Original operating manual

Mechanical mounted seed drill

D9 2500 Special
D9 3000 Special
D9 3000 Super
D9 3500 Super
D9 4000 Super



SmartLearning

www.amazone.de



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

TABLE OF CONTENTS

1 About this operating manual 1

1.1 Copyright 1
1.2 Diagrams 1
1.2.1 Warnings and signal words 1
1.2.2 Further instructions 2
1.2.3 Instructions 2
1.2.4 Lists 4
1.2.5 Item numbers in figures 4
1.2.6 Direction information 4
1.3 Other applicable documents 4
1.4 Digital operating manual 4
1.5 Your opinion is important 4

2 Safety and responsibility 5

2.1 Basic safety instructions 5
2.1.1 Meaning of the operating manual 5
2.1.2 Safe operating organisation 5
2.1.3 Knowing and preventing dangers 10
2.1.4 Safe operation and handling of the machine 13
2.1.5 Safe maintenance and modification 15
2.2 Safety routines 19

3 Intended use 21

4 Product description 22

4.1 Implement overview 22
4.2 Function of the implement 23
4.3 Special equipment 24
4.4 Protective equipment 25
4.4.1 Calibration troughs 25
4.4.2 Chain guard 25
4.5 Warning symbols 26
4.5.1 Positions of the warning symbols 26
4.5.2 Layout of the warning symbols 29
4.5.3 Description of the warning symbols 29
4.6 Rating plate on the implement 33
4.7 Lighting and identification for road travel 34
4.7.1 Rear lighting and identification 34
4.7.2 Front lighting and identification 34
4.7.3 Additional licence plate 35
4.8 Threaded cartridge 35
4.9 Hopper 35
4.10 Fill level indicator 36
4.11 Fill level sensor 36
4.12 Metering system 37
4.13 WS drag coulter 37
4.14 Band seeding shoe 38
4.15 RoTeC coulter 38
4.16 Trailing tine harrow 39
4.17 Exact following harrow 40
4.18 Roller harrow 40
4.19 Tramline marker 41
4.20 Track marker 41
4.21 Seed drill wheel mark eradicator 42
4.22 Road safety bars 42

5 Technical data 43

5.1 Dimensions 43
5.2 Hopper volume 43
5.3 Coulters 44
5.4 Permitted mounting categories 44
5.5 Permissible payload 44
5.6 Forward speed 45
5.7 Performance characteristics of the tractor 45
5.8 Noise development data 45
5.9 Drivable slope inclination 46
5.10 Gear oil 46

5.11 Wheel bolt tightening torques 46

6 Preparing the implement 47

6.1 Calculating the required tractor characteristics 47
6.2 Coupling the implement 50
6.2.1 Coupling the implement to a tractor as a solo implement 50
6.2.2 Coupling the implement onto a rotary harrow or rotary cultivator 53
6.3 Preparing the implement for operation 54
6.3.1 Using the loading board steps 54
6.3.2 Preparing the metering unit for operation 54
6.3.3 Setting the fill level sensor 78
6.3.4 Filling the hopper 79
6.3.5 Adjusting the coulter pressure and placement depth 81
6.3.6 Adjusting the exact following harrow or trailing tine harrow 85
6.3.7 Adjusting the roller harrow 88
6.3.8 Adjusting the tramline rhythm 92
6.3.9 Operating the one-sided switching 98
6.3.10 Preparing the track marker for operation 101
6.3.11 Adjusting the seed drill wheel mark eradicator 102
6.3.12 Adjusting the spring-suspended tractor wheel mark eradicator 102
6.3.13 Adjusting the reinforced tractor wheel mark eradicator 103
6.4 Preparing the implement for road travel 105
6.4.1 Moving the track marker to transport position 105
6.4.2 Securing the track markers 106
6.4.3 Folding the tramline marker on the exact following harrow 106
6.4.4 Moving the exact following harrow or seed harrow into transport position 106
6.4.5 Putting the road safety bars on the exact following harrow 107

7 Using the implement 108

7.1 Removing the road safety bars 108
7.2 Moving the exact following harrow or seed harrow into working position 109
7.3 Unfolding the tramline marker on the exact following harrow 110
7.4 Unlocking the track markers 110
7.5 Unfolding the track markers 111
7.6 Using the implement 111
7.7 Checking the placement depth 112
7.8 Turning on the headlands 112

8 Eliminating faults 114

9 Parking the implement 121

9.1 Moving the wheel mark eradicator into parking position 121
9.2 Emptying the hopper chambers and seed housing 121
9.3 Uncoupling implements that were coupled as a solo implement 123
9.3.1 Uncoupling the three-point mounting frame 123
9.3.2 Driving the tractor away from the implement 123
9.3.3 Disconnecting the hydraulic hose lines 124
9.3.4 Uncoupling the ISOBUS or control computer 124
9.3.5 Uncoupling the power supply 125
9.4 Uncoupling implements that were coupled onto a rotary harrow or rotary cultivator 125

10 Repairing the implement 126

10.1 Cleaning the implement 126
10.2 Maintaining the implement 127
10.2.1 Maintenance schedule 127

10.2.2 Checking the RoTeC depth control discs and RoTeC depth control wheels 128
10.2.3 Checking the RoTeC furrow former 129
10.2.4 Checking the cutting discs 130
10.2.5 Cleaning the seed hopper 130
10.2.6 Cleaning the C-Drill hopper 131
10.2.7 Checking the gear oil level 133
10.2.8 Refilling the gear oil 133
10.2.9 Checking the lower link pins and top link pins 134
10.2.10 Checking the hydraulic hose lines 134
10.2.11 Checking the furrow former on the WS drag coulter 135
10.2.12 Check the basic setting of the bottom flaps 136
10.2.13 Checking the coulter on the spring-suspended tractor wheel mark eradicator 137
10.2.14 Checking the coulter on the reinforced tractor wheel mark eradicator 138

11 Loading the implement 140

11.1 Lashing the implement 140
11.2 Loading the implement with a crane 142

12 Disposing of the implement 143

13 Appendix 144

13.1 Bolt tightening torques 144
13.2 Other applicable documents 145

14 Directories 146

14.1 Glossary 146
14.2 Index 147

About this operating manual

1

CMS-T-00000081-J.1

1.1 Copyright

CMS-T-00012308-A.1

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

1.2 Diagrams

CMS-T-005676-G.1

1.2.1 Warnings and signal words

CMS-T-00002415-A.1

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

DANGER

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

WARNING

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

CAUTION

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

1.2.2 Further instructions

CMS-T-00002416-A.1

IMPORTANT

- Indicates a risk for damage to the implement.

ENVIRONMENTAL INFORMATION

- Indicates a risk for environmental damage.

NOTE

Indicates application tips and instructions for optimal use.

1.2.3 Instructions

CMS-T-00000473-E.1

1.2.3.1 Numbered instructions

CMS-T-005217-B.1

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

Example:

1. Instruction 1
2. Instruction 2

1.2.3.2 Instructions and responses

CMS-T-005678-B.1

Reactions to instructions are marked with an arrow.

Example:

1. Instruction 1

➡ Reaction to instruction 1

2. Instruction 2

1.2.3.3 Alternative instructions

CMS-T-00000110-B.1

Alternative instructions are introduced with the word *"or"*.

Example:

1. Instruction 1

   or

   Alternative instruction

2. Instruction 2

1.2.3.4 Instructions with only one action

CMS-T-005211-C.1

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

Example:

▶ Instruction

1.2.3.5 Instructions without sequence

CMS-T-005214-C.1

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

Example:

▶ Instruction

▶ Instruction

▶ Instruction

1.2.3.6 Workshop work

CMS-T-00013932-B.1



WORKSHOP WORK

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

1.2.4 Lists

CMS-T-000024-A.1

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

Example:

- Point 1
- Point 2

1.2.5 Item numbers in figures

CMS-T-000023-B.1

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

1.2.6 Direction information

CMS-T-00012309-A.1

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

1.3 Other applicable documents

CMS-T-00000616-B.1

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

1.4 Digital operating manual

CMS-T-00002024-B.1

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

1.5 Your opinion is important

CMS-T-000059-D.1

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

AMAZONEN-WERKE H. Dreyer SE & Co. KG
Technische Redaktion
Postfach 51
D-49202 Hasbergen

Fax: +49 (0) 5405 501-234
E-Mail: tr.feedback@amazone.de

CMS-I-00000638

Safety and responsibility 2

CMS-T-00013751-A.1

2.1 Basic safety instructions

CMS-T-00013752-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-E.1

2.1.2.1 Personnel qualification

CMS-T-00002306-C.1

2.1.2.1.1 Requirements for persons working with the implement

CMS-T-00002310-C.1

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

the implement must meet the following minimum requirements:

- The person is physically and mentally capable of 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 head understood the operating manual and can implement the information that is conveyed in the operating manual.
- The person must be familiar with safe driving of vehicles.
- For road travel, the person knows the relevant road traffic regulations and has the prescribed driving permit.

2.1.2.1.2 Qualification levels

CMS-T-00002311-A.1

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

- Farmer
- Agricultural helper

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

2.1.2.1.3 Farmer

CMS-T-00002312-A.1

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

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

Farmers can be e.g.:

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

Activity example:

- Safety training for agricultural helpers

2.1.2.1.4 Agricultural helpers

CMS-T-00002313-A.1

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

Agricultural helpers can be e.g.:

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

Activity examples:

- Driving the machine
- Adjusting the working depth

2.1.2.2 Workplaces and passengers

CMS-T-00002307-B.1

Passengers

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

► Do not let anybody ride on the machine.

► Do not let anybody climb onto the driving machine.

2.1.2.3 Danger for children

CMS-T-00002308-A.1

Danger for children

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

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

2.1.2.4 Operational safety

CMS-T-00002309-D.1

2.1.2.4.1 Perfect technical condition

CMS-T-00002314-D.1

Only use properly prepared machines

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

- Prepare the machine according to this operating manual.

Danger due to damage to the machine

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

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

Observe the technical limit values

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

- Comply with the technical limit values.

2.1.2.4.2 Personal protective equipment

CMS-T-00002316-B.1

Personal protective equipment

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

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

Wear suitable clothing

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

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

2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

Keep warning symbols legible

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

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

2.1.3 Knowing and preventing dangers

CMS-T-00013753-A.1

2.1.3.1 Safety hazards on the implement

CMS-T-00002318-F.1

Liquids under pressure

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

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

Risk of injury on the universal joint shaft

Persons can be caught, pulled in and severely injured by the universal joint shaft and driven components. If the universal joint shaft is overloaded, the implement can be damaged, parts can be ejected at high speed, and persons can be injured.

- Maintain sufficient coverage of the profile tube, universal joint shaft guard and PTO shaft protective cap.
- Maintain the direction of rotation and the permissible speed of the universal joint shaft.
- *If the universal joint shaft is angled down too strongly:*
  Switch off the universal joint shaft drive.
- *If you do not need the universal joint shaft:*
  Switch off the universal joint shaft drive.

Risk of injury on the PTO shaft

Persons can be caught, pulled in and severely injured by the PTO shaft and driven components. If the PTO shaft is overloaded, the implement can be damaged, parts can be ejected at high speed, and persons can be injured.

- Maintain sufficient coverage of the profile tube, universal joint shaft guard and PTO shaft protective cap.
- Allow the locks on the PTO shaft to engage.
- *To secure the universal joint shaft guard against rotating:*
  Hook on the safety chains.
- *To secure the coupled hydraulic pump against rotating:*
  Put on the torque support.
- Maintain the direction of rotation and the permissible speed of the PTO shaft.
- *To prevent implement damage due to torque peaks:*
  Slowly couple the PTO shaft at low tractor engine speed.

Danger due to machine parts still running

When the drives are switched off, machine parts can continue running and cause serious personal injury or death.

- Before approaching the machine, wait until any machine parts that are still running have come to a stop.
- Only touch machine parts that are standing still.

2.1.3.2 Danger areas

CMS-T-00011167-A.1

Dangers areas on the implement

The following basic dangers are encountered in the danger areas:

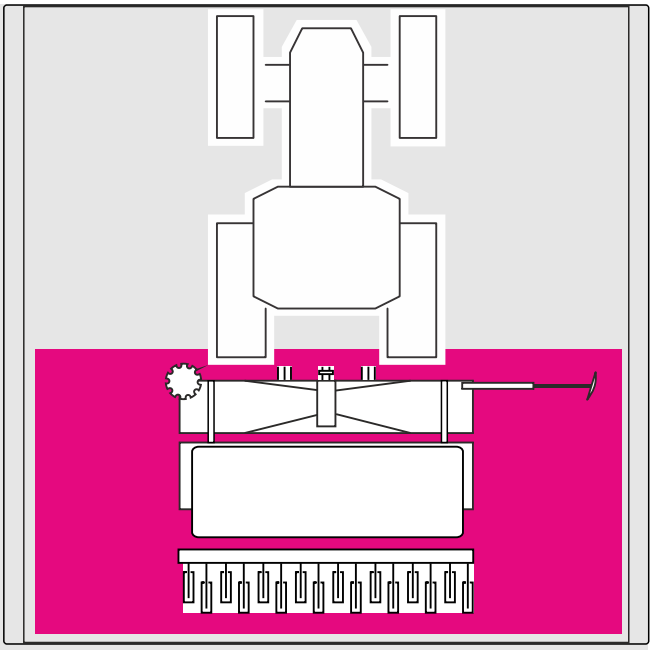
The implement and its work tools move during operation.

