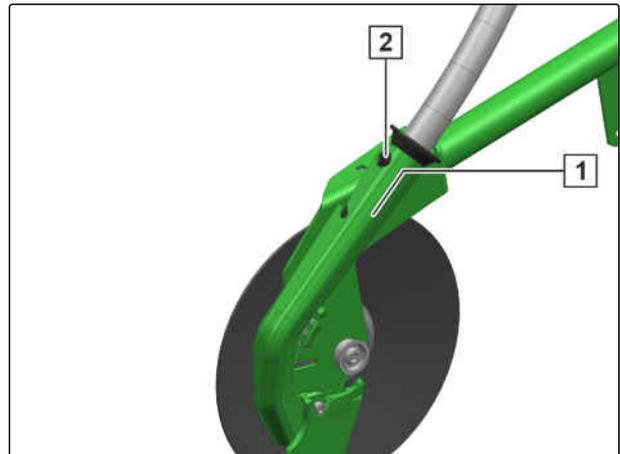


CMS-I-00003245

### 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.

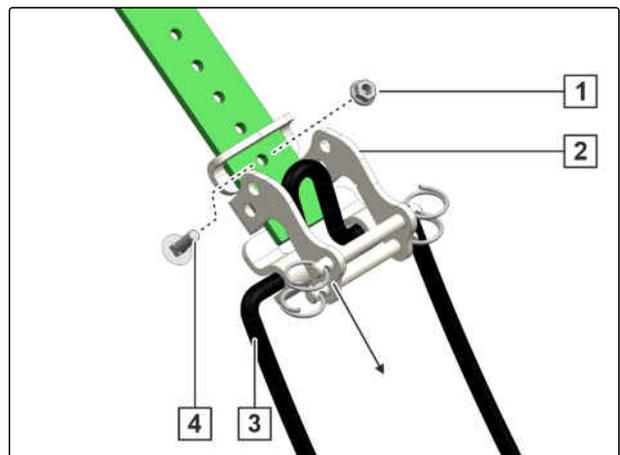


CMS-I-00004767

### The 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.
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.



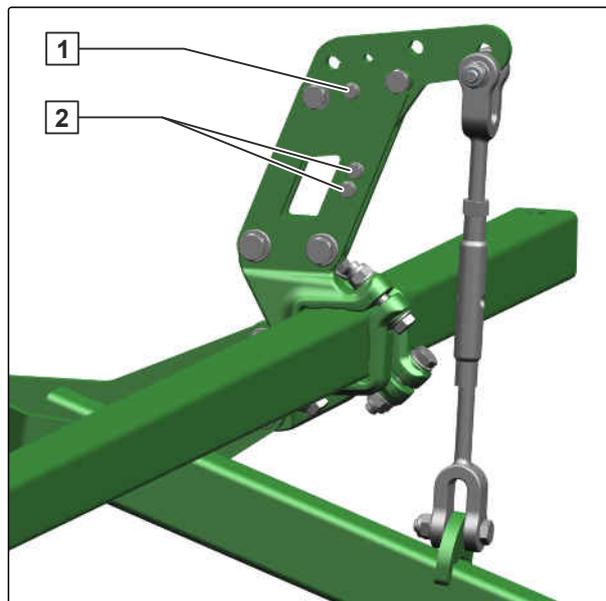
CMS-I-00004632

### 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**.

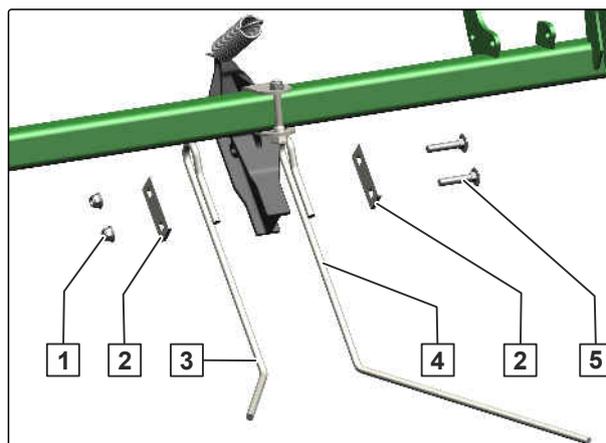
1. *To position the exact following harrow correctly,*  
Lift the implement.
2. Remove the remainders of the torn shear bolt **1**.
3. Take out one of the spare shear bolts **2**.
4. Install the spare shear bolt with washers and nut at position **1**.



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

CMS-T-00007763-B.1

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

or

see "Setting the fan speed manually".

# Parking the implement

# 9

CMS-T-00009812-A.1

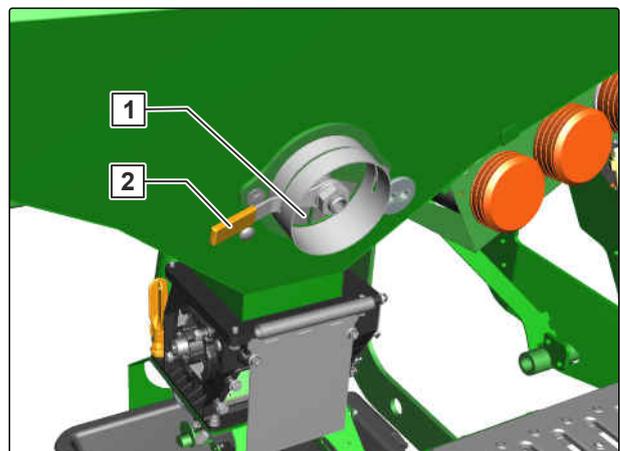
## 9.1 Emptying the hopper

CMS-T-00009845-A.1

### 9.1.1 Emptying the hopper via the quick emptying

CMS-T-00009846-A.1

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

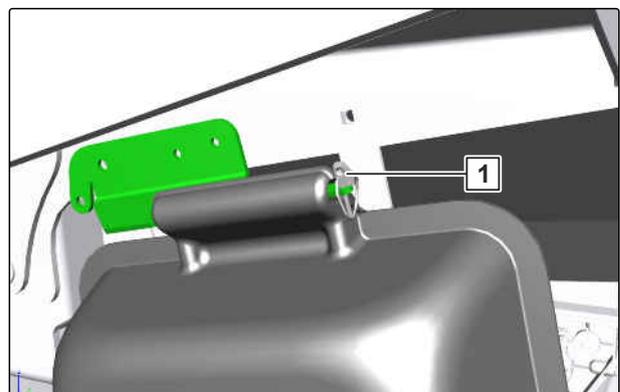


CMS-I-00006781

### 9.1.2 Emptying the hopper via the metering unit

CMS-T-00009847-A.1

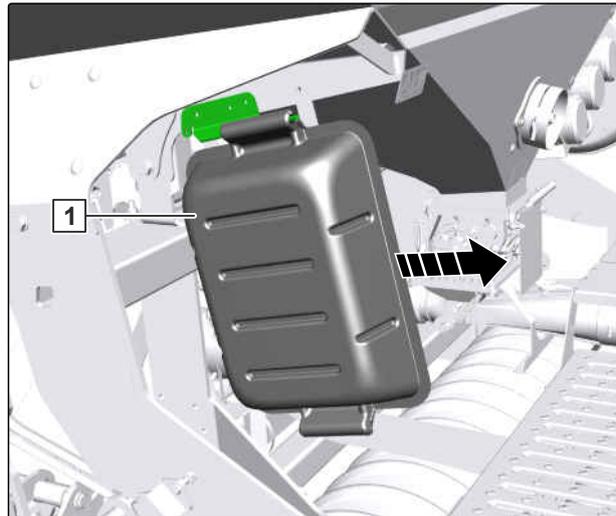
1. *To unlock the calibration bucket,* remove the lynch pin **1** from the holder.



CMS-I-00006873

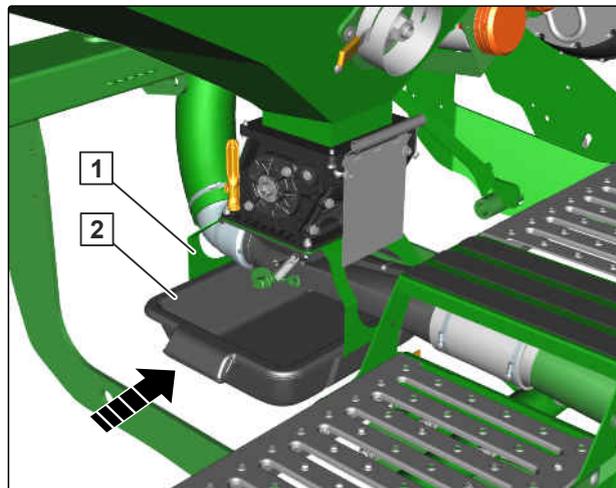
## 9 | Parking the implement Emptying the hopper

2. Take the calibration bucket **1** out of the holder.



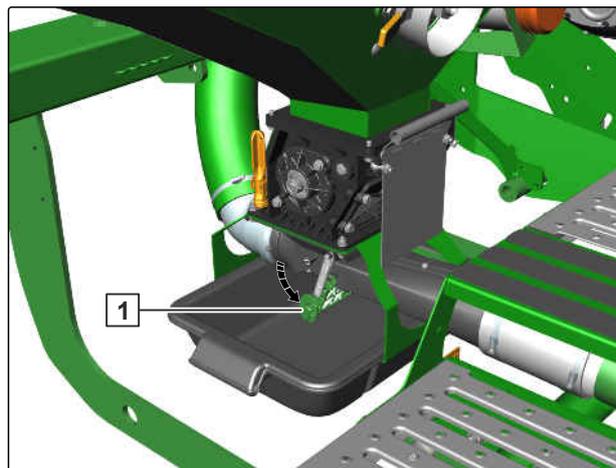
CMS-I-00006874

3. Slide the calibration bucket **2** into the guide rails **1** so that the calibration bucket is positioned underneath the metering unit.



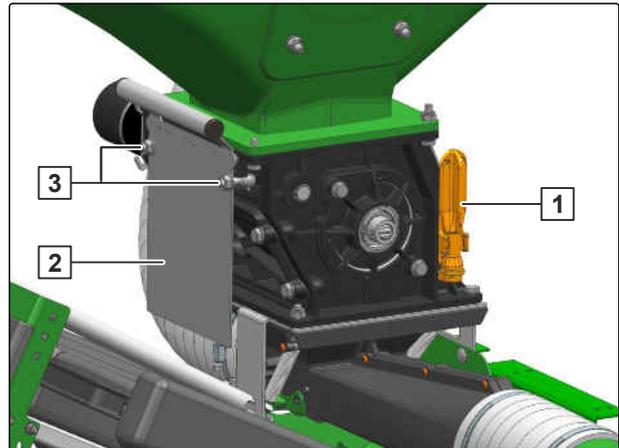
CMS-I-00006785

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



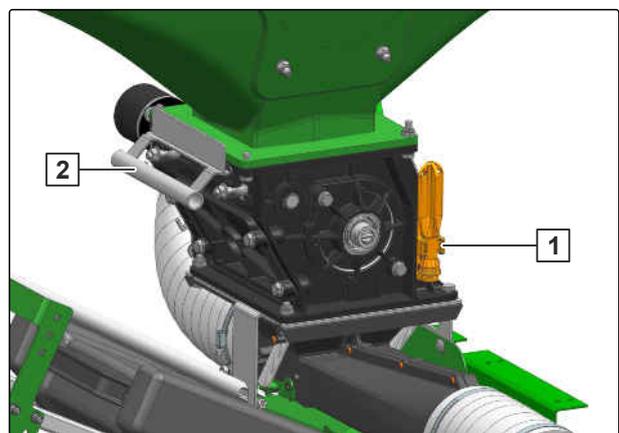
CMS-I-00006787

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.



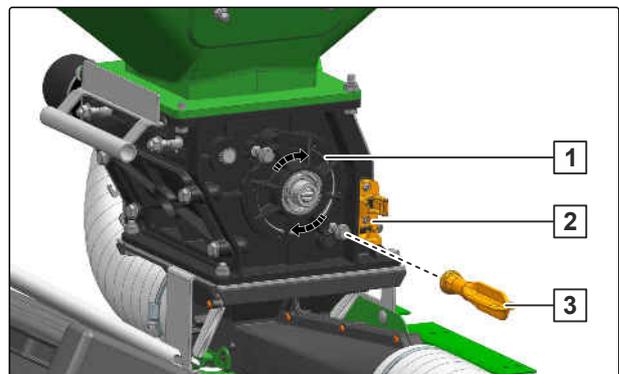
CMS-I-00005255

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".*



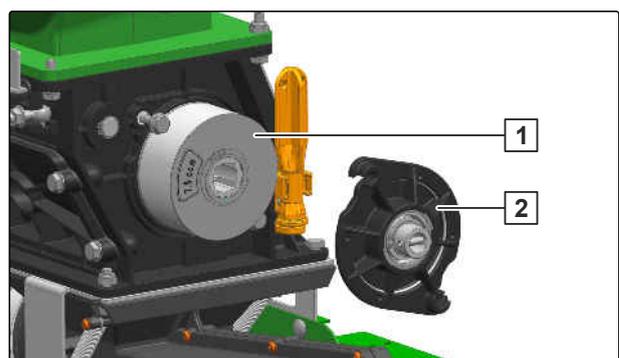
CMS-I-00005259

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

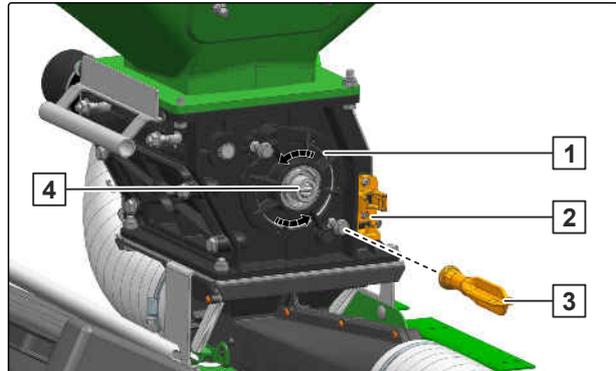
14. Pull off the bearing cover **2**.
15. *When the hopper is closed off with the sliding shutter, pull the metering roller **1** out of the metering unit.*
16. Pull the sliding shutter out of the metering housing.