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.



CMS-I-00007485

- 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.

2.1.4 Safe operation and handling of the machine

CMS-T-00002304-M.1

2.1.4.1 Coupling implements

CMS-T-00002320-D.1

Coupling the implement on the tractor

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

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

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

2.1.4.2 Driving safety

CMS-T-00002321-I.1

Risk when driving on roads and fields

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

- Always ensure that the tractor's steering and braking systems are operating correctly.
- *The tractor must provide the required brake lag for the tractor and mounted implement.*
  Check the function of the brakes before moving off.
- *The tractor front axle must always be loaded with at least 20 % of the empty tractor weight to ensure sufficient steering capacity.*
  Use front ballast weights if necessary.
- Always attach the front or rear ballast weights properly on the specified fixing points.
- Calculate and observe the permitted payload for the mounted or towed implement.
- Observe the permissible axle loads and drawbar loads of the tractor.
- Observe the permissible drawbar load of the hitch device and drawbar.
- Comply with the permissible transport width and transport height of the implement.
- 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 implement 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.
- Use the warning beacon in compliance with the national regulations.
- Switch off the work lights.
- Lock the tractor control units.
- 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.

Do not use the control computer or control terminal during road travel

If the driver is distracted, it can result in accidents and injuries or even death.

- Do not operate the control computer or control terminal during road travel.

2.1.5 Safe maintenance and modification

CMS-T-00014994-B.1

2.1.5.1 Changes on the implement

CMS-T-00014995-A.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.

Unauthorised changes and unauthorised use

Unauthorised changes and unauthorised use can impair your safety and affect the service life and/or function of the control terminal.

- ► Only make changes to the control computer or control terminal that are described in the operating manual for the control computer or control terminal.
- ► Use the control computer or control terminal according to its intended use.
- ► Do not open the control computer or control terminal.
- ► Do not pull on the lines.

2.1.5.2 Work on the implement

CMS-T-00014996-B.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.

- ► *If you have to work on or under raised loads:*
  Lower the loads or secure the loads 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.
- ► Wait until all parts that are still running come to a stop and until hot parts cool down.
- ► Do not stand on moving parts.

Maintenance work

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

- *Before you adjust, maintain or clean the machine,*
  secure the machine.
- Repair the machine according to this operating manual.
- Only perform the work that is described in this operating manual.
- Have maintenance work that is labelled as *"WORKSHOP WORK"* performed at a workshop that is adequately equipped in terms of agricultural technology, safety and environmental technology by specialist personnel with appropriate training.



CMS-I-00007119

- 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.

A short circuit can cause damage

When repair work is performed on the tractor or on a towed or mounted implement, there is a risk of short circuit.

- *Before you perform maintenance work:*
  Disconnect all connections between the control terminal or control computer and the tractor.

Improper cleaning can cause damage

- Clean the control computer or control terminal only with a moist, soft cloth.

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 three-point mounting frame, drawbar, trailer support, trailer coupling or tensioned crosspiece as well as axles and axle suspensions, lines and tanks containing flammable substances.

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

Overvoltage can cause damage

If welding work is performed on the tractor or on a towed or mounted implement, the control computer or control terminal can be damaged by overvoltage.

- *Before welding:*
  Disconnect all connections between the control terminal or control computer and the tractor.

Incorrect operating temperature and storage temperature can cause damage

If the operating temperature and storage temperature are not observed, there can damage to the control computer or control terminal, therefore resulting in malfunctions and dangerous situations.

- Operate the control computer or control terminal only at temperatures from -20°C to +65°C.
- Store the control computer or control terminal only at temperatures from -30°C to +80°C.

2.1.5.3 Operating materials

CMS-T-00002324-C.1

Unsuitable operating materials

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

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

2.1.5.4 Special equipment and spare parts

CMS-T-00002325-B.1

Special equipment, accessories, and spare parts

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

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

2.2 Safety routines

CMS-T-00002300-D.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 implement without using the intended access steps can slip, fall, and suffer severe injury. Dirt and operating materials can impair stepping and standing safety. Accidental actuation of control elements can unintentionally activate potentially dangerous functions.

- Use only the intended access steps.
- *To ensure safe stepping and standing:* Always keep steps and platforms clean and in proper condition.
- *When the implement is moving:* Never climb onto or off of the implement.
- Climb up and down facing the implement.
- When climbing up and down, maintain contact with at least 3 points on the steps and handrails: always keep 2 hands and one foot or 2 feet and one hand on the implement.
- When climbing up and down, never hold onto the control elements.
- When climbing down, never jump off of the implement.

Intended use

3

CMS-T-00013758-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 implement to be mounted on the three-point power lift of a tractor that meets the technical requirements.
- The implement is an agricultural machine to be mounted flexibly or rigidly on the liftpack system or the coupling parts of a compatible AMAZONE soil tillage implement that meets the technical requirements.
- The implement is suitable and intended for metering and spreading conventional seeds.
- When driving on public roads, depending on the provisions of the applicable road traffic regulations, the implement can be mounted and transported directly or indirectly via a compatible AMAZONE soil tillage implement at the rear of a tractor that meets the technical requirements.
- The implement may only be used and maintained by persons who fulfil the requirements. The personnel requirements are described in the section *"Personnel qualification"*.
- The operating manual is part of the implement. The implement is solely intended for use in compliance with this operating manual. Uses of the implement that are not described in this operating manual can lead to serious personal injuries or even death and to implement and material damage.
- The applicable accident prevention regulations as well as generally accepted safety-related, occupational health and road traffic regulations must also be observed by the users and the owner.
- Further instructions for intended use in special cases can be requested from AMAZONE.
- Uses other than those specified under the intended use are considered as improper. The manufacturer is not liable for any damage resulting from improper use, solely the operator is responsible.

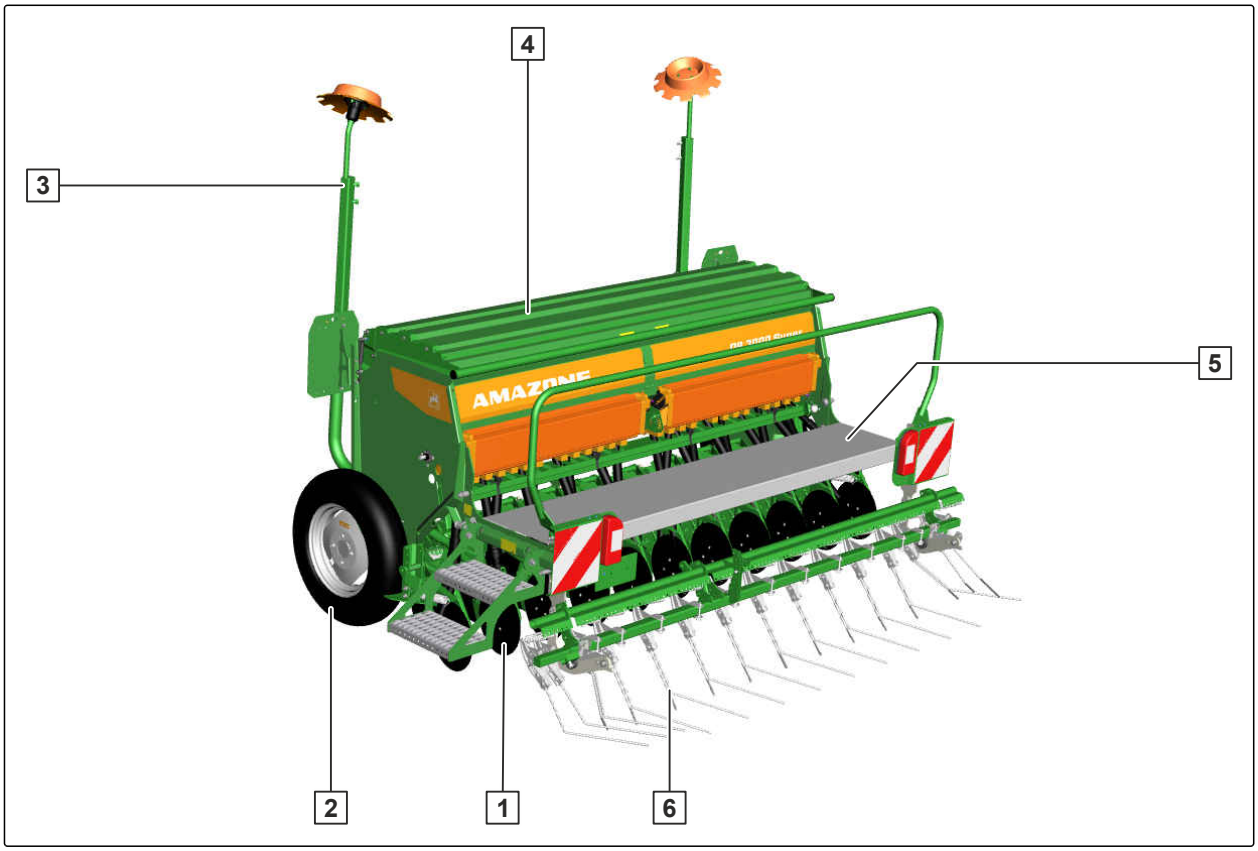
Product description

4

CMS-T-00013739-A.1

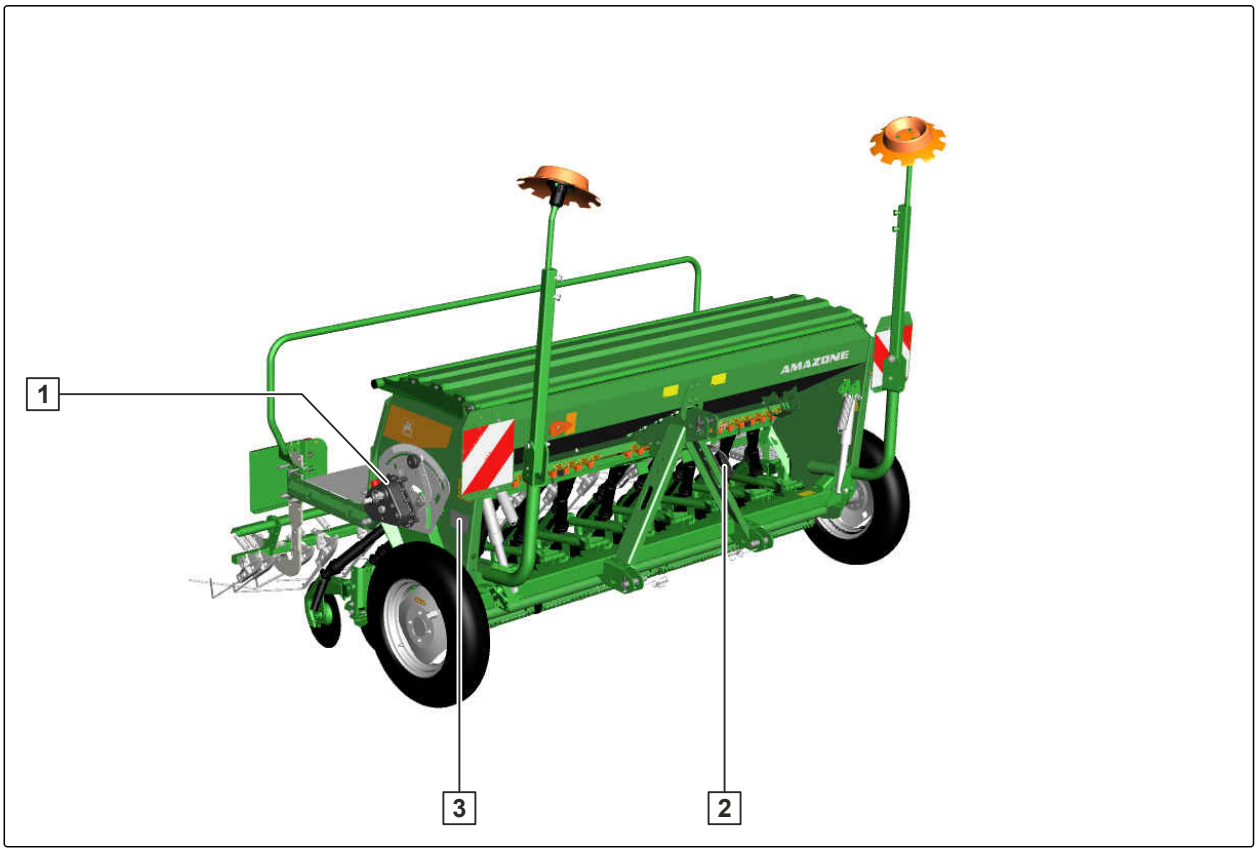
4.1 Implement overview

CMS-T-00013741-A.1



CMS-I-00011809

1	Seeding coulter	2	Running gear, for working on the field
3	Track marker	4	Seed hopper
5	Loading board	6	Trailing tine harrow



CMS-I-00011810

1 Vario gearbox

2 Cabinet for hydraulic hose lines, lines for the power supply and ISOBUS line

3 Rating plate

4.2 Function of the implement

CMS-T-00013740-A.1

The seed hopper contains the seed.