CMS-I-00005256

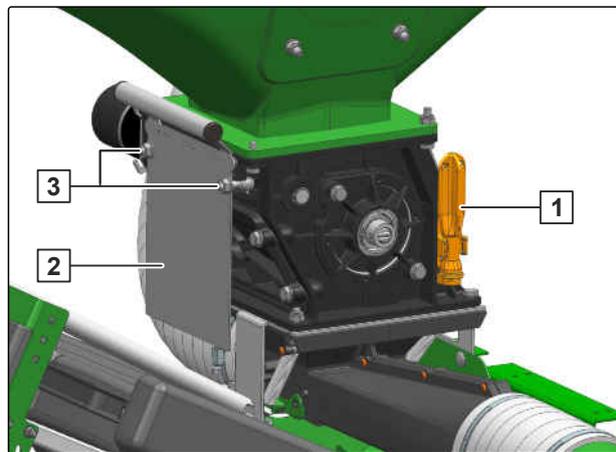
## 9 | Parking the implement Emptying the hopper

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**.



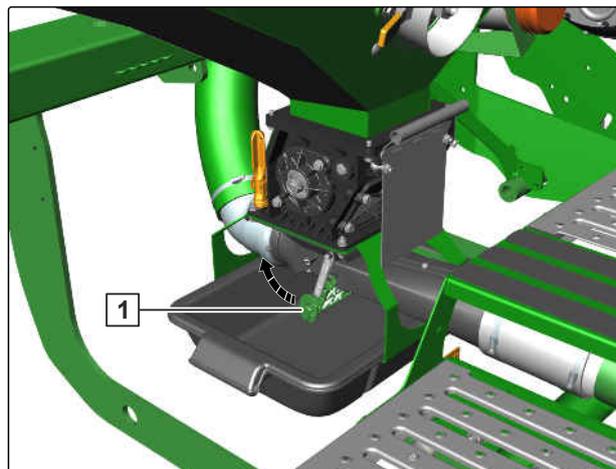
CMS-I-00005254

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



CMS-I-00005255

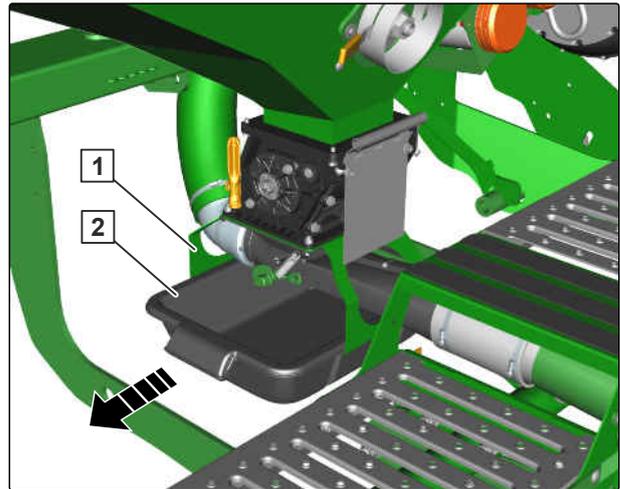
26. Close the calibration flap **1**.



CMS-I-00006791

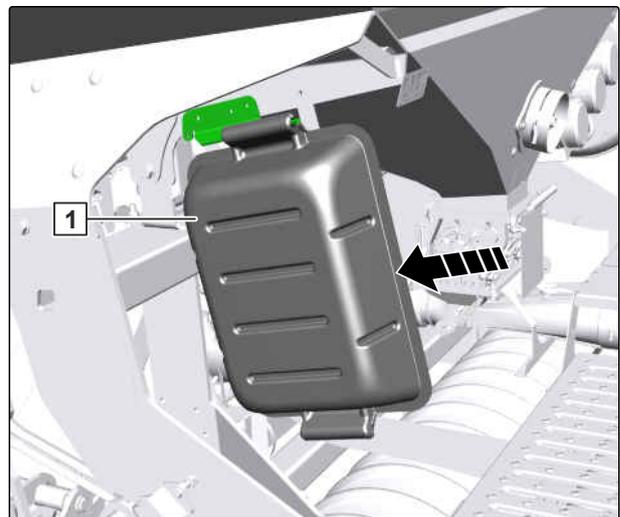
27. Take the calibration bucket **2** from the guide rails **1**.

28. Empty the calibration bucket.



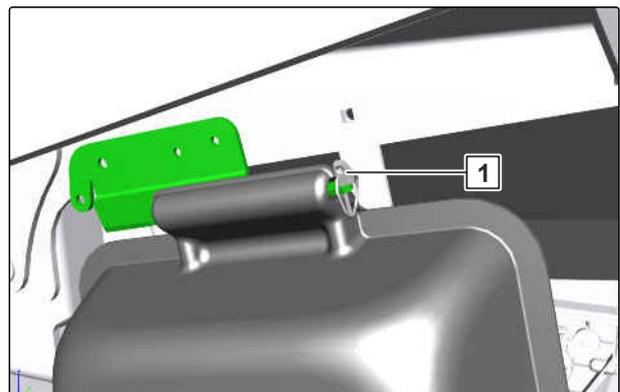
CMS-I-00006792

29. Put the calibration bucket **1** in the parking position.



CMS-I-00006875

30. To lock the calibration bucket, attach the linch pin **1** onto the holder.



CMS-I-00006873

## 9.2 Emptying the metering unit

CMS-T-00009844-A.1

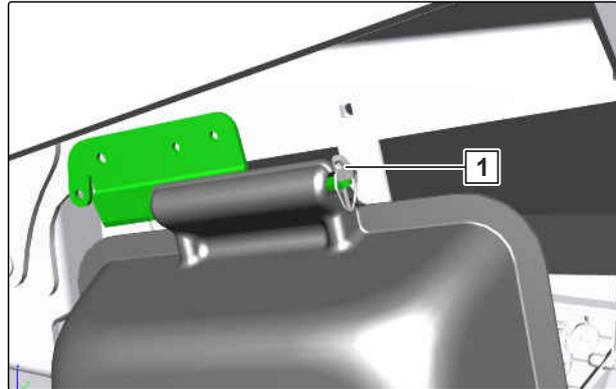


### IMPORTANT

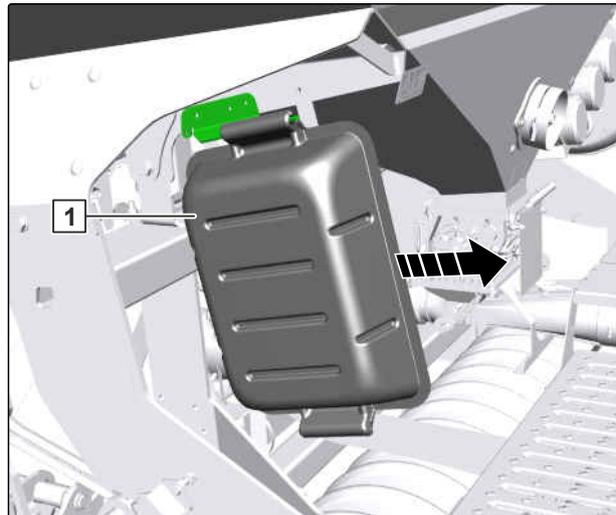
**Risk of damage to the metering drive due to swelling fertiliser or germinating seed.**

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

1. Switch off the fan.
2. *To unlock the calibration bucket,* remove the lynch pin **1** from the holder.
3. Take the calibration bucket **1** out of the holder.

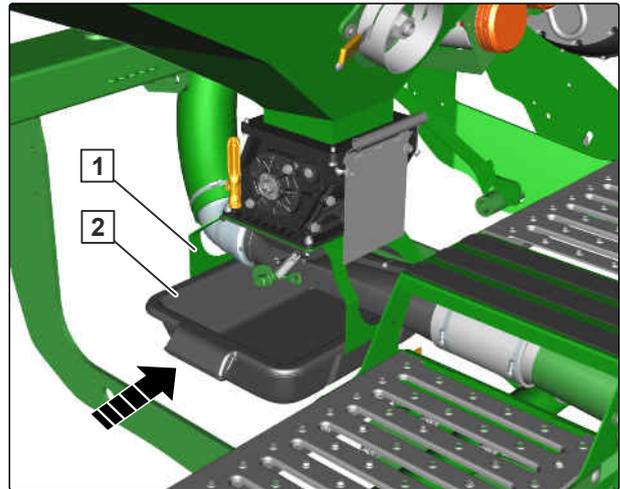


CMS-I-00006873



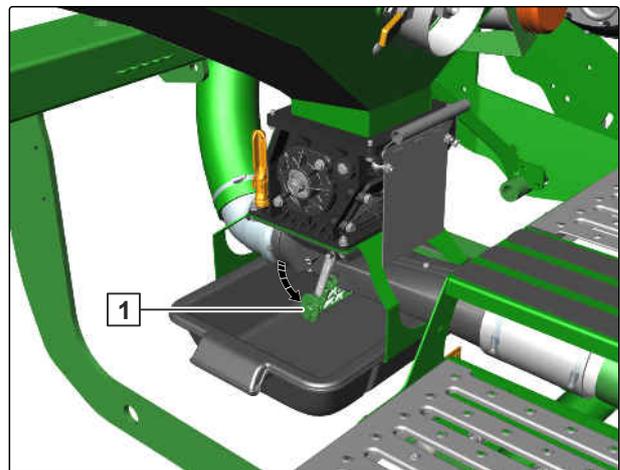
CMS-I-00006874

- Slide the calibration bucket **2** into the guide rails **1** so that the calibration bucket is positioned underneath the metering unit.



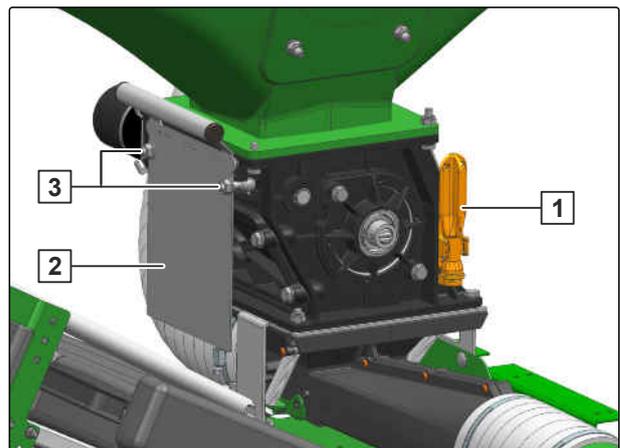
CMS-I-00006785

- Open the calibration flap **1**.



CMS-I-00006787

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



CMS-I-00005255

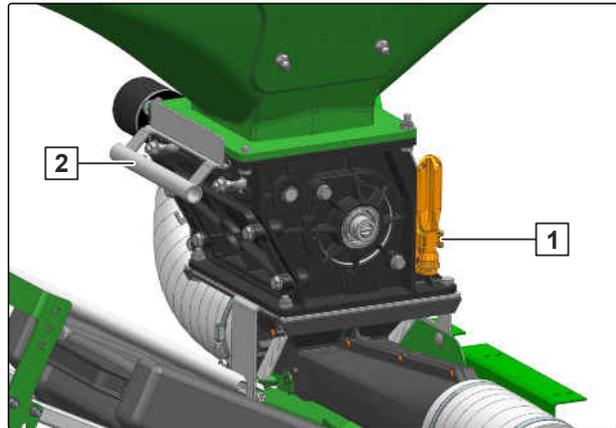
## 9 | Parking the implement Emptying the metering unit

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"

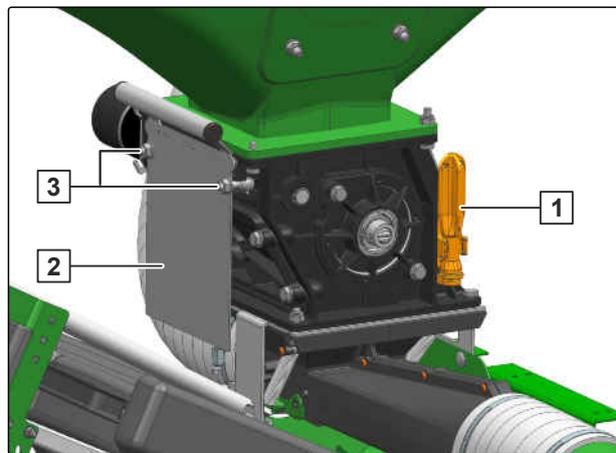
or

see "control computer" operating manual.

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**.

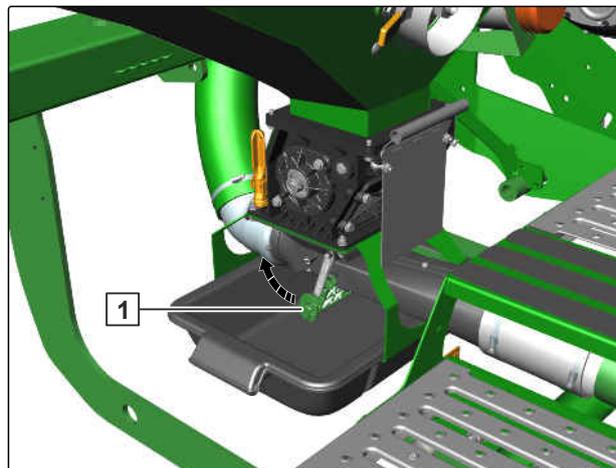


CMS-I-00005259



CMS-I-00005255

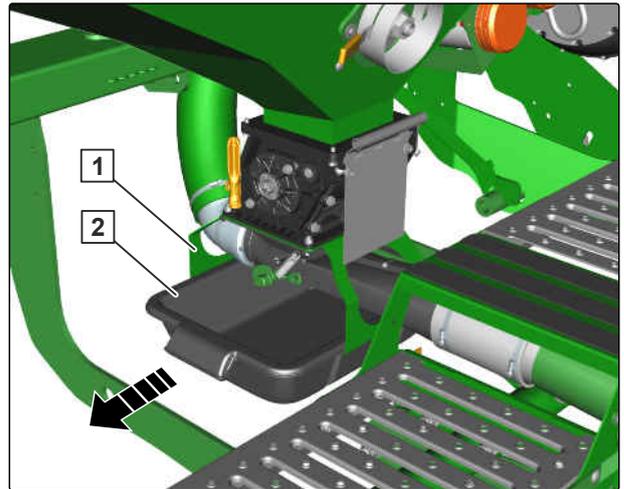
15. Close the calibration flap **1**.



CMS-I-00006791

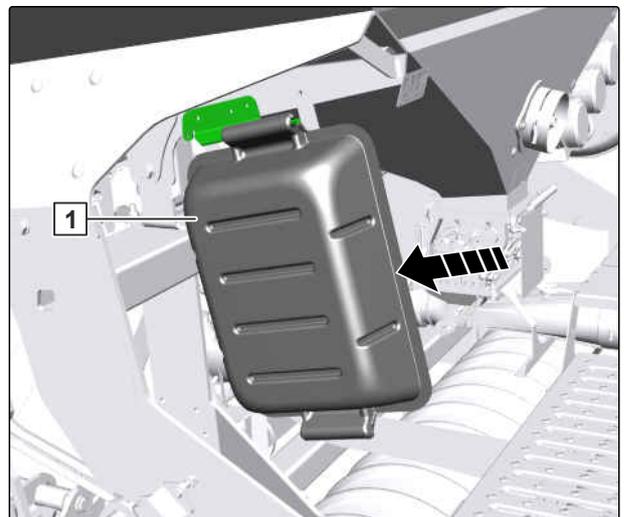
16. Take the calibration bucket **2** from the guide rails **1**.

17. Empty the calibration bucket.



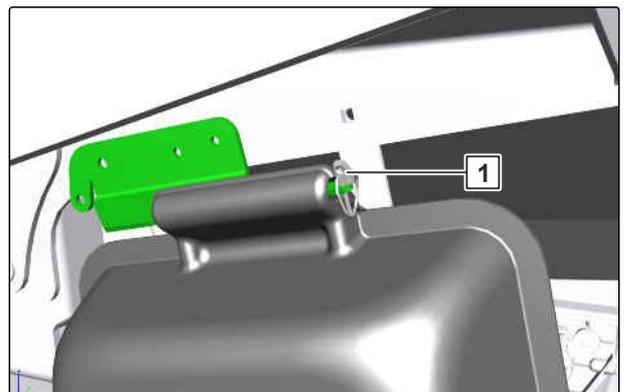
CMS-I-00006792

18. Put the calibration bucket **1** in the parking position.



CMS-I-00006875

19. To lock the calibration bucket,  
attach the linch pin **1** onto the holder.

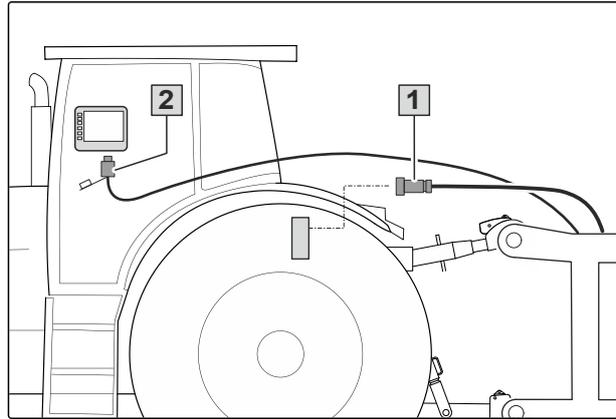


CMS-I-00006873

### 9.3 Uncoupling the ISOBUS or control computer

CMS-T-00006174-D.1

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

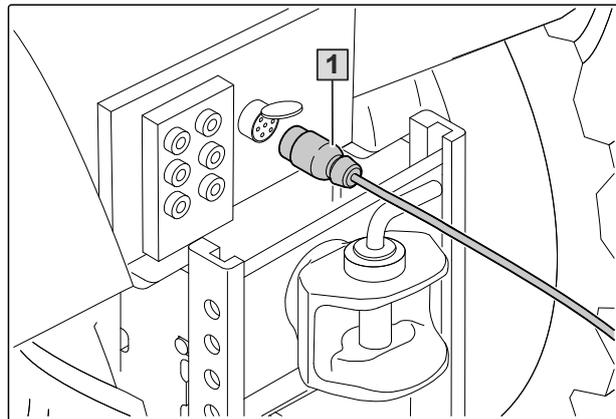


CMS-I-00006891

### 9.4 Uncoupling the power supply

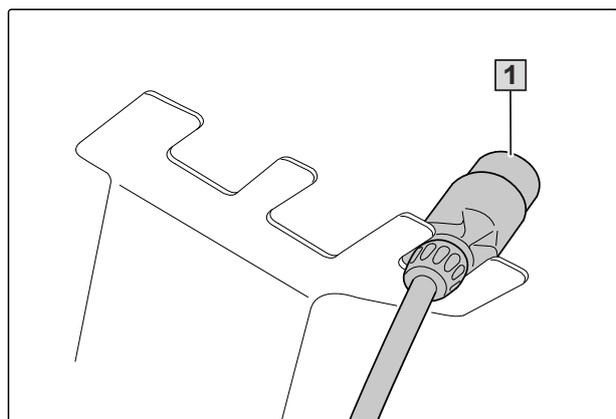
CMS-T-00001402-G.1

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

## 9.5 Uncoupling the seeding combination

CMS-T-00007462-A.1



### WARNING

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

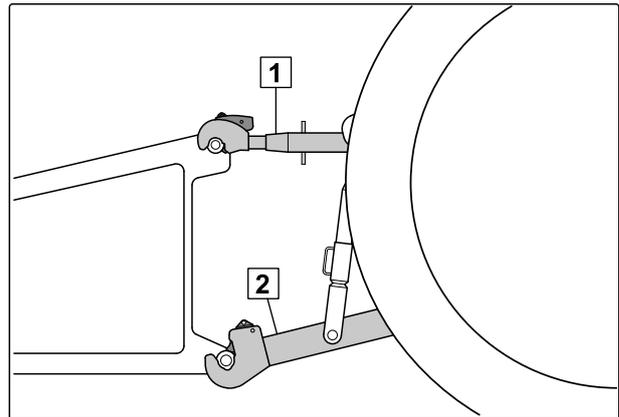
- ▶ Park the implement on stable and even ground.



### 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.*



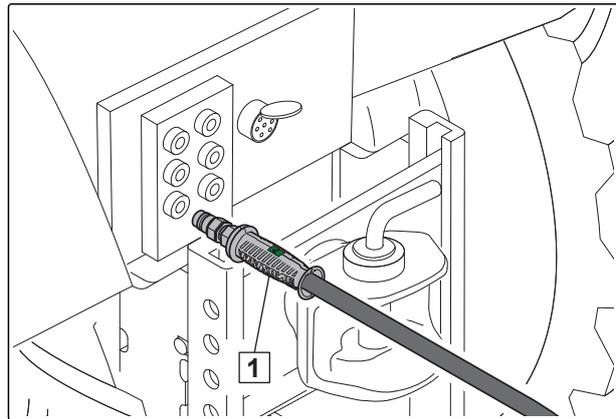
CMS-I-00001249

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.

## 9.6 Disconnecting the hydraulic hose lines

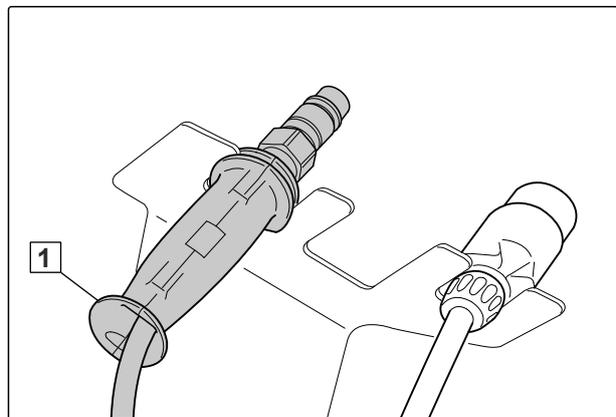
CMS-T-00000277-E.1

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.



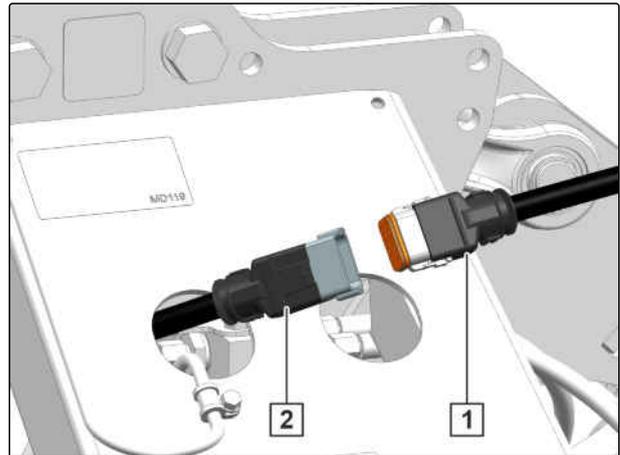
CMS-I-00001250

## 9.7 Parking the Centaya pack top seed drill

CMS-T-00009831-A.1

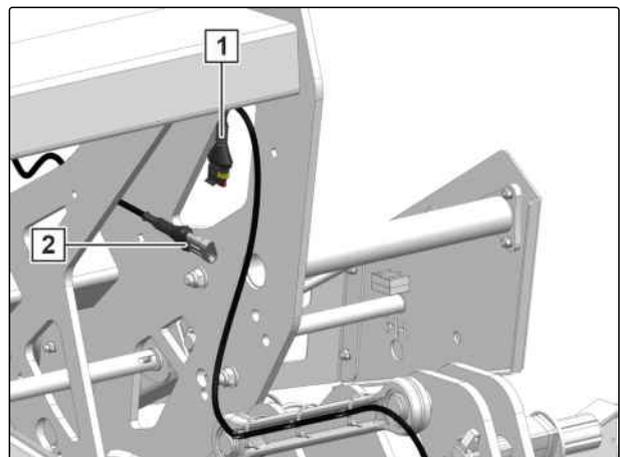
1. *To set the coulter pressure to 0,  
see section "Adjusting the coulter pressure on the  
TwinTeC Special coulter"*
2. *To set the placement depth to 0,  
see section "Adjusting the placement depth on  
the TwinTeC Special coulter".*

3. Disconnect the supply line **1** from the soil tillage implement **2**.



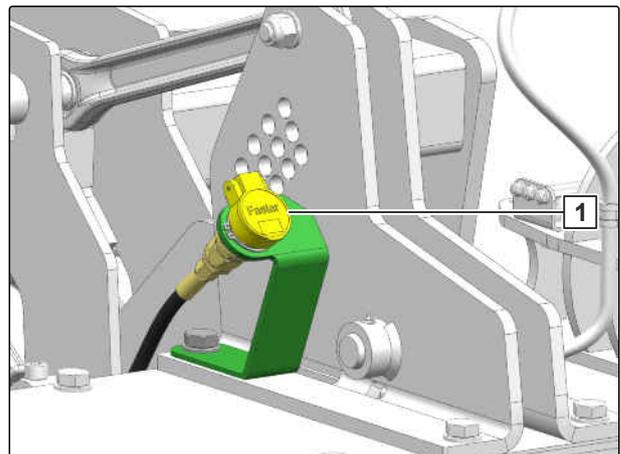
CMS-I-00004528

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**.

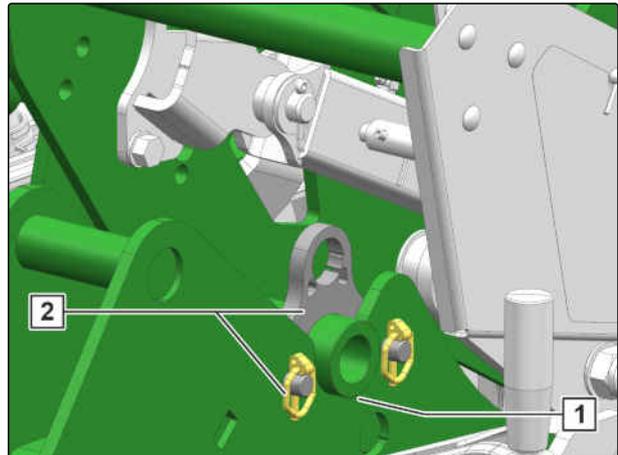


CMS-I-00003485

## 9 | Parking the implement

### Parking the Centaya pack top seed drill

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



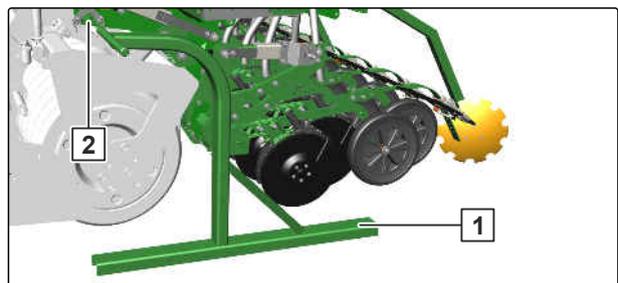
CMS-I-00003593

### **WARNING**

The parking supports do not have a locking device.