The seed drill wheel drives the Vario gearbox.

The Vario gearbox drives the seeding metering wheels in the seed housings.

The seed metering wheels meter the seed.

The seeding coulters form seed furrows and deposit the seed in the seedbed.

The harrow covers the seed with soil.

The track markers mark the next bout. The track markers are attached either to the seed drill or to the soil tillage implement.

4.3 Special equipment

CMS-T-00013746-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.

- Rapeseed insert
- Seed hopper partition walls
- Seed hopper extension
- Hose routing and rope deflection
- Bean metering wheels
- Loading aid
- Handrail on the loading board
- Lighting and identification for road travel
- Track marker with hydraulic folding
- Spring-suspended tractor wheel mark eradicator
- Seed drill wheel mark eradicator
- Pendulum compensation
- Hydraulic seed rate adjustment
- Band seeding shoe
- Hydraulic coulter pressure adjustment
- Hydraulic harrow pressure adjustment
- Hydraulic tramline control
- Mounting kit for hydraulic tramline control
- Mechanical control valve and hydraulic set for hydraulic tramline control
- Mounting kit for tramline marker
- Electronic tramline control
- Lay shaft
- Mounting kit for electronic tramline control
- Electronic control valve and hydraulic set for electronic tramline control
- Electronic hectare counter AmaCo
- Wiring harness AmaLog+ for D9

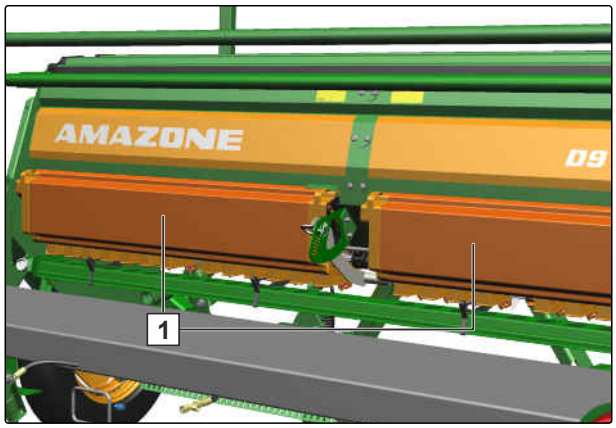
4.4 Protective equipment

CMS-T-00013745-A.1

4.4.1 Calibration troughs

CMS-T-00015208-A.1

When the calibration troughs 1 are not used for collecting the calibrated seed when calibrating the seed rate, the calibration troughs prevent contact with the rotating shafts and gear wheels and protect the shafts and gear wheels from moisture, dust and dirt.

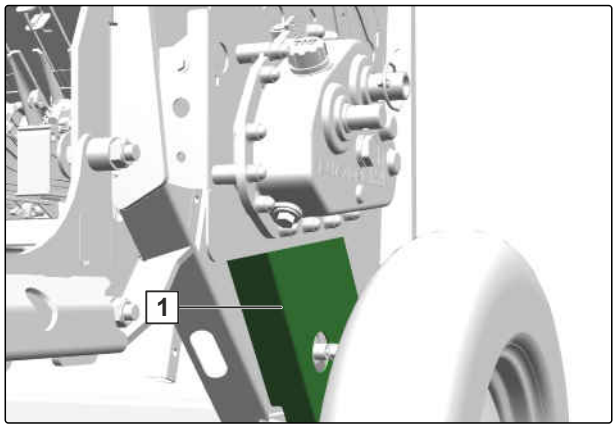


CMS-I-00009866

4.4.2 Chain guard

CMS-T-00015228-A.1

The chain guard 1 prevents contact with the chain drive of the Vario gearbox.