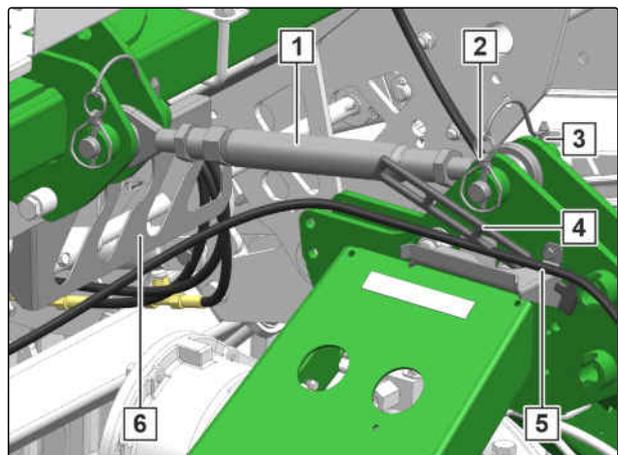
The parking supports can fall out of the mount while driving.

- ▶ Remove the parking supports.



CMS-I-00007204

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**.
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



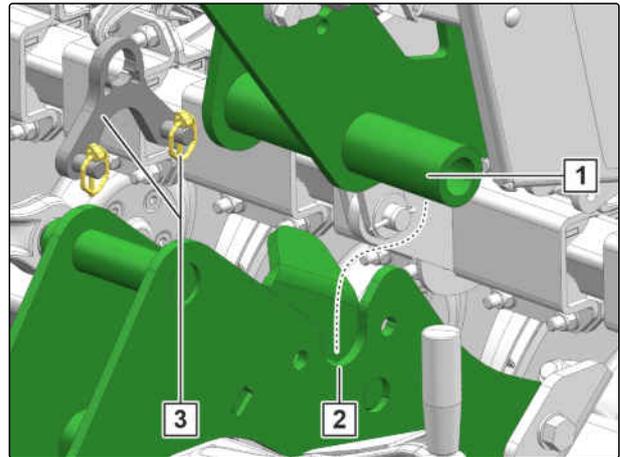
CMS-I-00004526

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.

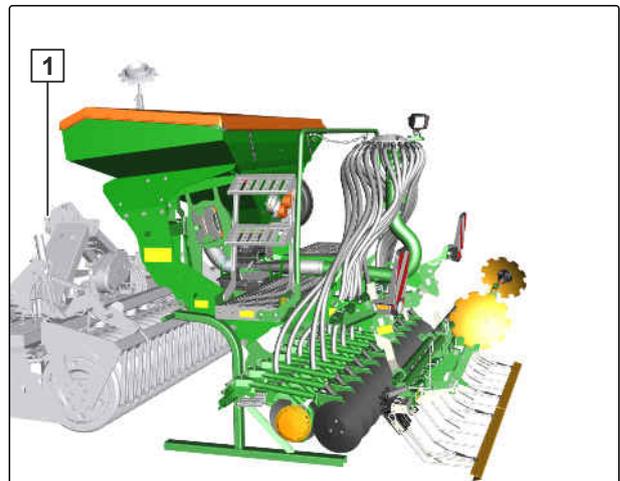
➔ The pack top seed drill **1** is standing on the parking supports.

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-00006856

# Repairing the implement

# 10

CMS-T-00009813-A.1

## 10.1 Cleaning the implement

CMS-T-00000593-F.1



### IMPORTANT

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

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



CMS-I-00002692

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

## 10.2 Maintaining the implement

CMS-T-00009832-A.1

### 10.2.1 Maintenance schedule

<b>After initial operation</b>	
Checking the tightening torque for the radar sensor bolts	see page 126
Checking the hydraulic hose lines	see page 138

<b>After the first 50 operating hours</b>	
Cleaning the hopper	see page 127

<b>at the end of the season</b>	
Checking the RoTeC depth control discs and RoTeC depth control wheels	see page 123

<b>as required</b>	
Cleaning the hopper	see page 127

<b>daily</b>	
Cleaning the metering unit	see page 133
Checking the top link pin and lower link pin	see page 138

<b>Every 12 months</b>	
Checking the tightening torque for the radar sensor bolts	see page 126

<b>Every 10 operating hours / daily</b>	
Cleaning the cyclone separator	see page 128
Cleaning the segment distributor head	see page 129
Cleaning the conveyor section	see page 129

<b>Every 50 operating hours / weekly</b>	
Checking the TwinTeC cutting disc distance	see page 120
Checking the TwinTeC depth control wheel	see page 121
Checking the TwinTeC cutting discs	see page 121
Checking the TwinTeC depth control wheel scraper	see page 122
Checking the RoTeC furrow former	see page 125
Checking the RoTeC cutting discs	see page 125
Checking the hydraulic hose lines	see page 138

## 10.2.2 Checking the TwinTeC cutting disc distance

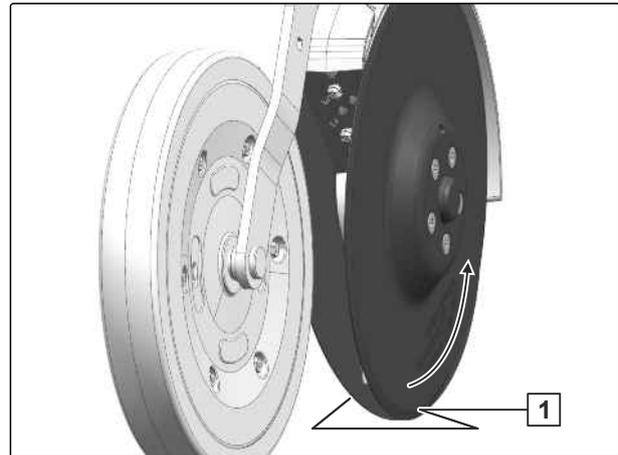
CMS-T-00004447-D.1



### INTERVAL

- Every 50 operating hours  
or  
weekly

1. Rotate the TwinTeC cutting disc **1**.  
→ The opposite disc rotates along. The spacing is correctly set.
2. *If the opposite disc does not rotate along,* adjust the cutting disc distance.



CMS-I-00003244

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

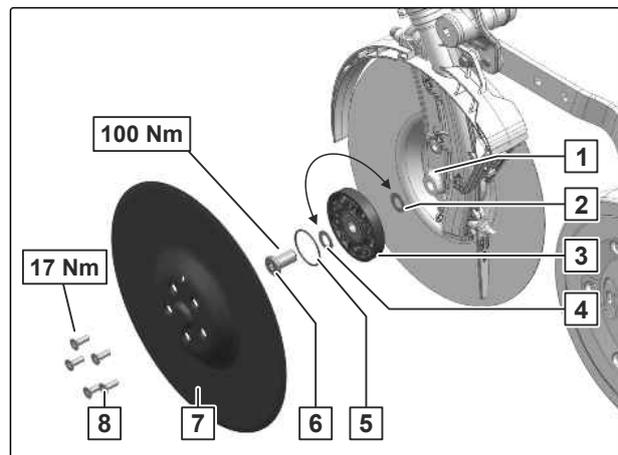


### NOTE

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



CMS-I-00003234

11. Check the sealing ring before installation.  
Replace in case of damage.  
Install the sealing ring.

12. Install the TwinTeC cutting disc.

13. Install the bolts.

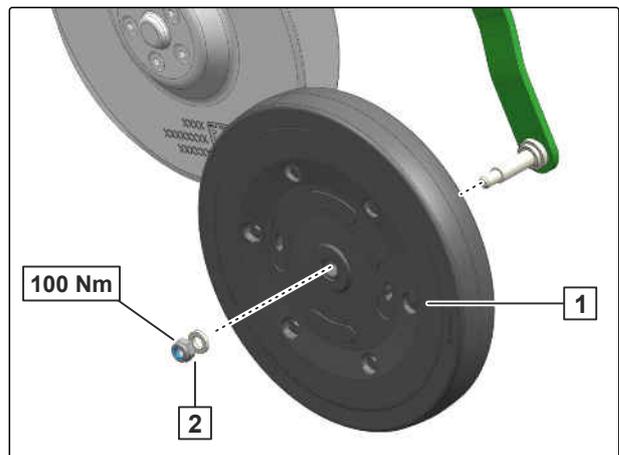
### 10.2.3 Checking the TwinTeC depth control wheel

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

### 10.2.4 Checking the TwinTeC cutting discs

CMS-T-00004452-D.1

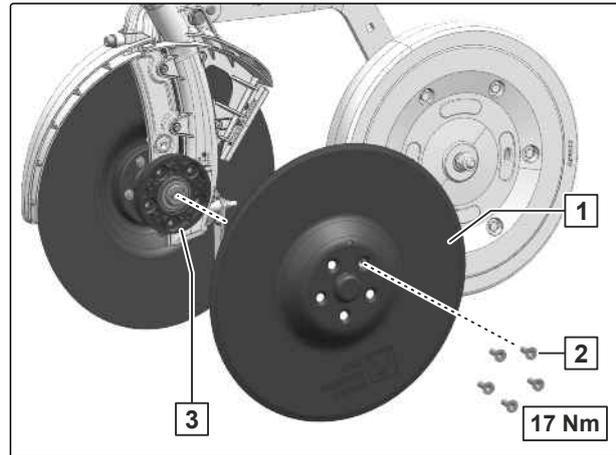
#### INTERVAL

- Every 50 operating hours  
or  
weekly

Original disc diameter	Wear limit
340 mm	300 mm

## 10 | Repairing the implement Maintaining the implement

1. Slightly raise the implement.
2. Determine the cutting disc diameter.
3. *If the diameter of a cutting disc is smaller than the wear limit from the table, replace the TwinTeC cutting disc.*
4. Remove the bolts **2**.
5. Remove worn TwinTeC cutting discs **1**.
6. Pay attention to the orientation of the sealing ring **3**.
7. Install new TwinTeC cutting discs.
8. *To ensure that the TwinTeC cutting discs touch slightly, see section "Checking the TwinTeC cutting disc distance".*



CMS-I-00003233

### 10.2.5 Checking the TwinTeC depth control wheel scraper

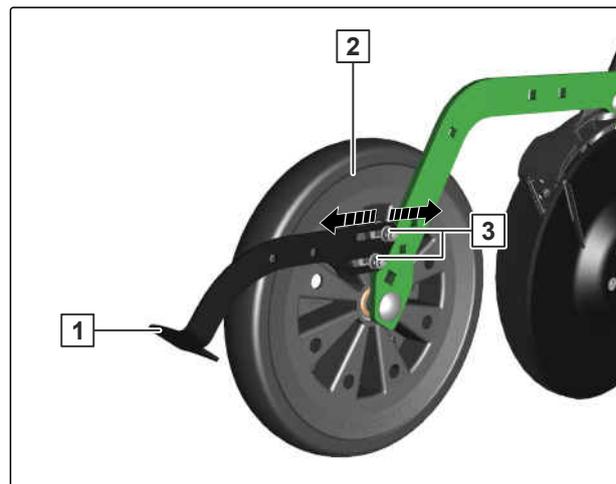
CMS-T-00008936-A.1



#### INTERVAL

- Every 50 operating hours  
or  
weekly

1. Lift the implement.



CMS-I-00006164



## IMPORTANT

### Damage to the depth control wheel due to abrasion by the scraper

- ▶ *To check the distance,*  
rotate the depth control wheel

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

## 10.2.6 Checking the RoTeC depth control discs and RoTeC depth control wheels

CMS-T-00006349-C.1



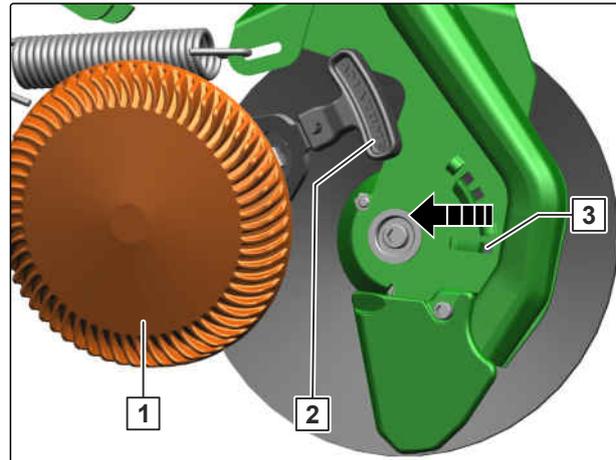
## INTERVAL

- 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.

## 10 | Repairing the implement

### Maintaining the implement

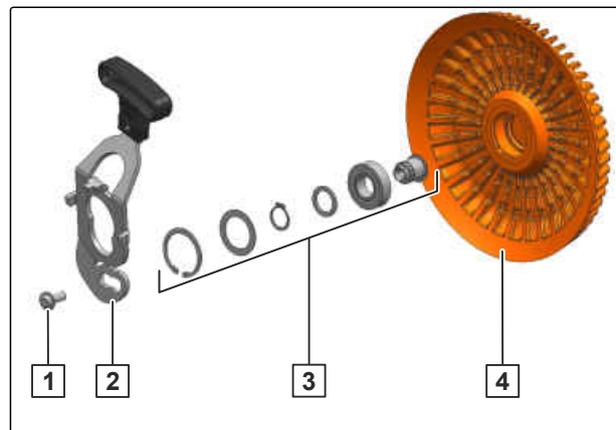
3. To remove the damaged RoTeC depth control disc or RoTeC depth control wheel **1** from the coulter, move the lever all the way down and push it to the rear in the elongated slot **3** until the RoTeC depth control disc or RoTeC depth control wheel can be removed.



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.

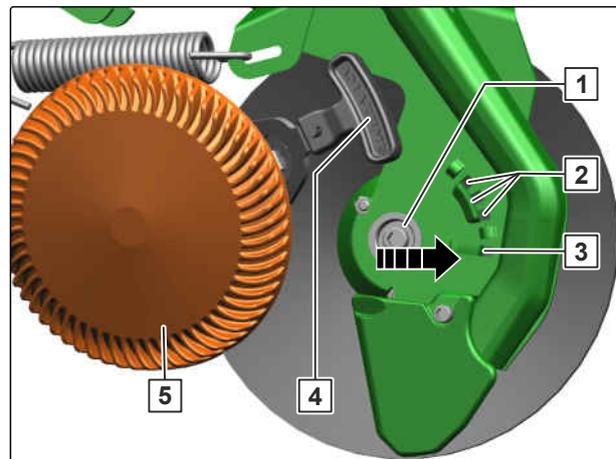
4. Remove the bolt **1**.
5. Take the axle, ball bearing, locking rings and locking washers **3** out of the worn RoTeC depth control disc or RoTeC depth control wheel and insert them in the new RoTeC depth control disc or RoTeC depth control wheel.



CMS-I-00004802

6. Install the lever **2** with the bolt **1** on the new RoTeC depth control disc or RoTeC depth control wheel **4**.

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.



CMS-I-00004836

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**.

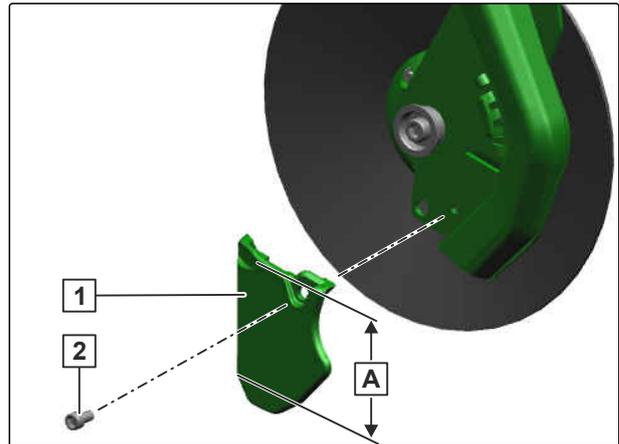
### 10.2.7 Checking the RoTeC furrow former

CMS-T-00006374-A.1

#### INTERVAL

- Every 50 operating hours  
or  
weekly

1. Remove the depth control disc or depth control wheel.
2. *When the indicated measurement **A** on a furrow former is smaller than 98 mm, replace the furrow former.*
3. *To replace the furrow former, remove the bolt **2** and dispose of it.*
4. Replace the worn furrow former **1**.
5. Install the a new bolt **2**. The bolts for the furrow former are coated and may not be reused.



CMS-I-00004667

### 10.2.8 Checking the RoTeC cutting discs

CMS-T-00010382-A.1

#### INTERVAL

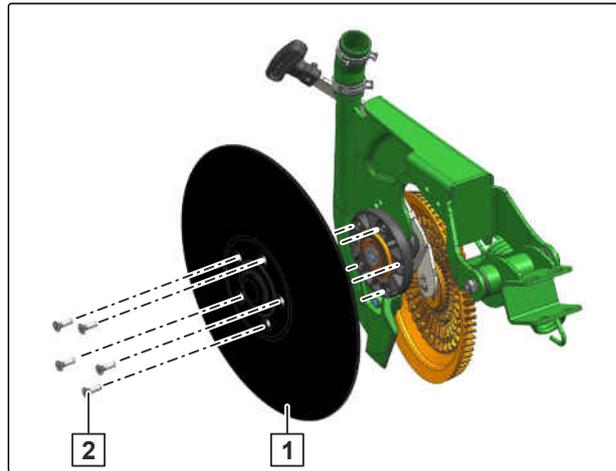
- Every 50 operating hours  
or  
weekly

Version	Original disc diameter	Wear limit
RoTeC coulter	317 mm	289 mm
RoTeC pro coulter	402 mm	365 mm

## 10 | Repairing the implement

### Maintaining the implement

1. Slightly raise the implement.
2. Determine the diameter of the RoTeC cutting discs.
3. *If the diameter of a cutting disc is smaller than the wear limit from the table, replace the RoTeC cutting disc.*
4. *To replace the RoTeC cutting disc, remove the bolts **2** on the front side of the cutting disc.*
5. Replace the worn RoTeC cutting disc **1**.
6. Install the bolts.



CMS-I-00005324

### 10.2.9 Checking the tightening torque for the radar sensor bolts

CMS-T-00002383-E.1



#### INTERVAL

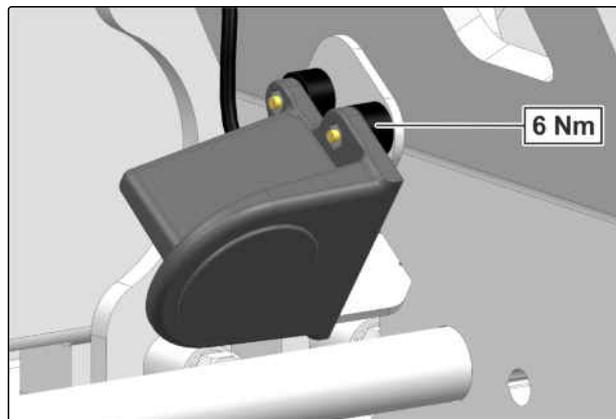
- After initial operation
- Every 12 months



#### 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

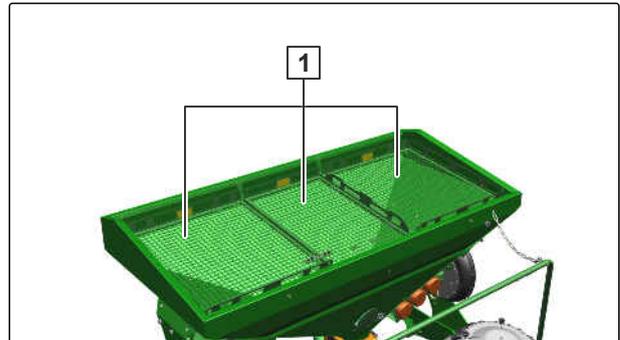
### 10.2.10 Cleaning the hopper

CMS-T-00009833-A.1

#### INTERVAL

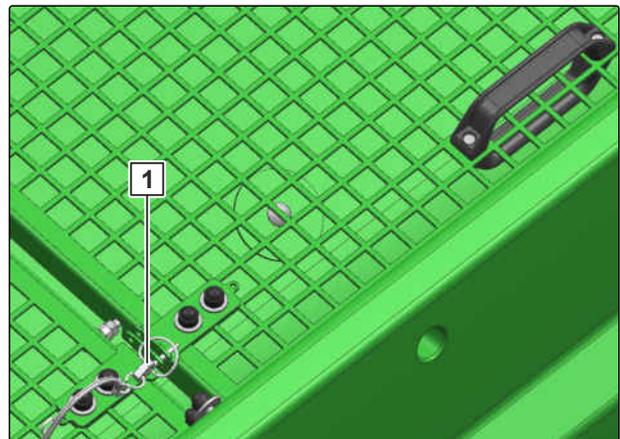
- After the first 50 operating hours
- as required

1. Open the roller tarpaulin.



CMS-I-00006777

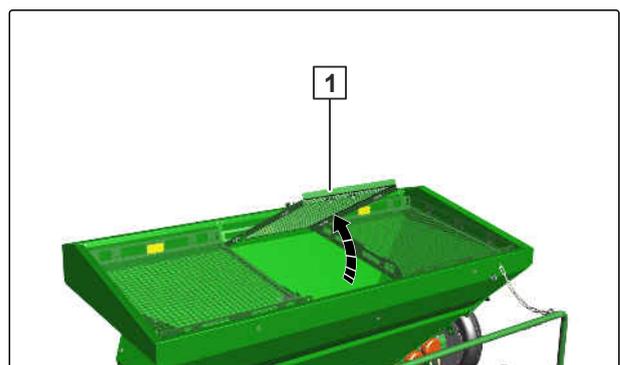
2. Clean the charging sieve **1**.



CMS-I-00005314

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

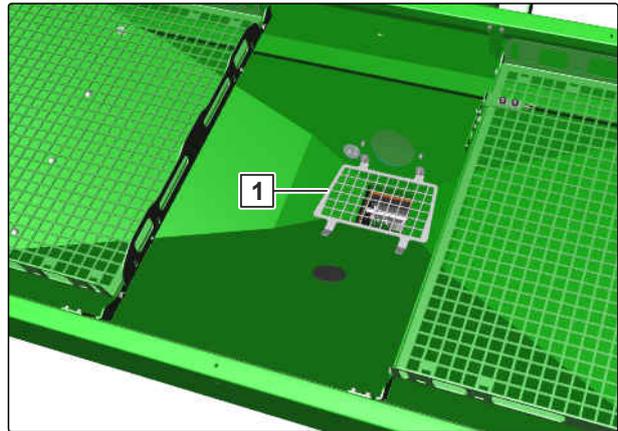
4. Take out the charging sieve **1**.



CMS-I-00006778

5. Clean the hopper with a high-pressure cleaner.

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



CMS-I-00006779

### 10.2.11 Cleaning the cyclone separator

CMS-T-00003779-C.1



#### 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

### 10.2.12 Cleaning the segment distributor head

CMS-T-00004448-F.1

#### INTERVAL

- Every 10 operating hours  
or  
daily

#### NOTE

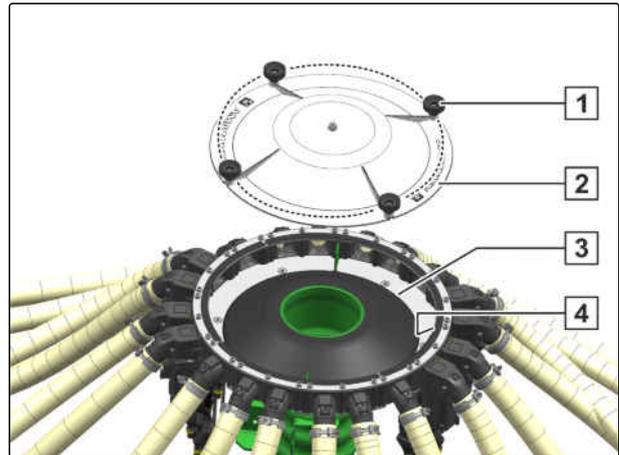
The segment distributor head must be kept free of dust, deposits, and foreign objects.

Shorten the checking intervals under very dusty conditions.

#### WARNING

**Risk of chemical burns by dressing dust**

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



CMS-I-00003133

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

### 10.2.13 Cleaning the conveyor section

CMS-T-00009834-A.1

#### INTERVAL

- Every 10 operating hours  
or  
daily

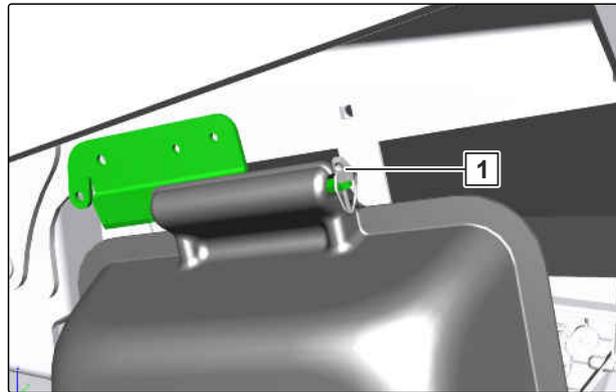
The air drawn by the fan can contain fertiliser dust or sand. These impurities can accumulate on the

fan rotors and cause imbalance of the fan. This can destroy the fan.