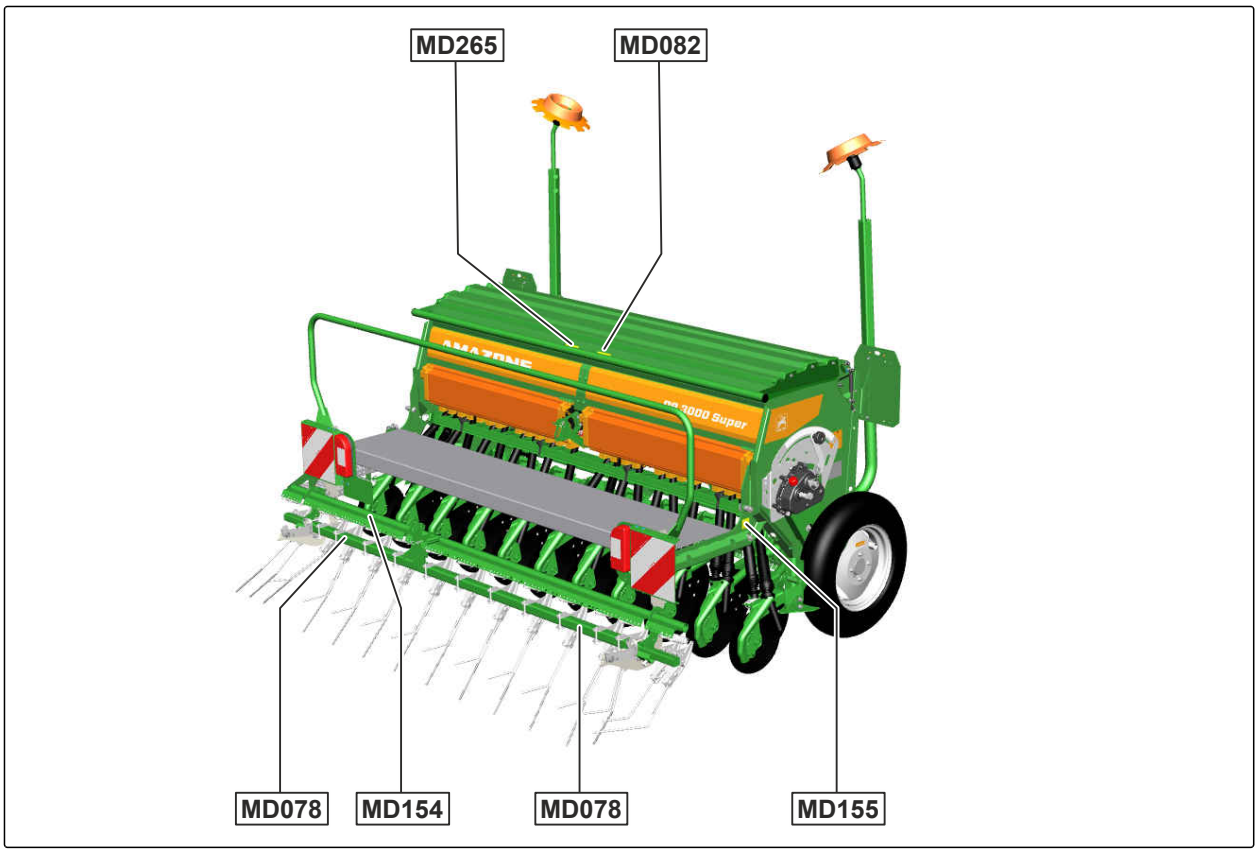
CMS-I-00009874

4.5 Warning symbols

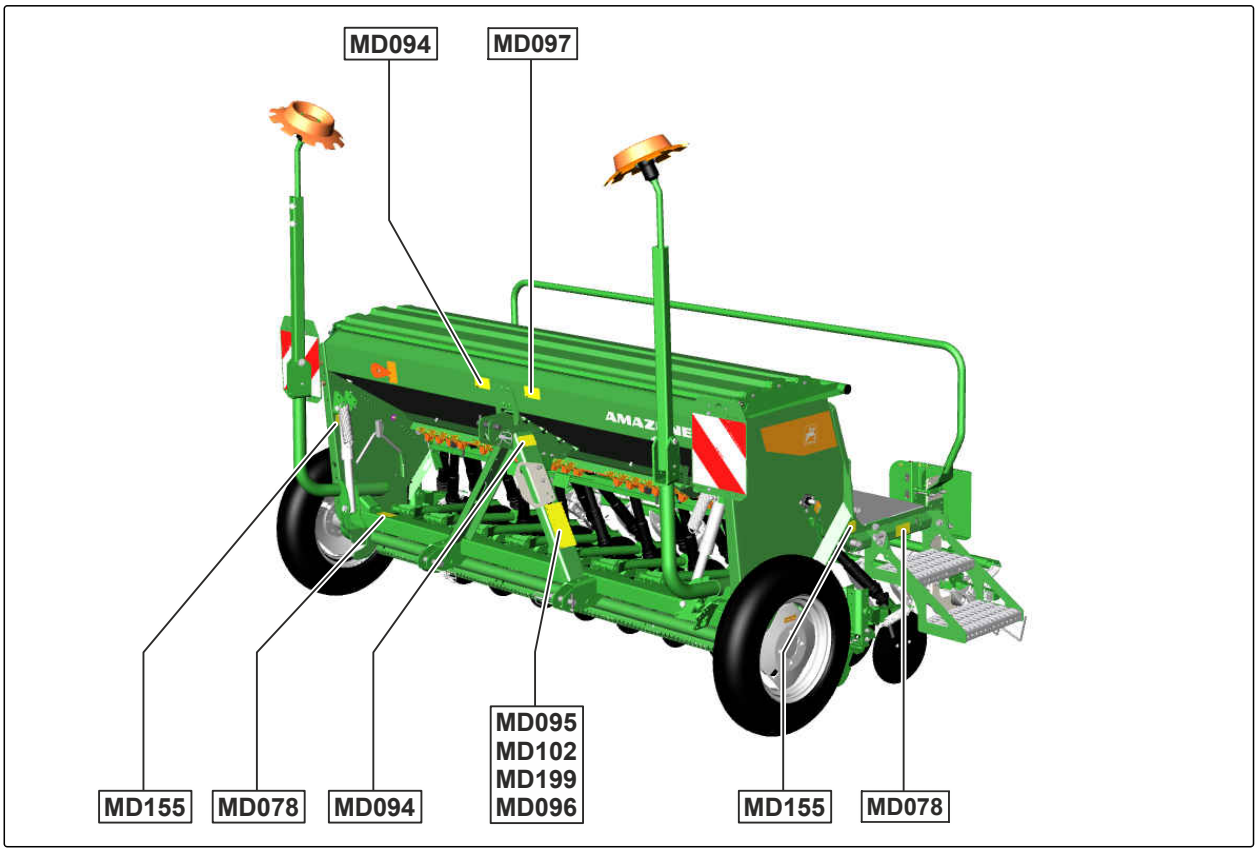
CMS-T-00013742-A.1

4.5.1 Positions of the warning symbols

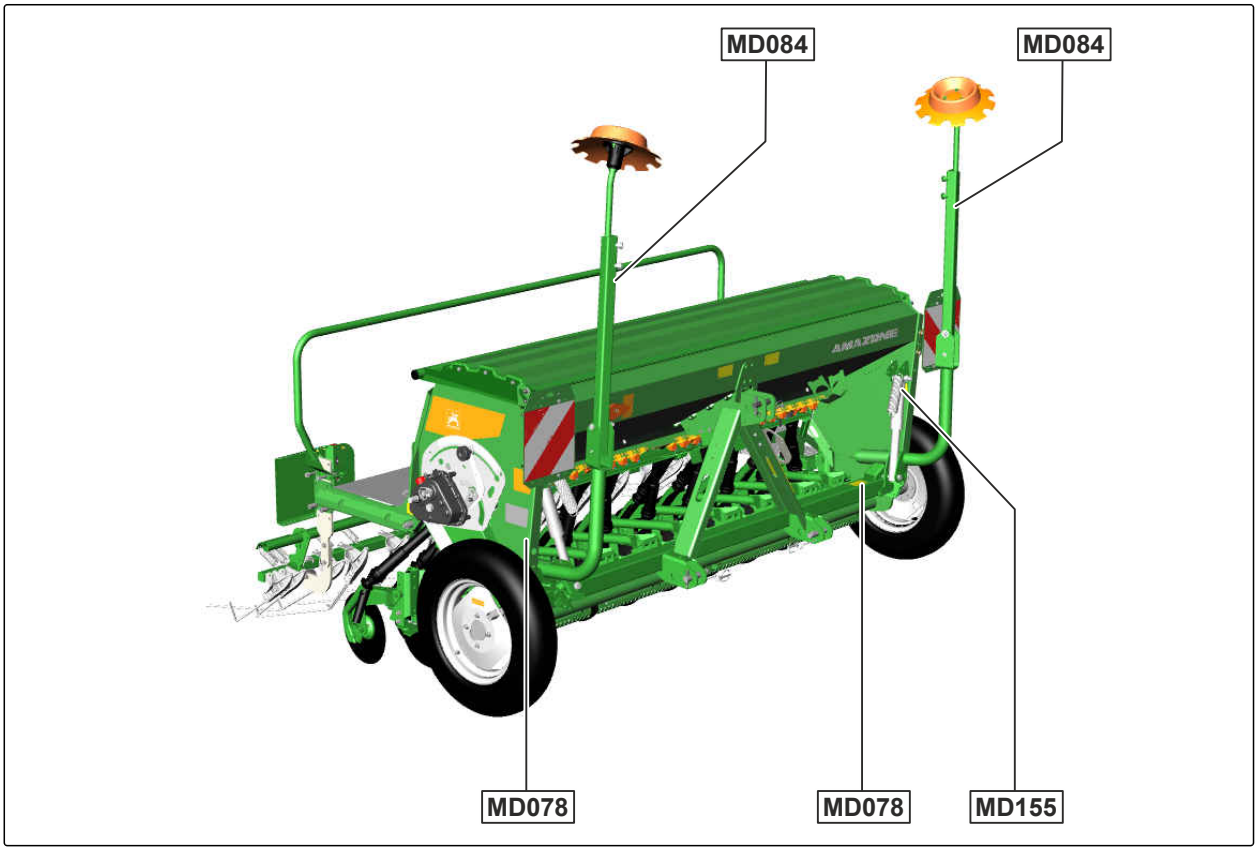
CMS-T-00013744-A.1



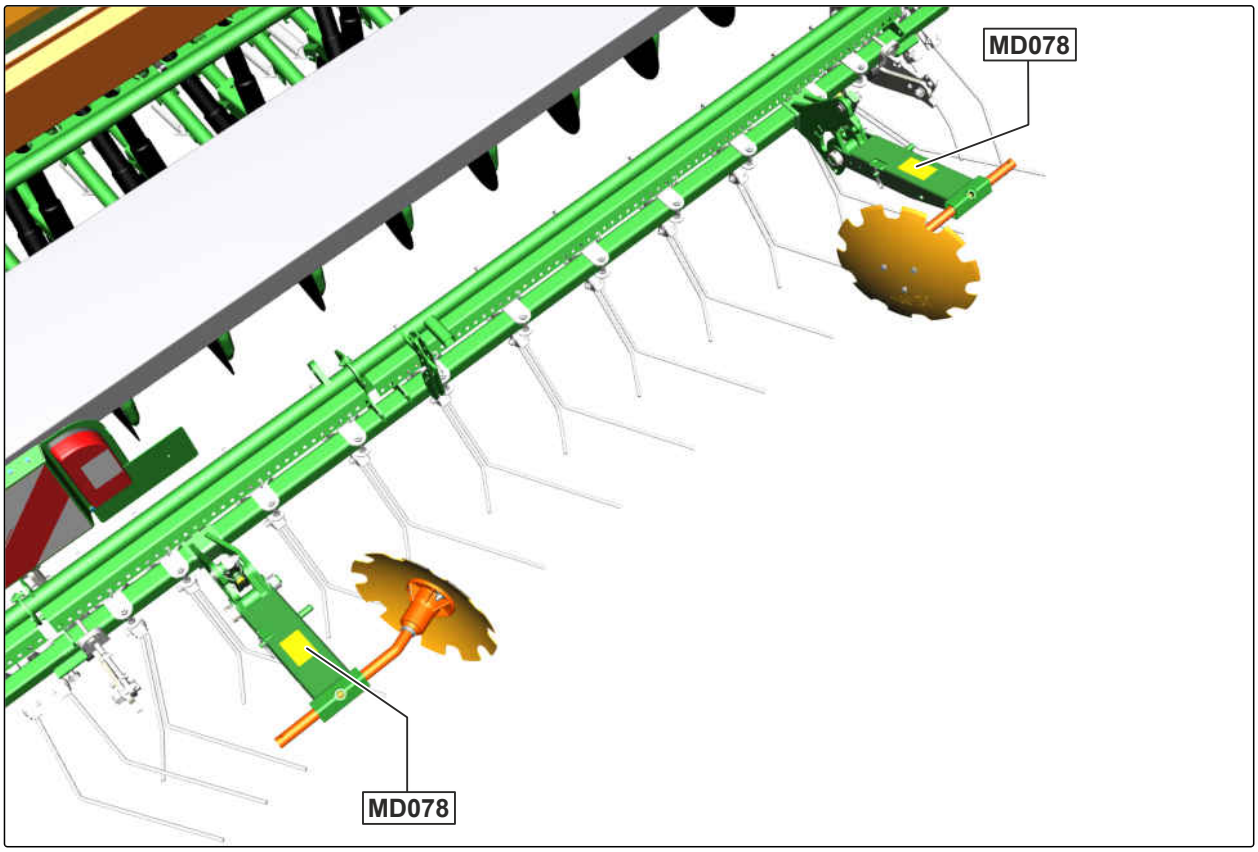
CMS-I-00011814



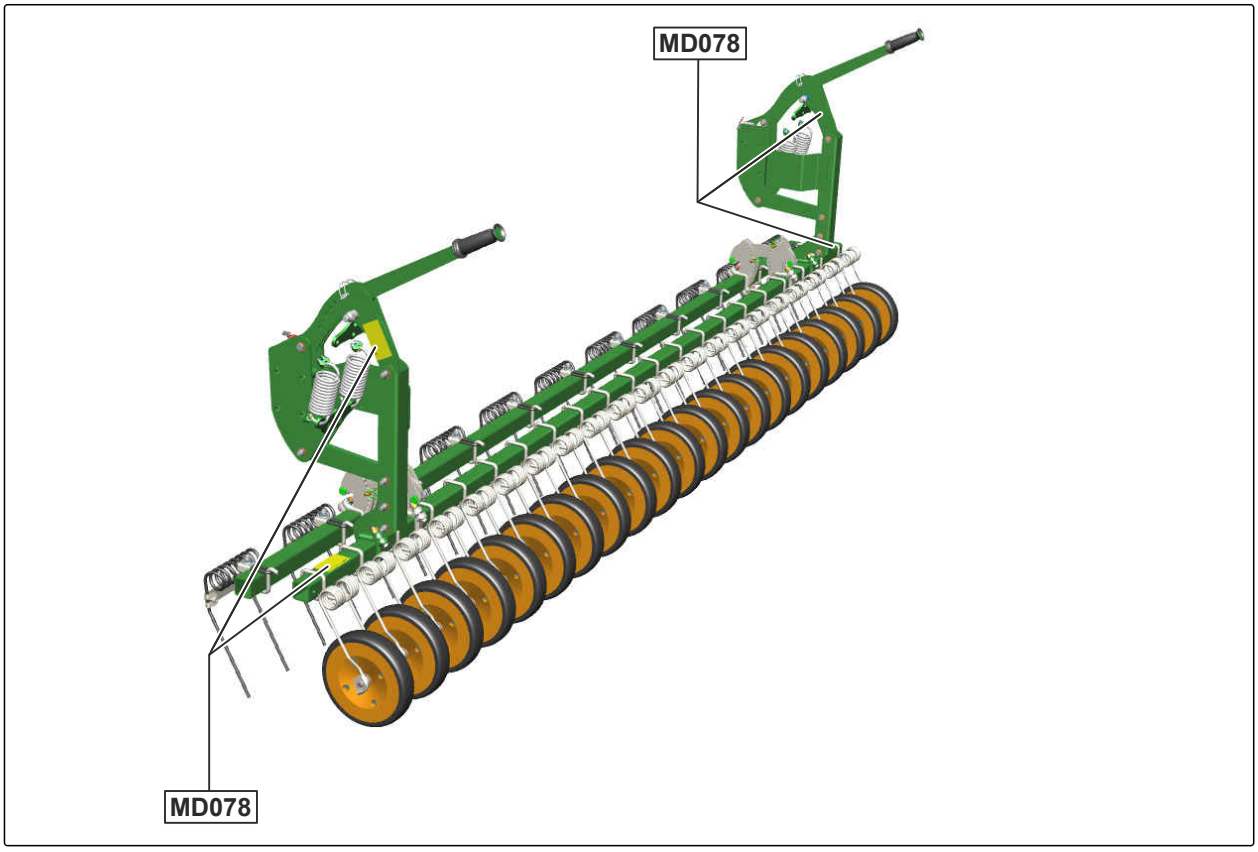
CMS-I-00011815



CMS-I-00011816



CMS-I-00011817



CMS-I-00011818

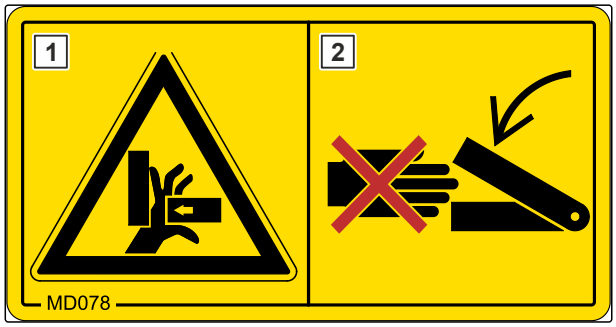
4.5.2 Layout of the warning symbols

CMS-T-000141-D.1

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

A warning symbol consists of two fields:

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



CMS-I-00000416

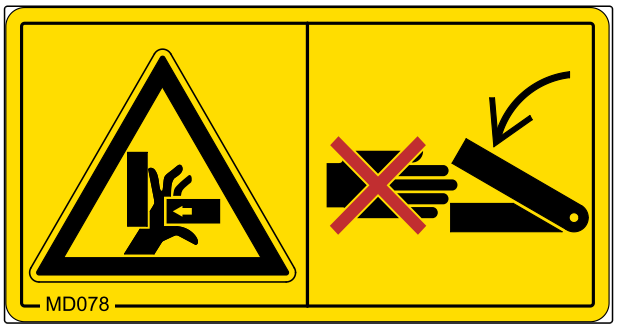
4.5.3 Description of the warning symbols

CMS-T-00013743-A.1

MD 078

Risk of crushing fingers or hands

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

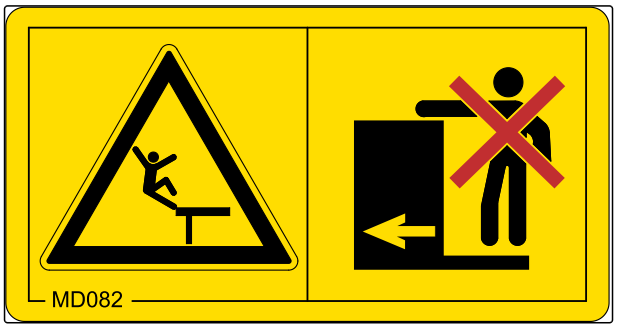


CMS-I-000074

MD 082

Risk of falling from tread surfaces and platforms

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

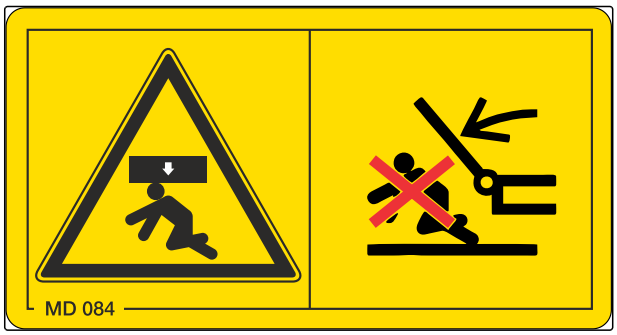


CMS-I-000081

MD 084

Risk of crushing for the whole body from lowering implement parts

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

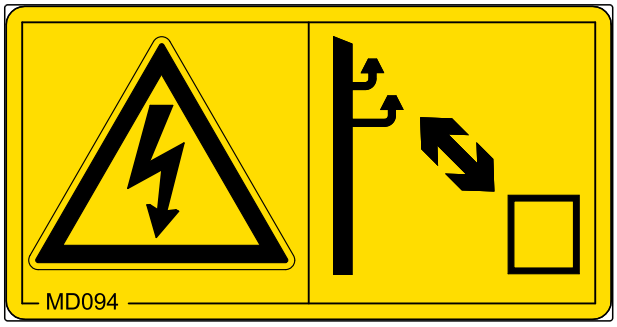


CMS-I-000454

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.

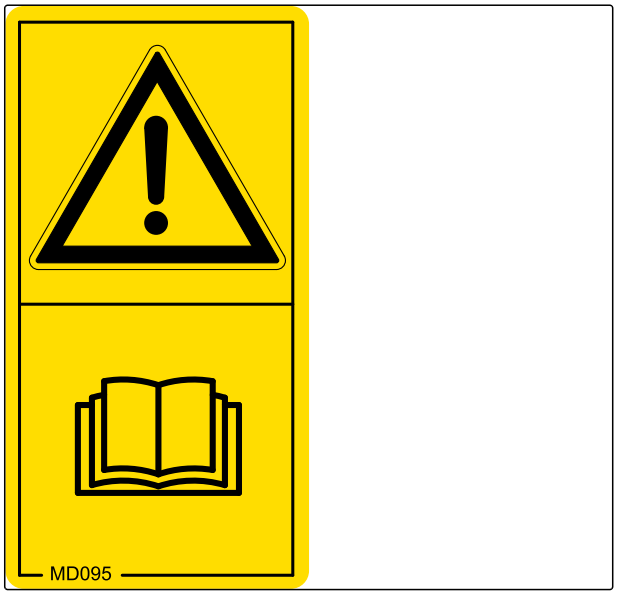


CMS-I-000692

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.

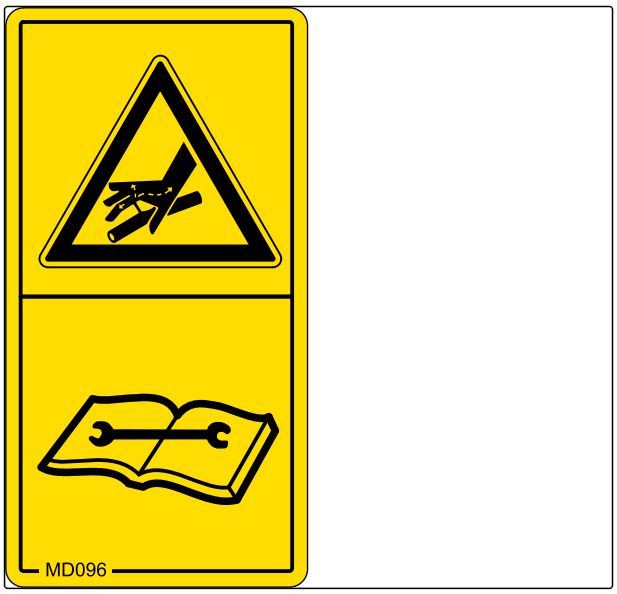


CMS-I-000138

MD 096

Risk of infection from escaping hydraulic fluid under high pressure

- Have the hydraulic system checked and repaired by a qualified specialist workshop only.
- Stay away from leaks in the hydraulic system.
- *If you are injured by hydraulic oil,* consult a doctor immediately.

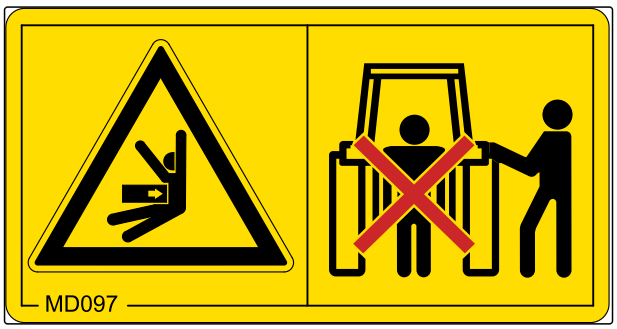


CMS-I-000216

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 102

Danger due to unintentional starting as well as unintentional and uncontrolled movements of the implement

- Before all tasks, secure the implement against unintentional starting as well as unintentional and uncontrolled movements.

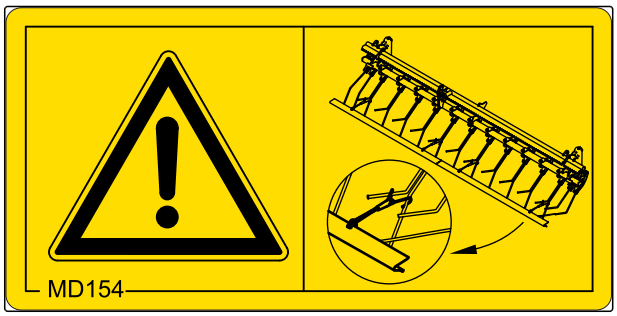


CMS-I-00002253

MD 154

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

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

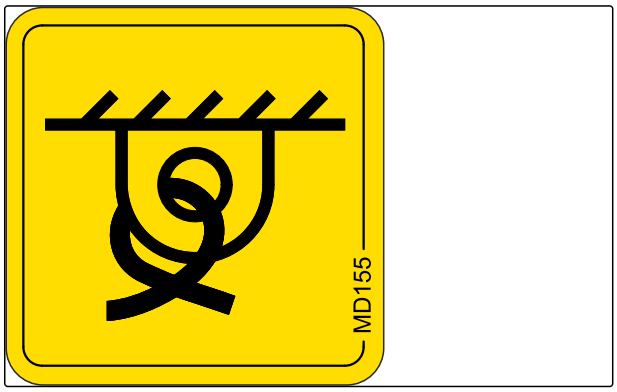


CMS-I-00003657

MD 155

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

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

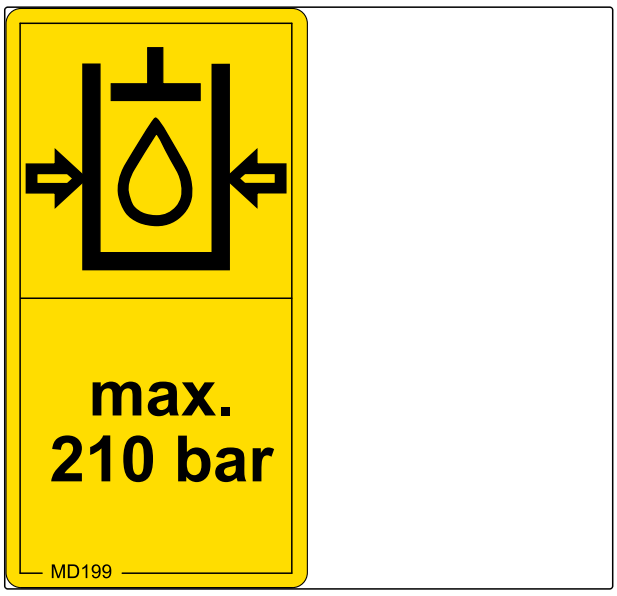


CMS-I-00000450

MD 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.



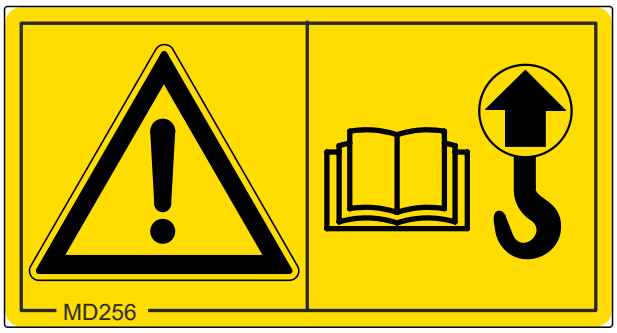
CMS-I-00000486

MD 256

Risk of accidents due to improperly attached slings for lifting

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

- ▶ Only attach the slings for lifting at the suitable lashing points.
- ▶ The suitable lashing points can be found in the operating manual, see Loading the implement.

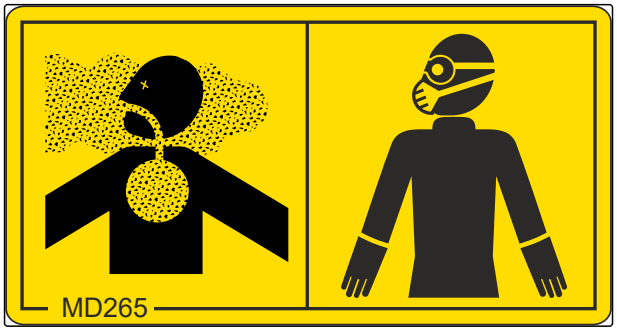


CMS-I-00005075

MD 265

Risk of chemical burns by dressing dust

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

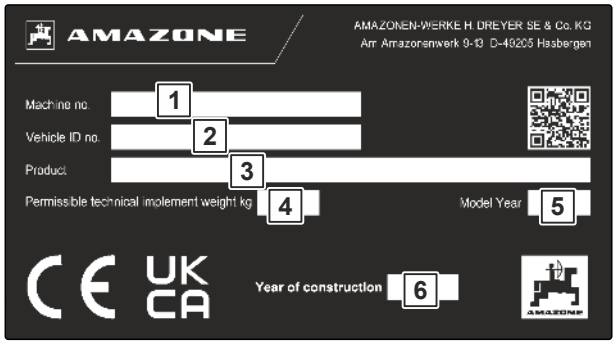


CMS-I-00003659

4.6 Rating plate on the implement

CMS-T-00004505-J.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 Lighting and identification for road travel

CMS-T-00013801-A.1

4.7.1 Rear lighting and identification

CMS-T-00013803-A.1

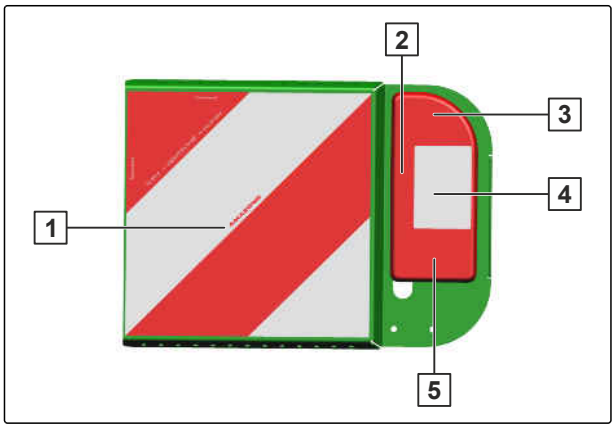
1 Warning sign

2 Reflector, red

3 Brake light

4 Turn indicators

5 Tail light



CMS-I-00011107

NOTE

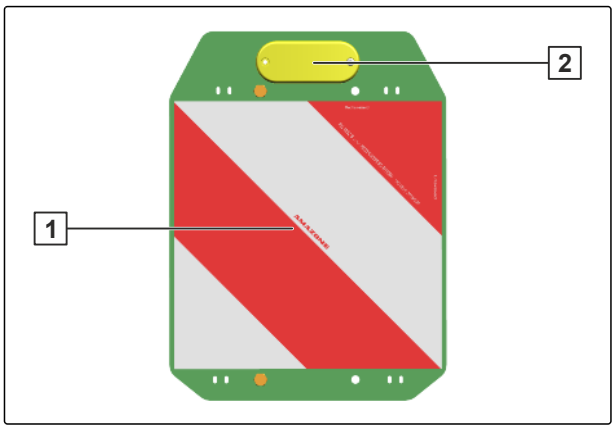
The lighting and identification for road travel can vary depending on the national regulations.

4.7.2 Front lighting and identification

CMS-T-00013802-A.1

1 Warning sign

2 Marker light



CMS-I-00011108

NOTE

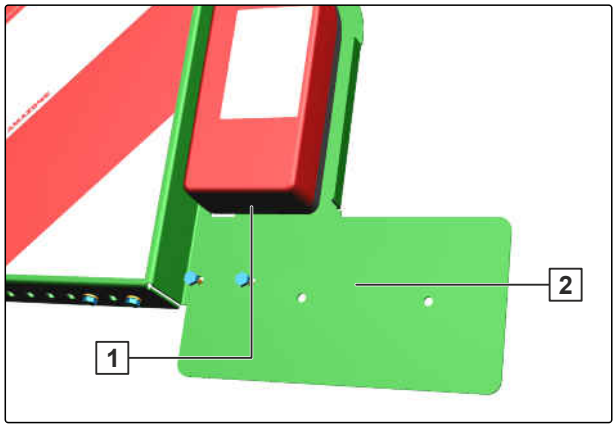
The lighting and identification for road travel can vary depending on the national regulations.

4.7.3 Additional licence plate

CMS-T-00016823-A.1

1 Licence plate lighting

2 Licence plate holder



CMS-I-00011121

4.8 Threaded cartridge

CMS-T-00001776-E.1

The threaded cartridge contains the following items:

- Documents
- Aids

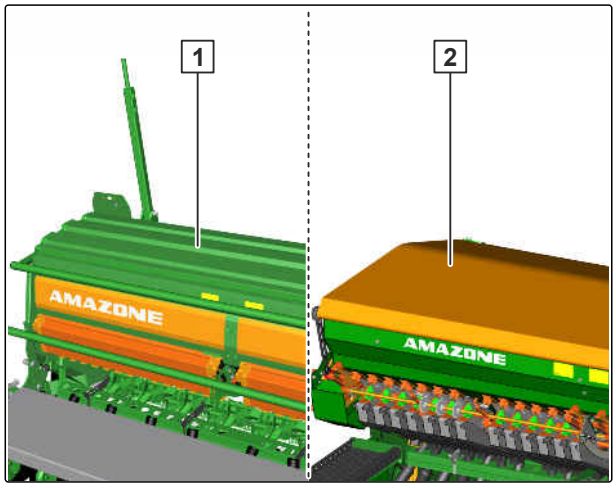


CMS-I-00002306

4.9 Hopper

CMS-T-00017804-A.1

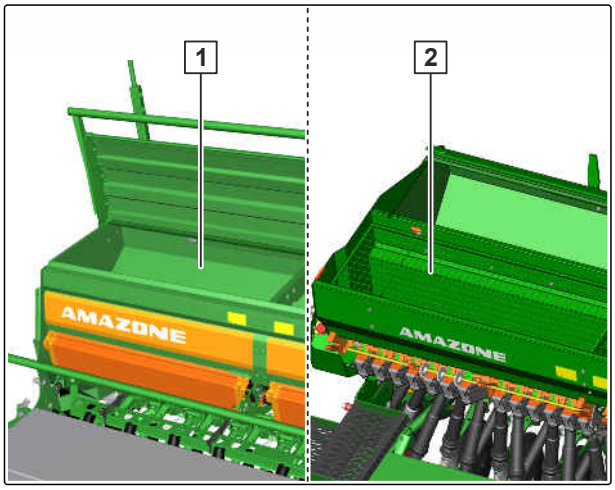
The hopper cover 1 of the seed hopper and the roller tarpaulin 2 of the C-Drill hopper protect the contents against water and dust.



CMS-I-00012232

The C-Drill hopper has hopper sieves 2, which serve as a loading aid when filling.

The seed hopper 1 does not have hopper sieves.