 **REQUIREMENTS**

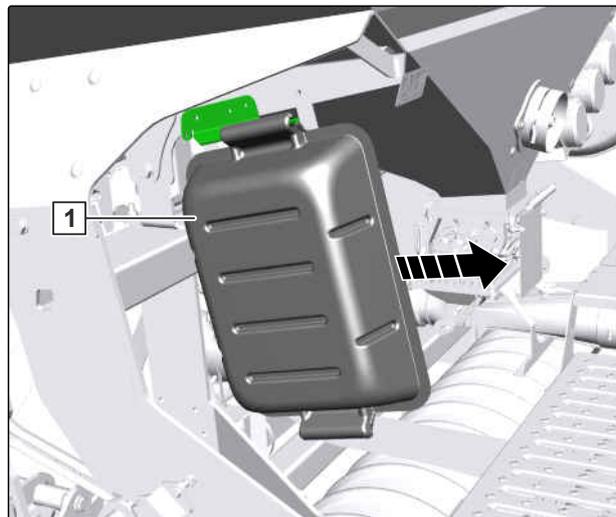
- ✓ The implement is coupled to the tractor

1. To unlock the calibration bucket, remove the linch pin **1** from the holder.



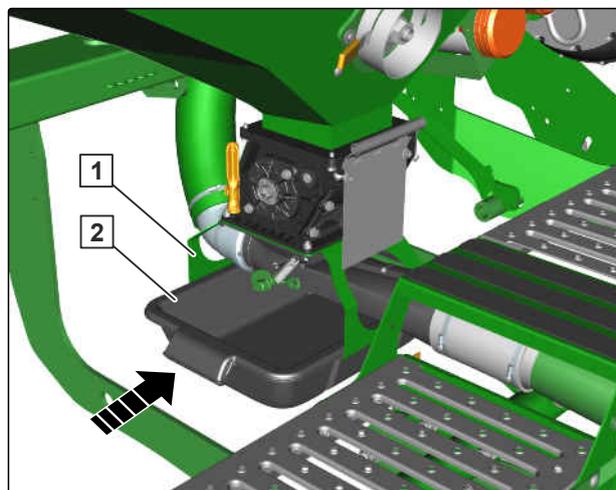
CMS-I-00006873

2. Take the calibration bucket **1** out of the holder.



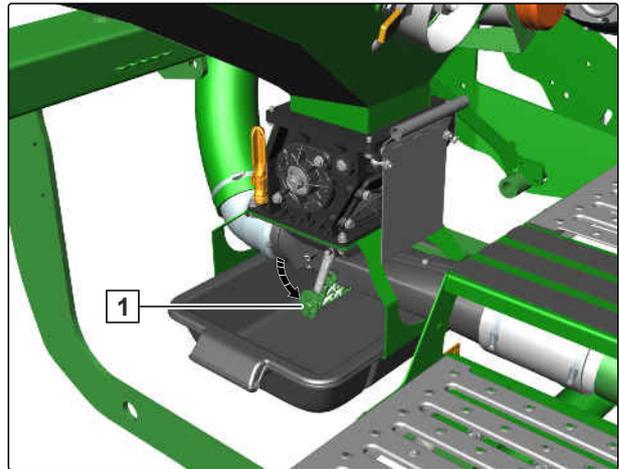
CMS-I-00006874

3. Slide the calibration bucket **2** into the guide rails **1** so that the calibration bucket is positioned underneath the metering unit.



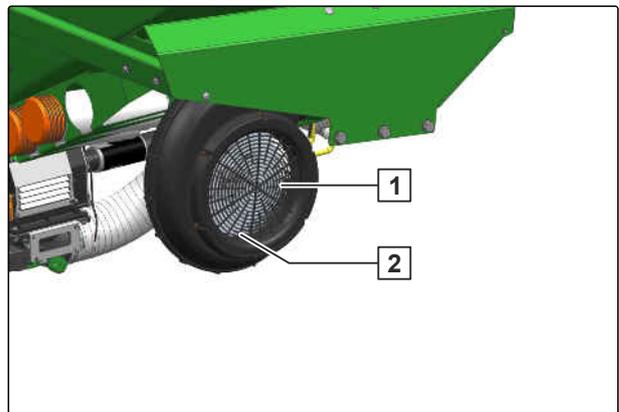
CMS-I-00006785

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



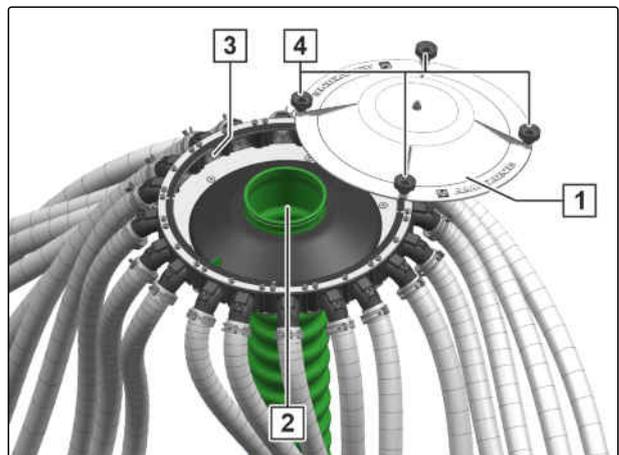
CMS-I-00006787

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



CMS-I-00005364

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



CMS-I-00004702

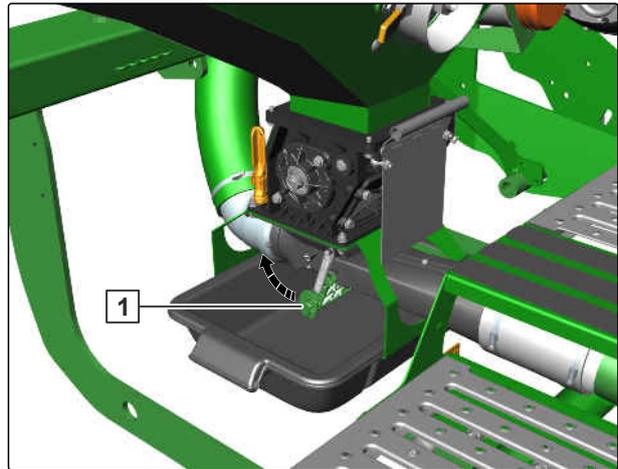
## 10 | Repairing the implement Maintaining the implement

12. *When most of the water has escaped through the calibration opening,*  
Close the calibration flap with the lever **1**.

13. Run the fan for 5 min.

➔ The air supply is blown dry.

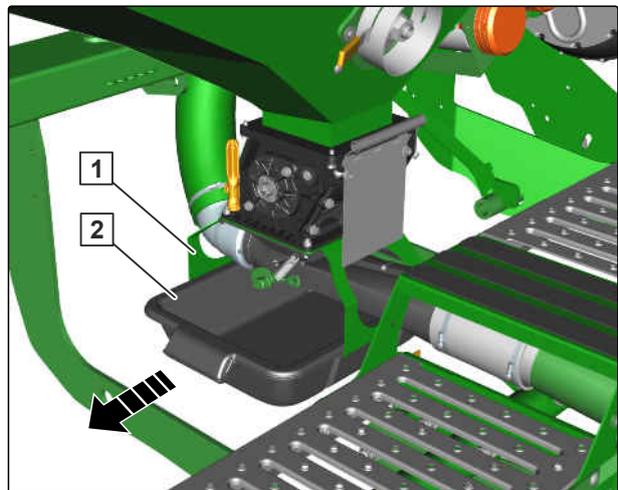
14. Switch off the fan.



CMS-I-00006791

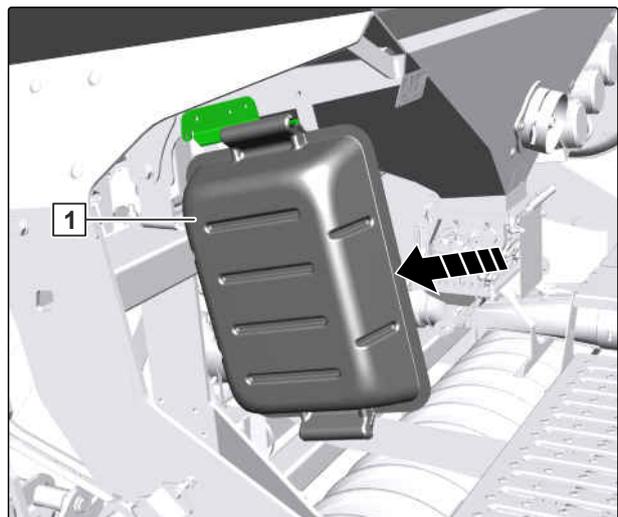
15. Take the calibration bucket **2** from the guide rails **1**.

16. Empty the calibration bucket.



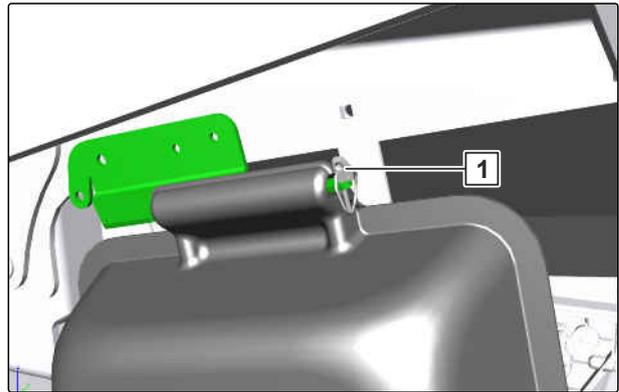
CMS-I-00006792

17. Put the calibration bucket **1** in the parking position.



CMS-I-00006875

18. To lock the calibration bucket,  
attach the lynch pin **1** onto the holder.



CMS-I-00006873

### 10.2.14 Cleaning the metering unit

CMS-T-00009842-A.1



#### INTERVAL

- daily

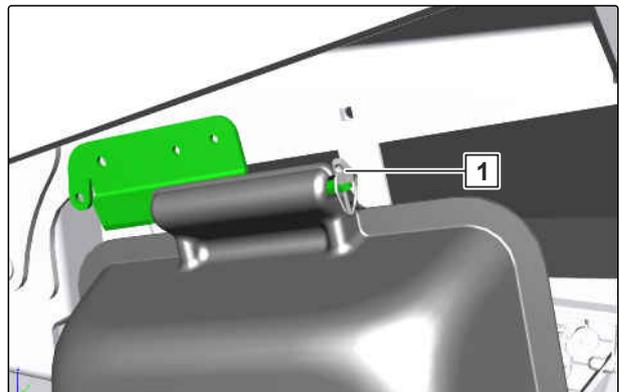


#### IMPORTANT

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

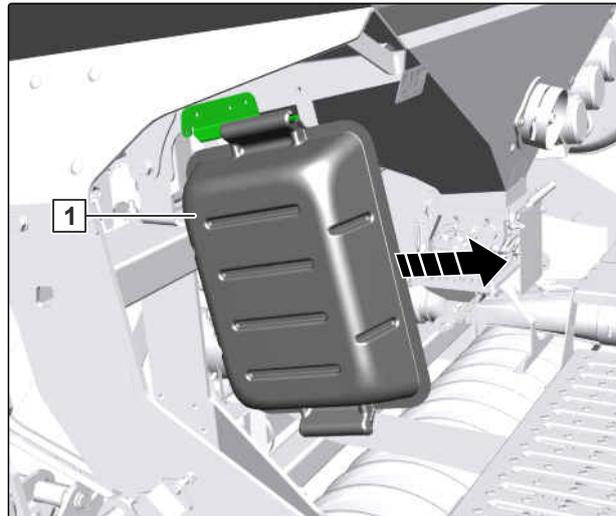
- ▶ Empty the metering unit after operation.
- ▶ Clean the metering unit after operation.

1. Switch off the fan.
2. To unlock the calibration bucket,  
remove the lynch pin **1** from the holder.



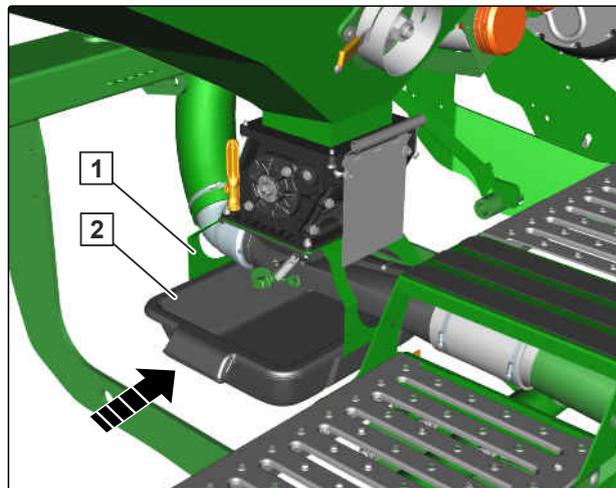
CMS-I-00006873

3. Take the calibration bucket **1** out of the holder.



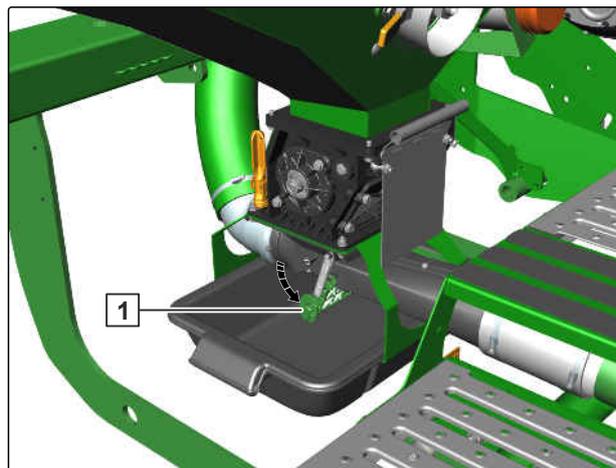
CMS-I-00006874

4. Slide the calibration bucket **2** into the guide rails **1** so that the calibration bucket is positioned underneath the metering unit.



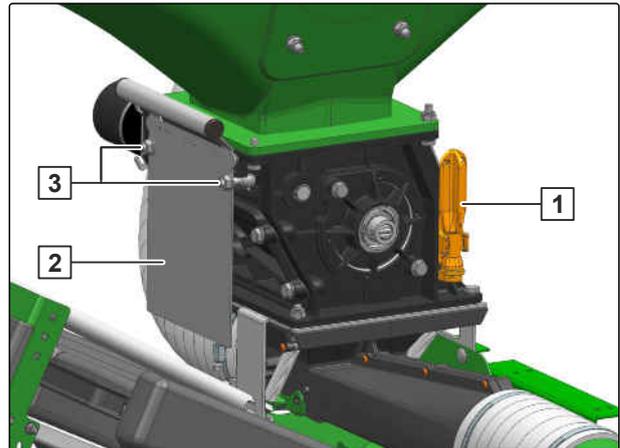
CMS-I-00006785

5. Open the calibration flap **1**.



CMS-I-00006787

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.