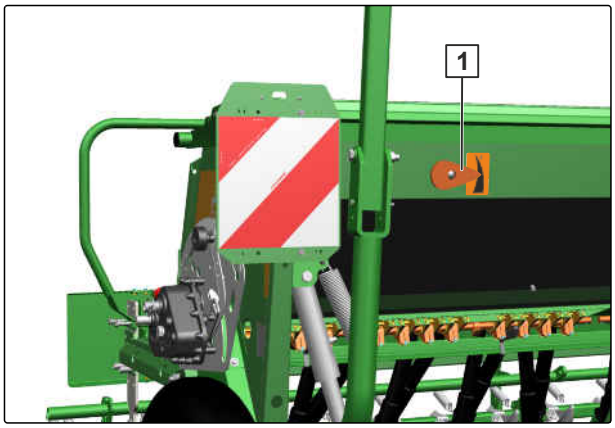


CMS-I-00012233

4.10 Fill level indicator

CMS-T-00016991-A.1

The mechanical fill level indicator 1 enables viewing of the seed level in the seed hopper when the seed hopper cover is closed.



CMS-I-00011251

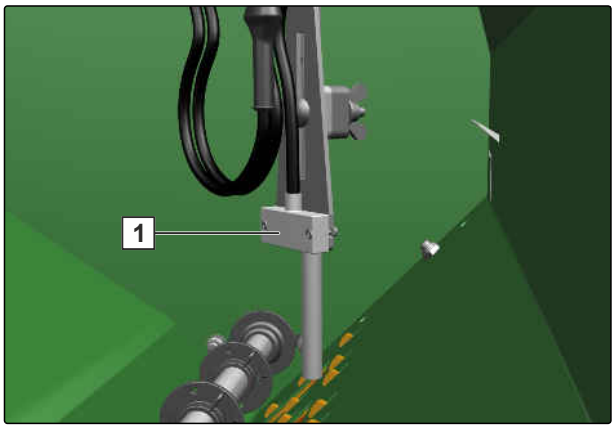
4.11 Fill level sensor

CMS-T-00017044-A.1

The electronic fill level sensor 1 monitors the seed level in the seed hopper.

When the seed level drops below the height of the fill level sensor, an acoustic warning signal and a warning message on the control terminal indicate that seed must be refilled.

The height of the fill level sensor is adjustable when the seed hopper is empty and depends on the type of seed.



CMS-I-00011275

4.12 Metering system

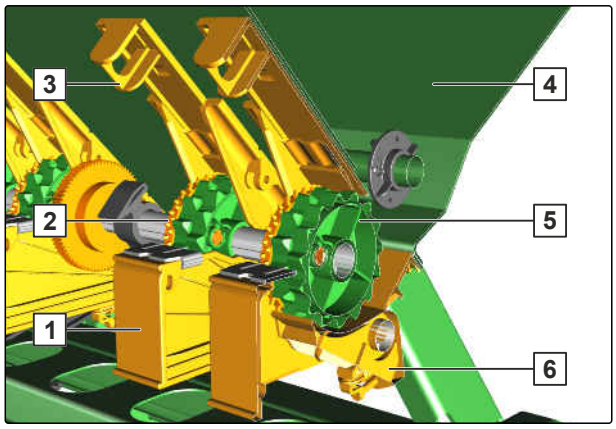
CMS-T-00013790-A.1

The seed goes from each seed hopper 4 into the seed housing 1 through an adjustable opening. The size of the opening is set with the sliding shutter 3.

For normal seeds or fine seeds, the seed is metered by the seed metering wheel combination consisting of the normal seed metering wheel 5 and fine seed metering wheel 2. For normal seeds, the normal seed metering wheel and fine seed metering wheel rotate together. For fine seeds, the normal seed metering wheel is immobilised, so that only the fine seed metering wheel rotates.

For seeding beans, the seed metering wheel combination consisting of the normal seed metering wheel and the fine seed metering wheel is replaced with a bean metering wheel in each seed housing.

The seed metering wheel conveys the seed to the edge of the bottom flap 6. From the bottom flap, the seed travels through the seed tube to the seeding coulter.



CMS-I-00009879

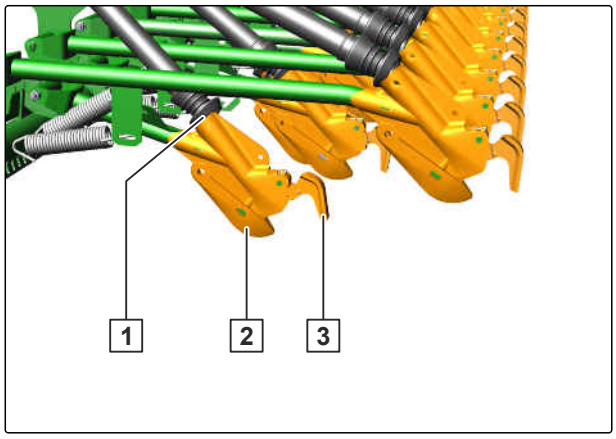
4.13 WS drag coulter

CMS-T-00016845-A.1

Seed drills with WS drag coulters are used for plough seeding.

A guide funnel 1 delivers the seed immediately behind the share tip 2.

The swivelling coulter support 3 prevents the coulter outlet from clogging when the seed drill is set down.



CMS-I-00005985

4.14 Band seeding shoe

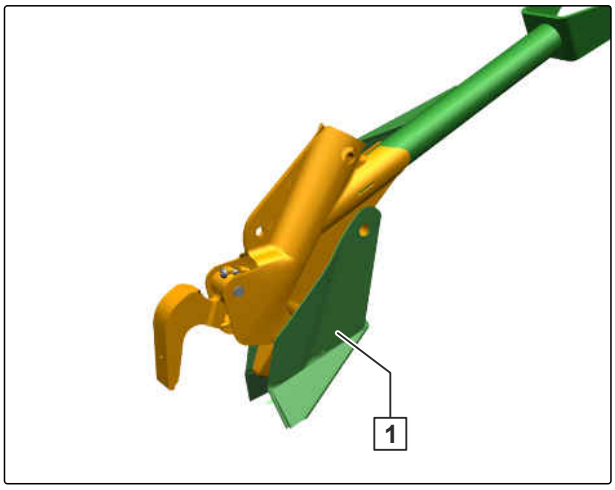
CMS-T-00017820-A.1

WS drag coulters can be equipped with band seeding shoes 1.

Band seeding improves the competition conditions for the growing wheat plants. It requires a well-tilled seedbed.

The inclined sole compresses the planting area and reduces the placement depth.

Band seeding shoe is particularly well-suited for light to medium-heavy soils.

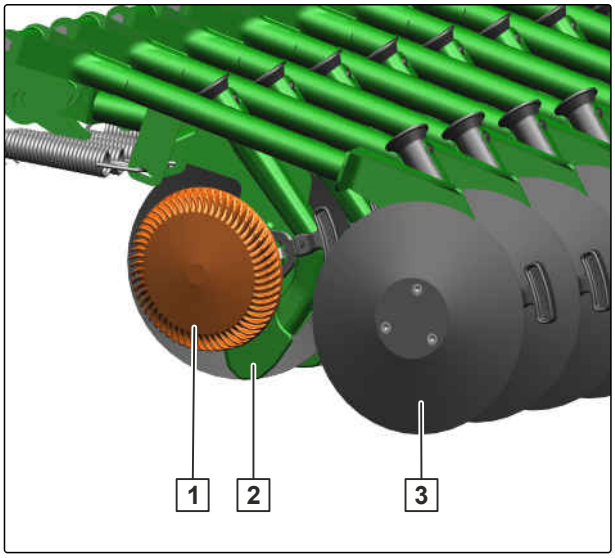


CMS-I-00012250

4.15 RoTeC coulter

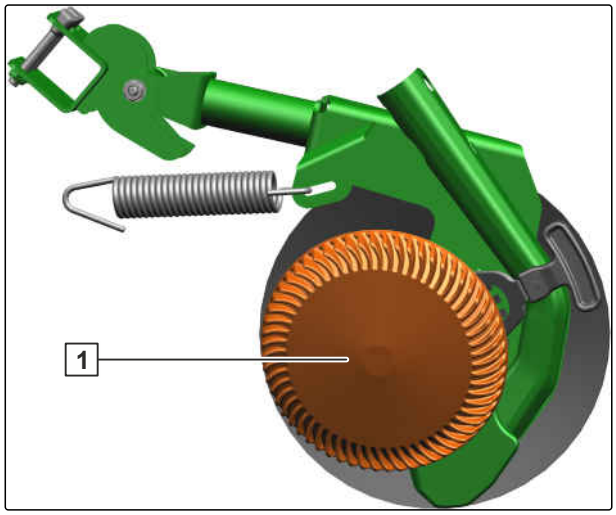
CMS-T-00016844-A.1

The RoTeC coulter is a single-disc coulter and it deposits the spreading material on ploughed or mulched soil. The furrow former 2 and the cutting discs 3 shape the seed furrow, into which the spreading material is dropped. The depth control discs and depth control wheel 1 limit the placement depth and clean the cutting discs. The coulter pressure and the placement depth can be adjusted.



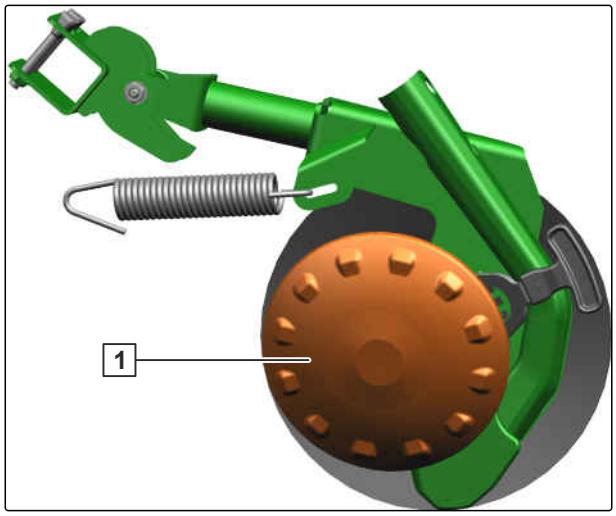
CMS-I-00004578

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



CMS-I-00004586

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



CMS-I-00004585

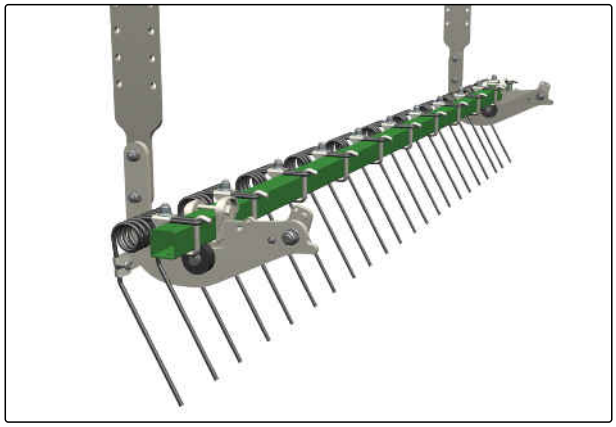
4.16 Trailing tine harrow

CMS-T-00016854-A.1

The trailing tine harrow is mainly used together with WS drag coulters on soils that are covered with little or no straw.

The harrow tines cover the deposited spreading material evenly with loose soil.

The harrow fastening has an integrated reverse safety. When driving in reverse, the harrow bar turns up so that the harrow tines are not damaged. When driving forwards, the harrow tines return to working position.



CMS-I-00011203

4.17 Exact following harrow

CMS-T-00016853-A.1

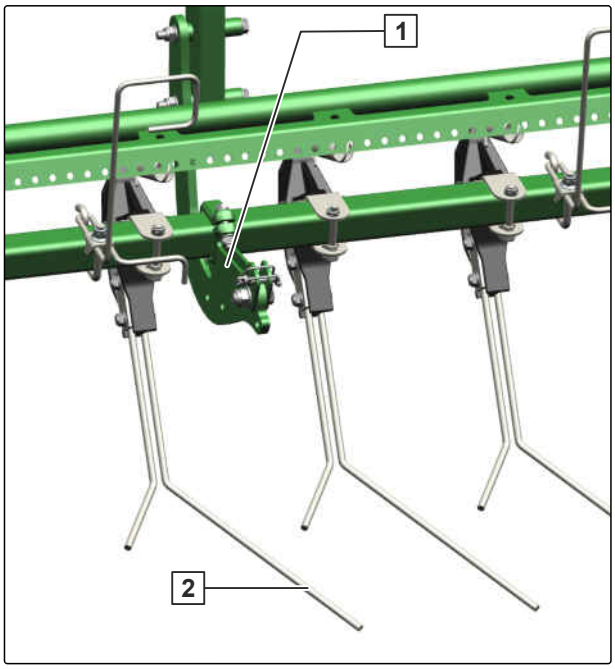
The harrow tines 2 of the exact following harrow rest horizontally on the ground and cover the deposited spreading material evenly with loose soil.

The position of the harrow tines can be adjusted.

The exact following harrow pressure determines the working 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.

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

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



CMS-I-00004589

4.18 Roller harrow

CMS-T-00016909-A.1

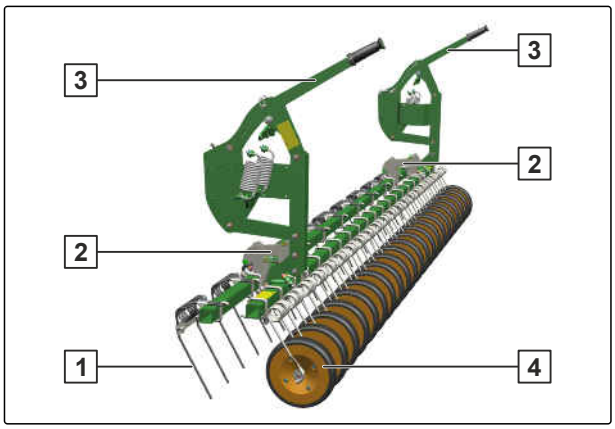
The roller harrow consists of a bar with trailing harrow tines 1 and a bar with press rollers 4.

The trailing harrow tines close the seed furrows.

The press rollers press the seeds into the bottom of the furrow and ensure more moisture for germination through better soil contact. The press rollers close voids and make it more difficult for slugs to reach the seed.

The adjuster segments 2 are used to set the pitch and the working depth of the trailing harrow tines.

The setting levers 3 are used to set the contact force of the press rollers or to completely disable the bar with the press rollers.



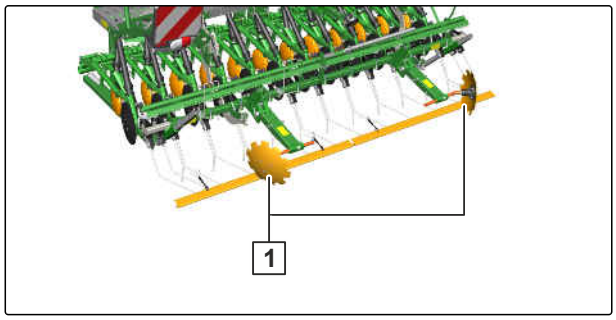
CMS-I-00011244

4.19 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

4.20 Track marker

CMS-T-00016926-A.1

When the seed drill is used as part of the seeding combination, the track markers are attached either to the seed drill or to the soil tillage implement. When the seed drill is used as a solo implement, the track markers are attached to the seed drill.

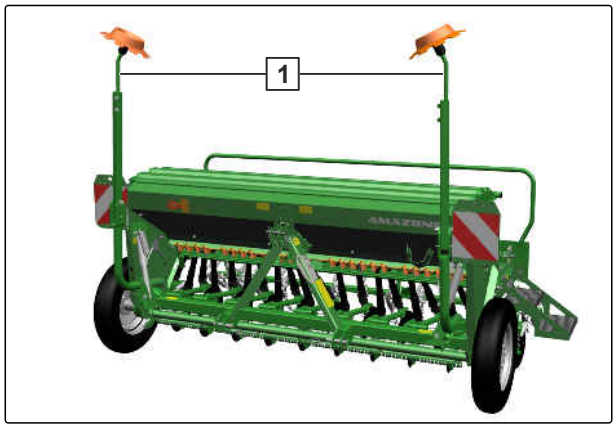
The track markers 1 dig into the ground alternately beside the implement and produce a track.

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

The length and working intensity of the track markers are adjustable.

When the track markers pass an obstacle or the tractor turns around, the track markers must be lifted. During road travel, the track markers must also be lifted and additionally locked.

The track markers of the D9 4000 Super seed drill must be tilted towards the centre of the implement during road travel so that the permissible transport height is not exceeded.



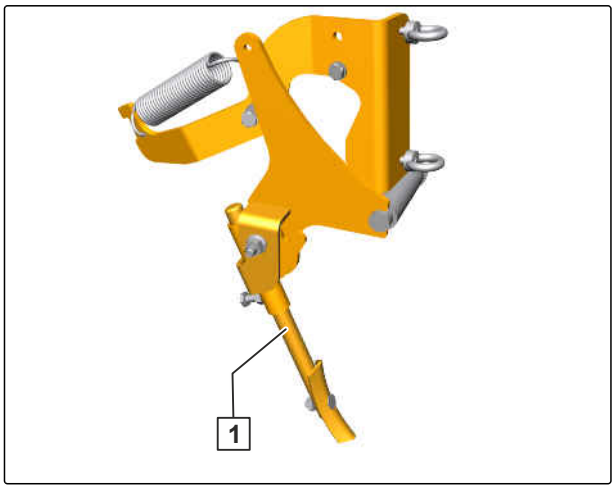
CMS-I-00011250

4.21 Seed drill wheel mark eradicator

CMS-T-00017821-A.1

The seed drill wheel mark eradicator 1 loosens the earth behind the wheels of the seed drill.

The coulter tip deflects when hitting stones and automatically folds up when the seed drill is parked.

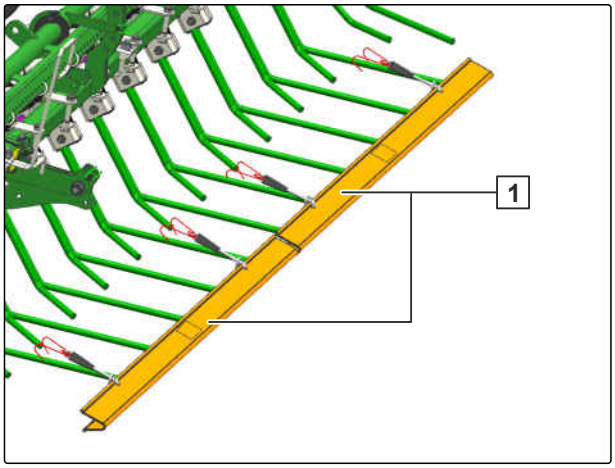


CMS-I-00012259

4.22 Road safety bars

CMS-T-00007937-C.1

The road safety bars 1 cover the tines of the exact following harrow or seed harrow during road travel to protect against injury and damage.



CMS-I-00005527

Technical data

5

CMS-T-00013738-A.1

5.1 Dimensions

CMS-T-00013833-A.1

		D9 2500 Special	D9 3000 Special
Working width		2.5 m	3 m
Transport width		2.5 m	3 m
Filling height without loading board	without extension	1.25 m	1.25 m
	with extension	-	1.56 m
Track width		2.3 m	2.8 m
Centre of gravity distance (d)		56.5 cm	56.5 cm

		D9 3000 Super	D9 3500 Super	D9 4000 Super
Working width		3 m	3.5 m	4 m
Transport width		3 m	3.5 m	4.25 m
Filling height without loading board	without extension	1.35 m	1.35 m	1.35 m
	with extension	1.65 m	1.65 m	1.65 m
Track width		2.8 m	3.3 m	3.9 m
Centre of gravity distance (d)		56.5 cm	56.5 cm	56.5 cm

5.2 Hopper volume

CMS-T-00013839-A.1

	D9 2500 Special	D9 3000 Special
Seed hopper (without extension)	360 l	450 l
Seed hopper (with extension)	-	850 l

	D9 3000 Super	D9 3500 Super	D9 4000 Super
Seed hopper (without extension)	600 l	720 l	830 l
Seed hopper (with extension)	1,000 l	1,200 l	1,380 l
C-Drill hopper	320 l	-	450 l

5.3 Coulters

CMS-T-00013840-A.1

		D9 2500 Special	D9 3000 Special
WS coulters	Number of seeding coulters	15/17/21	18/21/25
	Row spacing	16.6 cm/14.7 cm/12 cm	16.6 cm/14.3 cm/12 cm
RoTeC coulters	Number of seeding coulters	15/17/21	18/21/25
	Row spacing	16.6 cm/14.7 cm/12 cm	16.6 cm/14.3 cm/12 cm

		D9 3000 Super	D9 3500 Super	D9 4000 Super
WS coulters	Number of seeding coulters	18/21/25	21/25/29	24/29/33
	Row spacing	16.6 cm/14.3 cm/ 12 cm	16.6 cm/14 cm/ 12 cm	16.6 cm/13.8 cm/ 12 cm
RoTeC coulters	Number of seeding coulters	18/21/25	21/25/29	24/29/33
	Row spacing	16.6 cm/14.3 cm/ 12 cm	16.6 cm/14 cm/ 12 cm	16.6 cm/13.8 cm/ 12 cm

5.4 Permitted mounting categories

CMS-T-00013846-A.1

Three-point mounting frame	Category 2

5.5 Permissible payload

CMS-T-00011018-E.1

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

- G_Z: Permissible technical implement weight according to the rating plate [kg]
- G_L: Determined tare weight [kg]

5.6 Forward speed

CMS-T-00013845-A.1

Optimal working speed	6–10 km/h
Permissible transport speed	60 km/h

5.7 Performance characteristics of the tractor

CMS-T-00013847-A.1

Type	**Engine rating**
D9 2500 Special	Starting at 40 kW/54 hp
D9 3000 Special	Starting at 45 kW/61 hp
D9 3000 Super	Starting at 55 kW/75 hp
D9 3500 Super	Starting at 55 kW/75 hp
D9 4000 Super	Starting at 70 kW/95 hp

Electrical system	
Battery voltage	12 V
Lighting socket	7-pin

Hydraulic system	
Maximum operating pressure	210 bar
Tractor pump output	at least 10 l/min at 150 bar
Implement hydraulic oil	HLP 68 DIN 51524-2 The hydraulic oil is suitable for the combined hydraulic oil circuits of all standard tractor manufacturers.
Control units	See section *"Coupling the hydraulic hose lines"*.

5.8 Noise development data

CMS-T-00002296-D.1

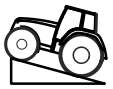
The workplace-related emission sound pressure level is lower than 70 dB(A), measured in operating condition at the ear of the tractor driver with the cab closed.

The emission sound pressure level mainly depends on the vehicle used.

5.9 Drivable slope inclination

CMS-T-00004990-A.1

Across the slope		
On left in direction of travel	10%	
On right in direction of travel	10%	

Up the slope and down the slope		
Up the slope	10%	
Down the slope	10%	

5.10 Gear oil

CMS-T-00003834-B.1

Manufacturer	Gear oil
WINTERSHALL	Wintal UG22 WTL-HM, ex-factory
FUCHS	Renolin MR5 VG22

5.11 Wheel bolt tightening torques

CMS-T-00017797-A.1

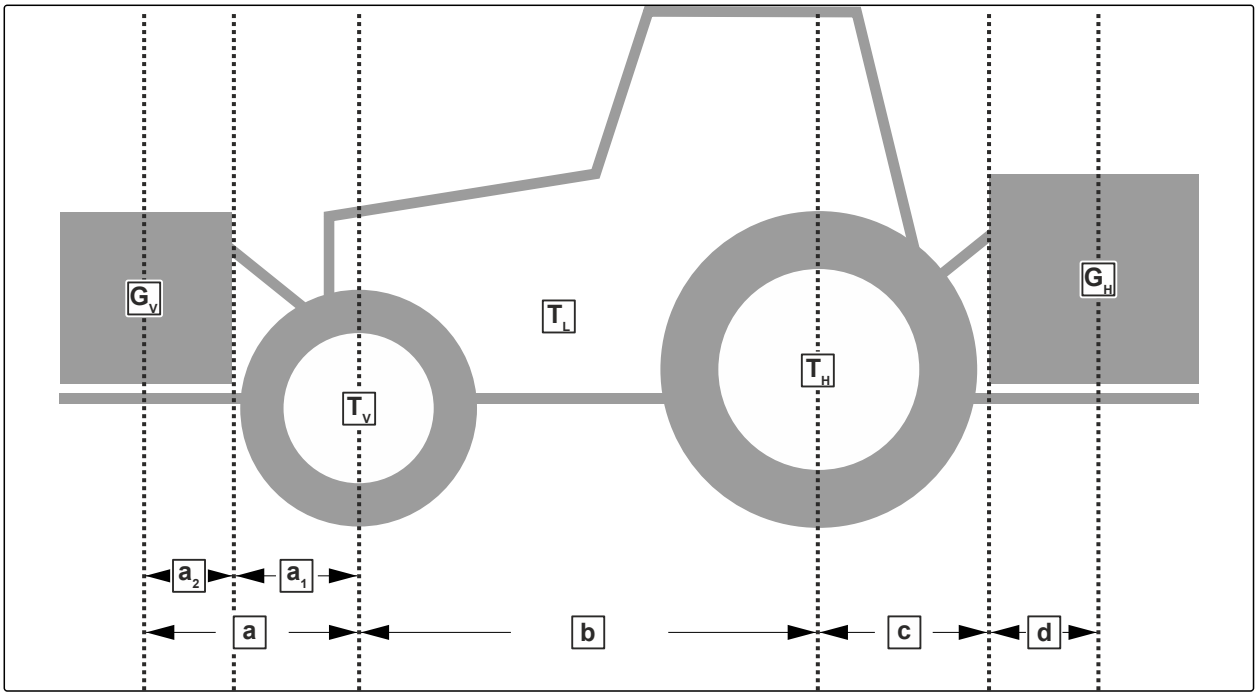
Tyres	Self-locking hexagonal nut	Tightening torque
180/90-16	M12 strength class 10 DIN 6927	90 Nm
10.0/75-15		
31x15.50-15 (MITAS)		

Preparing the implement 6

CMS-T-00014232-A.1

6.1 Calculating the required tractor characteristics

CMS-T-00000063-F.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_1	m	Distance between the centre of the front axle and the centre of the lower link connection	
a_2	m	Centre of gravity distance: Distance between the centre of gravity of the front-mounted implement or the front ballast and the centre of the lower link connection	
b	m	Wheelbase	
c	m	Distance between the centre of the rear axle and the centre of the lower link connection	
d	m	Centre of gravity distance: Distance between the centre of the lower link coupling point and centre of gravity of the rear-mounted implement or rear ballast.	