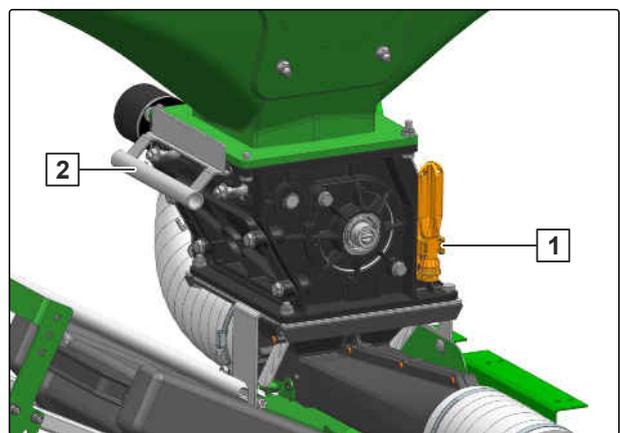


CMS-I-00005255

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"*

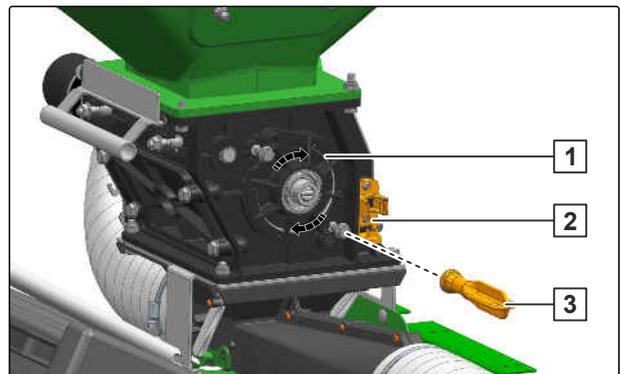
or

see "control computer" operating manual.



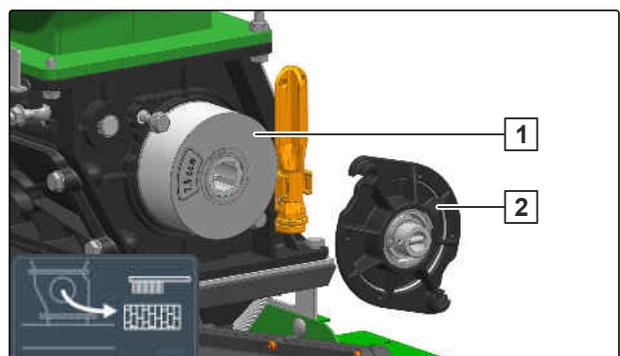
CMS-I-00005259

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.*



CMS-I-00005308

## 10 | Repairing the implement

### Maintaining the implement

17. Clean the metering housing and the metering roller.

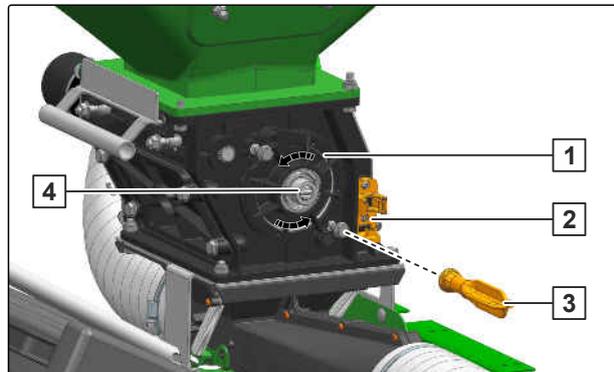
18. *When the metering housing and the metering roller have been cleaned,* reinstall the metering roller.

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**.

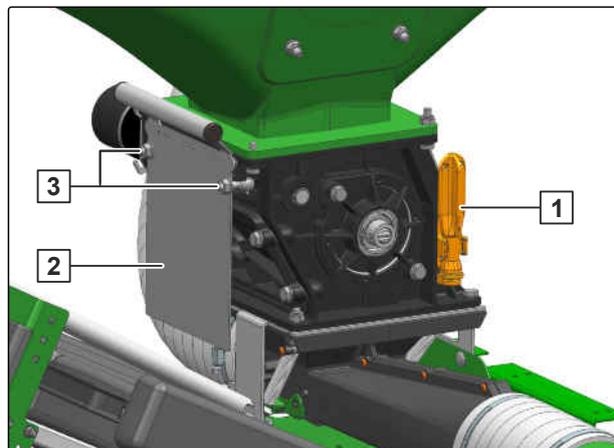


CMS-I-00005254

23. park the sliding shutter **2** on the metering unit housing.

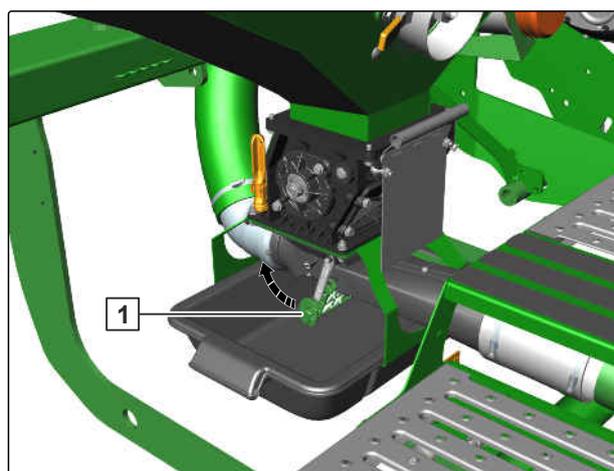
24. Swivel the bolts **3** in front of the sliding shutter.

25. Tighten the bolts with the socket wrench **1**.



CMS-I-00005255

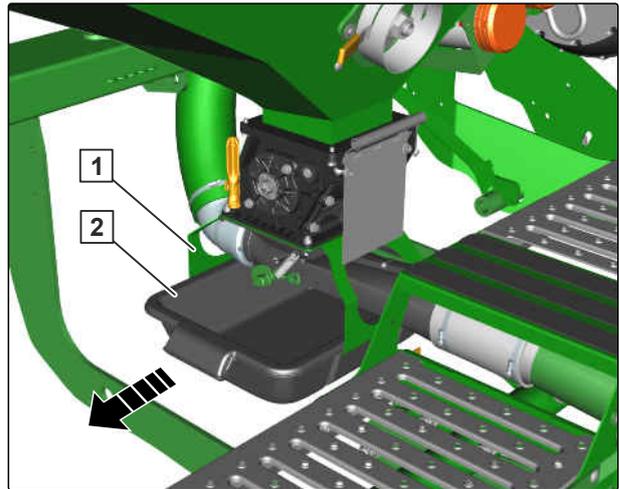
26. Close the calibration flap **1**.



CMS-I-00006791

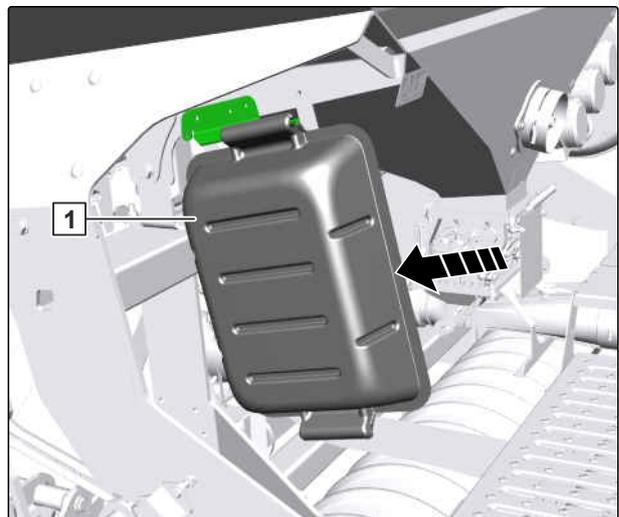
27. Take the calibration bucket **2** from the guide rails **1**.

28. Empty the calibration bucket.



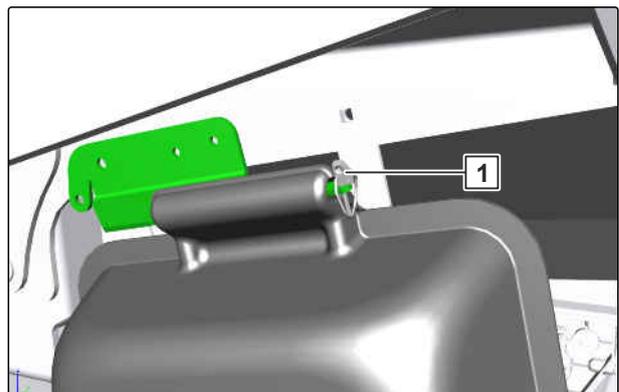
CMS-I-00006792

29. Put the calibration bucket **1** in the parking position.



CMS-I-00006875

30. To lock the calibration bucket, attach the linch pin **1** onto the holder.



CMS-I-00006873

### 10.2.15 Checking the top link pin and lower link pin

CMS-T-00002330-H.1



#### 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.

### 10.2.16 Checking the hydraulic hose lines

CMS-T-00002331-C.1



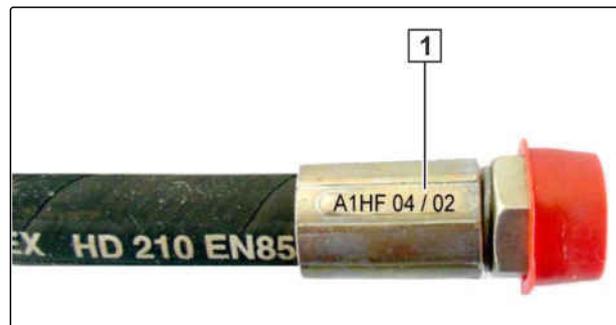
#### INTERVAL

- 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.

## 10.3 Lubricating the implement

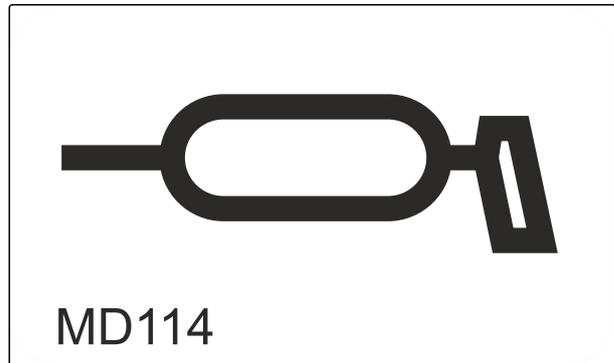
CMS-T-00009835-A.1



### IMPORTANT

#### Implement damage due to improper lubrication

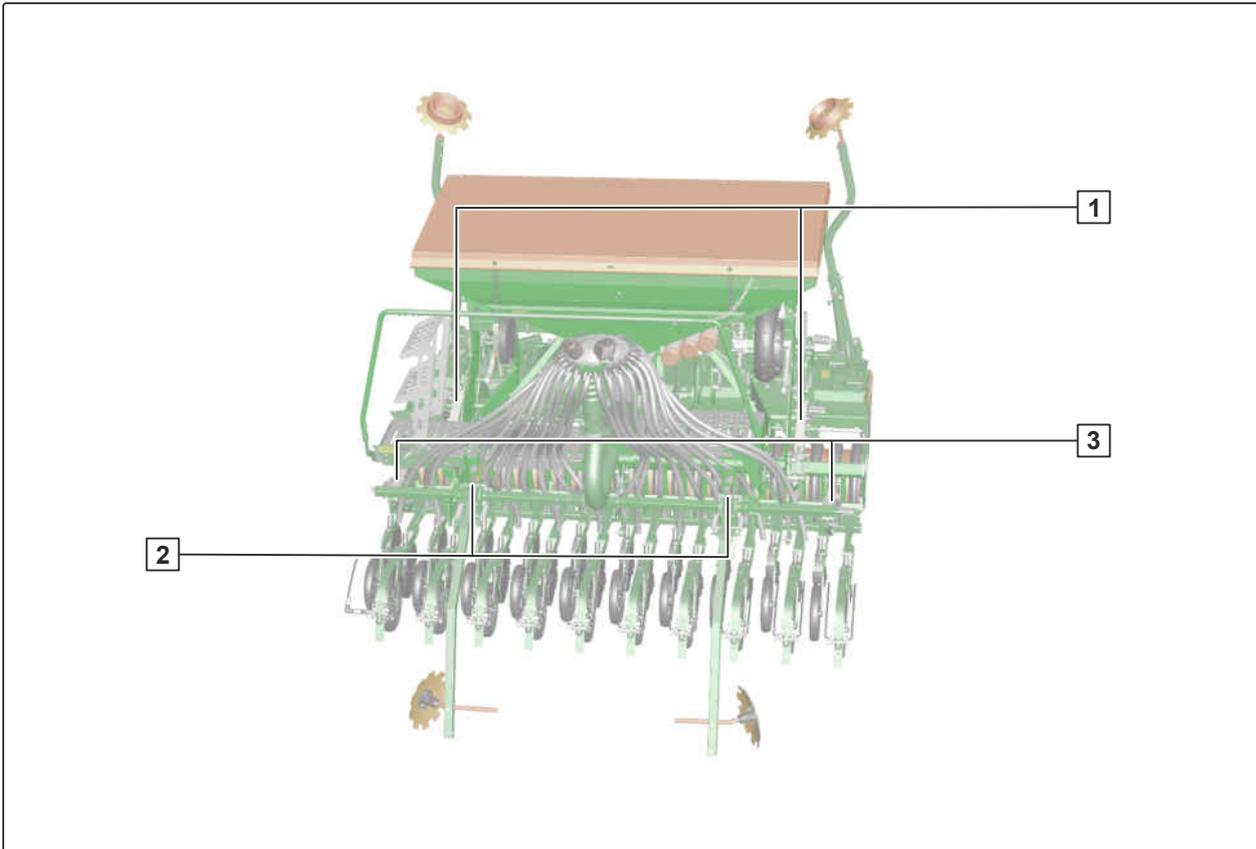
- ▶ Grease the implement at the marked lubrication points according to the lubrication schedule.
- ▶ *To ensure that dirt is not pressed into the lubrication points,* thoroughly clean the grease nipples and the grease gun.
- ▶ Only grease the implement with the lubricants listed in the technical data.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



CMS-I-00002270

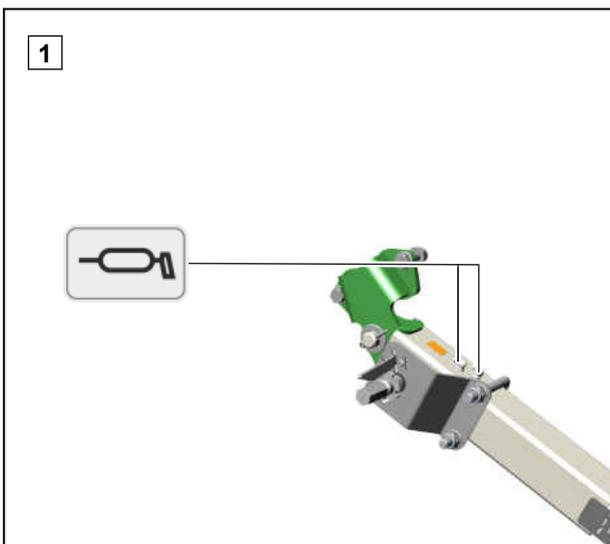
### 10.3.1 Overview of lubrication points

CMS-T-00009836-A.1

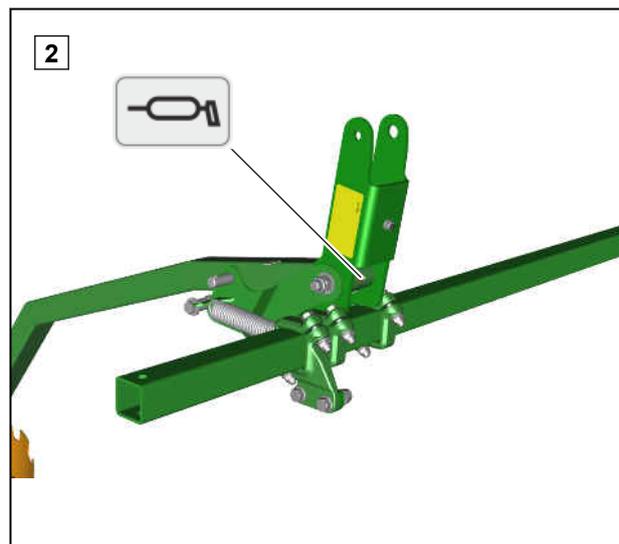


CMS-I-00006876

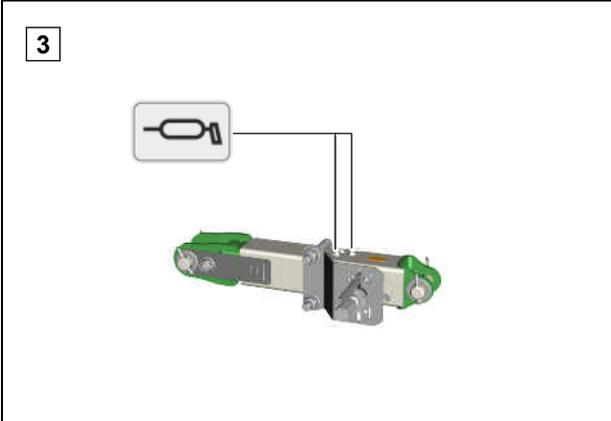
### Every 100 operating hours



CMS-I-00006877



CMS-I-00006238



CMS-I-00007038

# Loading the implement

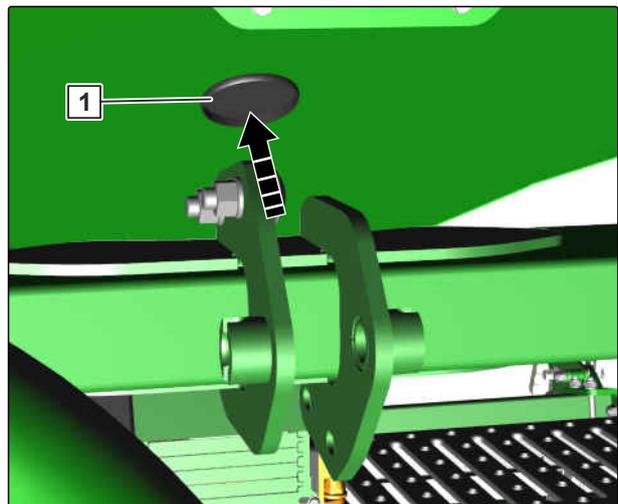
# 11

CMS-T-00009814-A.1

## 11.1 Installing a lashing point in the hopper

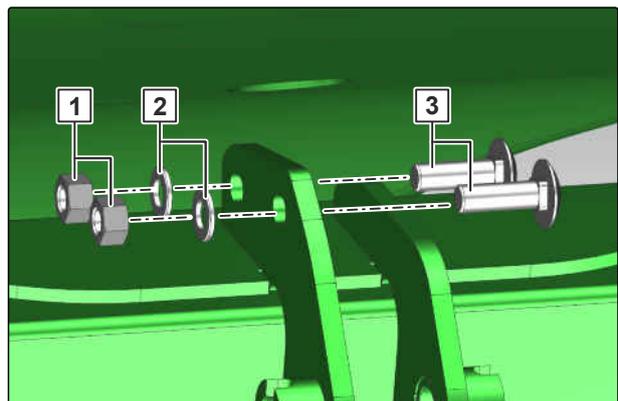
CMS-T-00009885-A.1

1. Press in the plastic cap **1** and remove it.



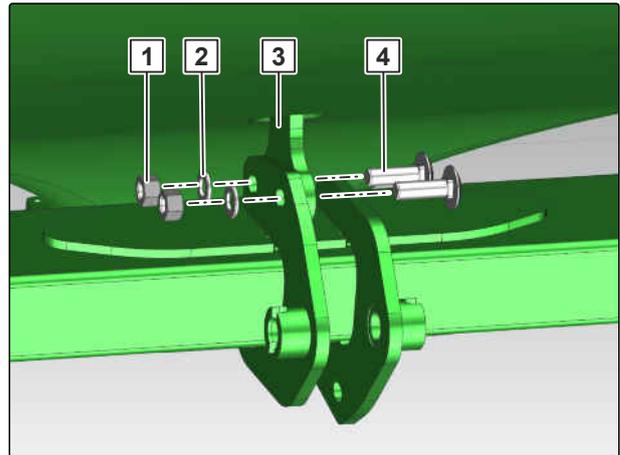
CMS-I-00006790

2. Loosen the nuts **1**.
3. Remove the washers **2**.
4. Remove the bolts **3**.



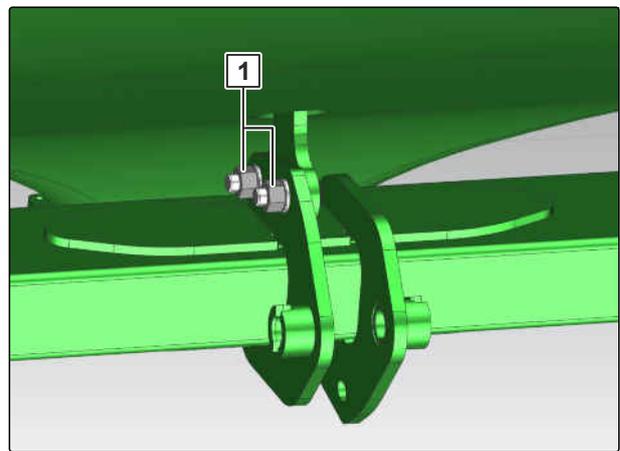
CMS-I-00005349

5. Attach the loading hook **3**.
6. Install the bolts **4**.
7. Install the washers **2**.
8. Install the nuts **1**.



CMS-I-00005353

9. Tighten the nuts **1**.



CMS-I-00005354

## 11.2 Lifting the implement

The implement has three lashing points for slings for lifting.

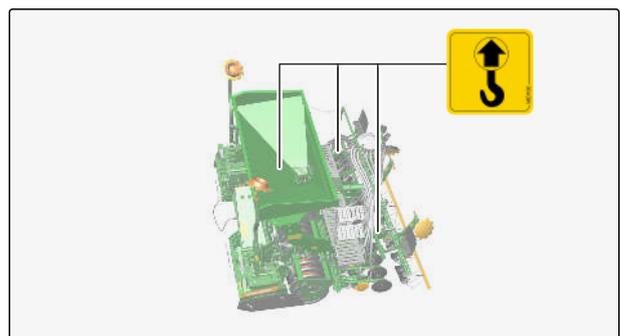


### WARNING

#### 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-00006855

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

## 11 | Loading the implement

### Lashing the implement

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

### 11.3 Lashing the implement

CMS-T-00009838-A.1

The implement has three lashing points for lashing straps.



#### WARNING

##### Risk of accident due to improper lashing

- ▶ Never lash the implement on the parking supports or jacks.



CMS-I-00006962

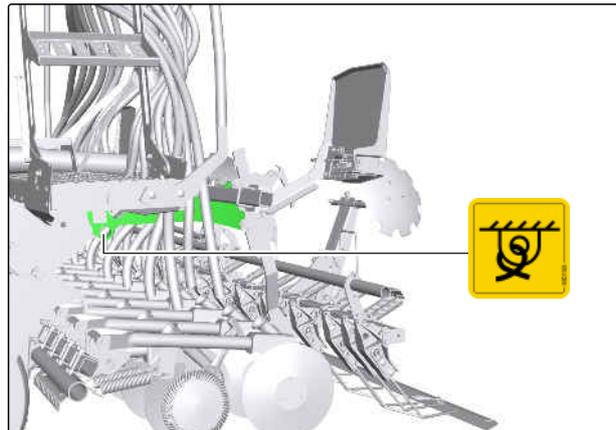


#### WARNING

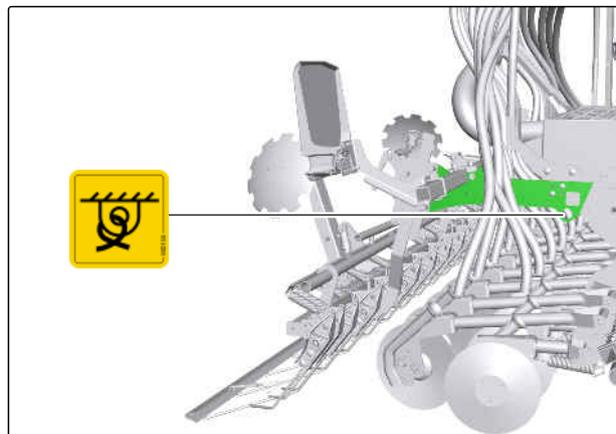
##### Risk of accidents due to improperly attached lashing straps

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-00006857



CMS-I-00006858



## 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.

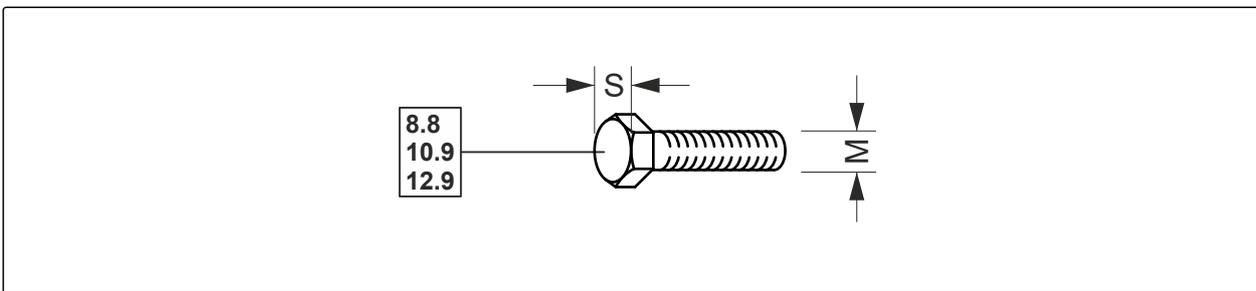
# Appendix

# 12

CMS-T-00009816-A.1

## 12.1 Bolt tightening torques

CMS-T-00000373-D.1



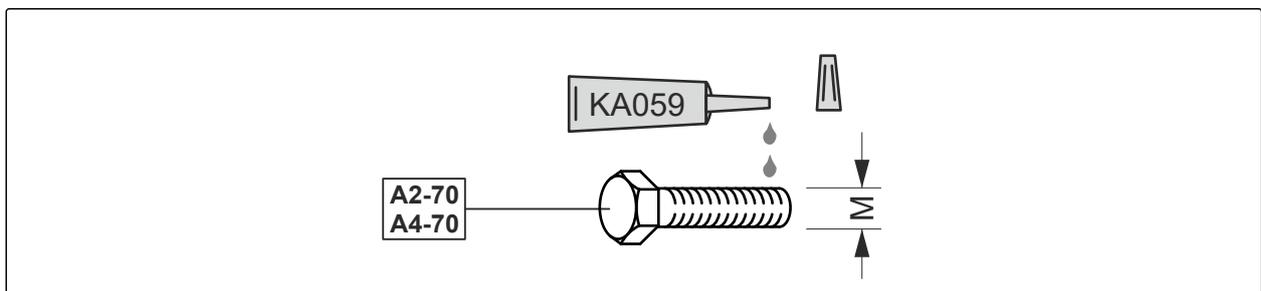
CMS-I-000260

### NOTE

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

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

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



CMS-I-00000065

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

## 12.2 Other applicable documents

CMS-T-00009817-A.1

# 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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