1. Calculate the minimum front ballasting.

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

G_{Vmin} = _____

G_{Vmin} =

CMS-I-00000513

2. Calculate the actual front axle load.

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

T_{Vtat} = _____

T_{Vtat} =

CMS-I-00000516

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

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

$$G_{tat} =$$

$$G_{tat} =$$

CMS-I-00000515

4. Calculate the actual rear axle load.

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

$$T_{Htat} =$$

$$T_{Htat} =$$

CMS-I-00000514

5. Determine the tyre load capacity for two tractor tyres in the manufacturer specifications.

6. Write down the determined values in the following table.

IMPORTANT

Danger of accident due to implement damage caused by excessive loads

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

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

6.2 Coupling the implement

CMS-T-00014233-A.1

6.2.1 Coupling the implement to a tractor as a solo implement

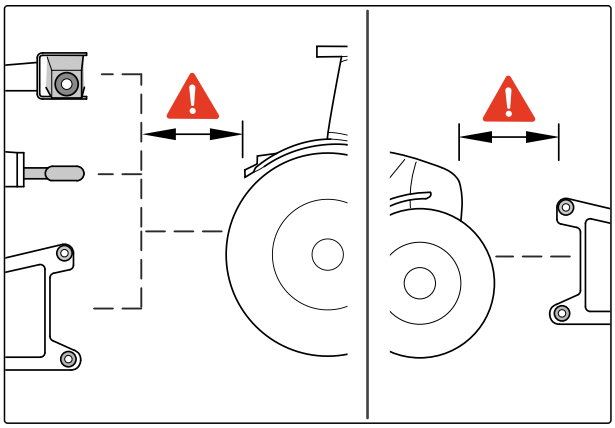
CMS-T-00014259-A.1

6.2.1.1 Driving the tractor towards the implement

CMS-T-00005794-D.1

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

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



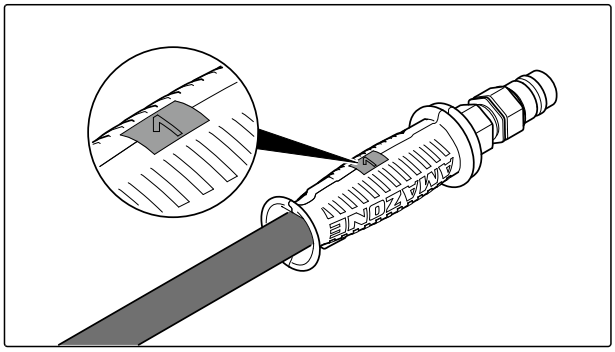
CMS-I-00004045

6.2.1.2 Coupling the hydraulic hose lines

CMS-T-00014234-A.1

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

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



CMS-I-00000121

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

Designation		Function			Tractor control unit	
Yellow		 	Tramline marker Track marker	Lifting and lowering, depending on the tramline counter Lifting and lowering, alternately	Single-acting	 
Blue		 	Coulter pressure, seed rate and exact following harrow pressure	increasing and reducing	Single-acting	 

WARNING

Risk of injury or even death

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

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

IMPORTANT

Implement damage due to insufficient hydraulic oil return flow

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

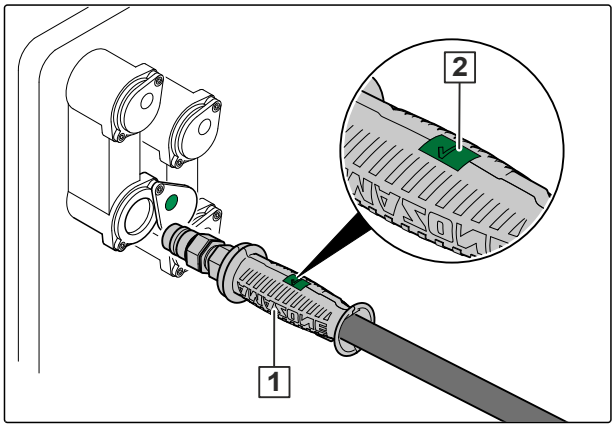
1. Depressurise the hydraulic system between the tractor and the implement using the tractor control unit.

2. Clean the hydraulic plugs.

3. Couple the hydraulic hose lines 1 to the hydraulic sockets of the tractor according to the marking 2.

➡ The hydraulic plugs lock perceptibly.

4. Route the hydraulic hose lines with sufficient freedom of movement and without chafing points.



CMS-I-00001045

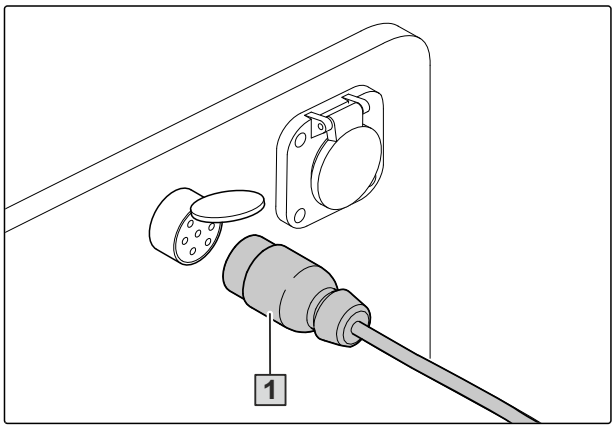
6.2.1.3 Coupling the power supply

CMS-T-00001399-G.1

1. Insert the plug 1 for the power supply.

2. Route the power supply cable with sufficient freedom of movement and without chafing or pinching points.

3. Check the lighting on the implement for proper function.



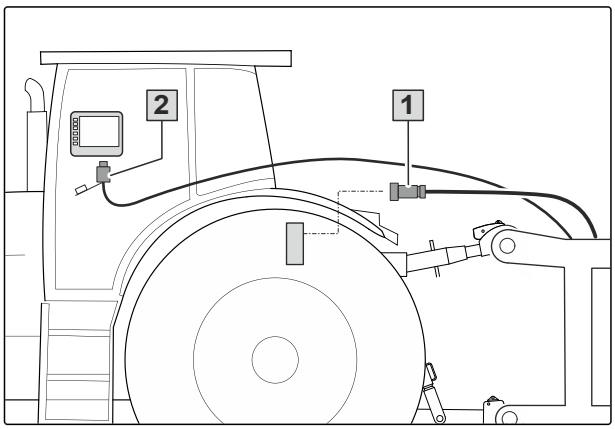
CMS-I-00001048

6.2.1.4 Coupling the ISOBUS or control computer

CMS-T-00003611-F.1

1. Insert the plug of the ISOBUS line 1 or control computer line 2.

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

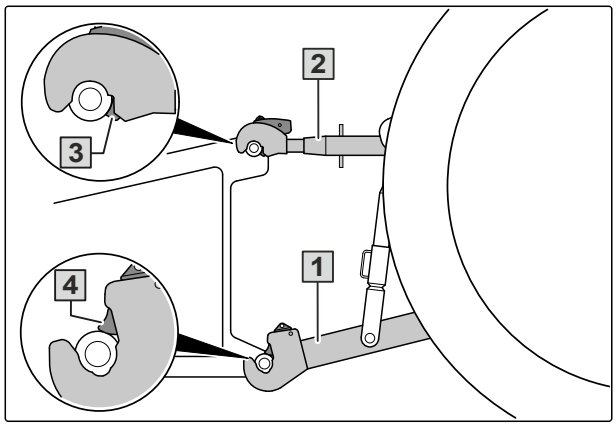


CMS-I-00006891

6.2.1.5 Coupling the three-point mounting frame

CMS-T-00001400-H.1

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



CMS-I-00001225

6.2.2 Coupling the implement onto a rotary harrow or rotary cultivator

CMS-T-00014260-A.1

The D9 mounted seed drill can be combined either with a KE Rotamix rotary harrow, KX Cultimix rotary cultivator or KG Cultimix rotary cultivator.

Flexible coupling of the seed drill with the liftpack system or rigid coupling of the seed drill using coupling parts is described in the operating manual for the rotary harrow or rotary cultivator.

▶ Couple the implement onto the rotary harrow or rotary cultivator according to the corresponding instructions in the operating manual of the rotary harrow or rotary cultivator.

6.3 Preparing the implement for operation

CMS-T-00014235-A.1

6.3.1 Using the loading board steps

CMS-T-00015092-A.1

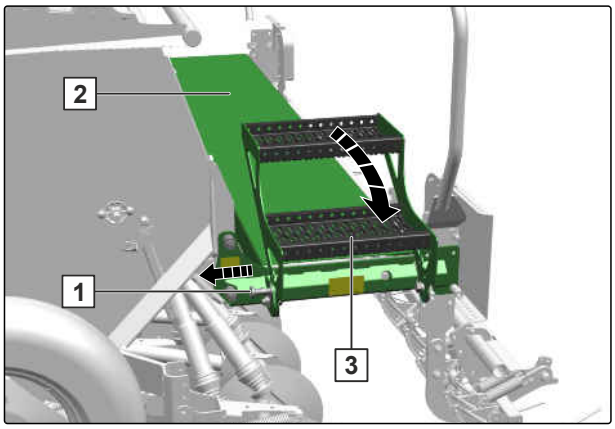
REQUIREMENTS

- ⊘ The seed drill is coupled onto the tractor or the soil tillage implement

1. Hold the steps 3.
2. *To unfold the steps:*
   Pull out and hold the latch 1.
3. Swivel the steps down up to the stop and release the latch.
4. Climb onto the loading board 2 using the steps.
5. After use, swivel the steps up and swivel them in the transport position.

➡ The latch locks automatically.

6. Check whether the loading board is properly locked in transport position.



CMS-I-00011270

6.3.2 Preparing the metering unit for operation

CMS-T-00015095-A.1

6.3.2.1 Selecting the setting values

CMS-T-00015202-A.1

Seed	Seed metering wheel combination / seed metering wheel	Sliding shutter position	Bottom flap position		Agitator shaft support
			Thousand grain weight (TGW) less than 6 g (rapeseed), 50 g (cereals)	Thousand grain weight (TGW) more than 6 g (rapeseed), 50 g (cereals)	
Rye	Normal seed	Open	1	2	Yes
Triticale	Normal seed	3/4 open	1	2	Yes
Barley	Normal seed	Open	1	2	Yes
Wheat	Normal seed	3/4 open	1	2	Yes
Spelt	Normal seed	Open	2		Yes
Oats	Normal seed	Open	2		Yes
Rapeseed	Fine seed	3/4 open	1	2	No

Seed	Seed metering wheel combination / seed metering wheel	Sliding shutter position	Bottom flap position		Agitator shaft support
			Thousand grain weight (TGW) less than 6 g (rapeseed), 50 g (cereals)	Thousand grain weight (TGW) more than 6 g (rapeseed), 50 g (cereals)	
Caraway	Fine seed	3/4 open	1		No
Mustard / fodder radish	Fine seed	3/4 open	1		No
Phacelia	Normal seed / fine seed	3/4 open	1		Yes
Turnips	Fine seed	3/4 open	1		No
Grass	Normal seed	Open	2		Yes
Beans, small (TGW < 400 g)	Normal seed	3/4 open	4		Yes
Beans, large (TGW < 600 g)	Bean metering wheel	3/4 open	3		Yes
Beans, large (TGW > 600 g)	Bean metering wheel	3/4 open	4		Yes
Peas (TGW < 440 g)	Normal seed	3/4 open	4		Yes
Peas (TGW > 440 g)	Normal seed	3/4 open	4		Yes
Flax (dressed)	Normal seed	3/4 open	1		Yes
Millet	Normal seed	3/4 open	1		Yes
Lupines	Normal seed	3/4 open	4		Yes
Lucerne	Normal seed / fine seed	3/4 open	1		Yes
Oilseed (moist dressing)	Normal seed / fine seed	3/4 open	1		No
Red clover	Fine seed	3/4 open	1		No
Soya	Normal seed	3/4 open	4		Yes
Sunflowers	Normal seed	3/4 open	2		Yes
Vetches	Normal seed	3/4 open	2		Yes
Rice	Normal seed	3/4 open	3		Yes

1. For the seed to be seeded, read the values for selecting the seed metering wheel combination or the seed metering wheel, the sliding shutter position, the bottom flap position and the agitator shaft support from the corresponding line.

2. *When round peas should be seeded:*
   Accept *"No"* as the value for agitator shaft support

   or

   When angular peas should be seeded:
   Accept *"Yes"* as the value for agitator shaft support.

6.3.2.2 Adjusting the seed metering wheel combinations for normal seed or fine seed

CMS-T-00017082-A.1

When seeding normal seed types, the seed metering wheel combinations consisting of a normal seed metering wheel and a fine seed metering wheels are firmly connected to each other and are rotated together by the seeding shaft.

When seeding fine seed types, the normal seed metering wheel is disconnected from the fine seed metering wheel in the seed metering wheel combination, so that only the fine seed metering wheel is moved by the seeding shaft.

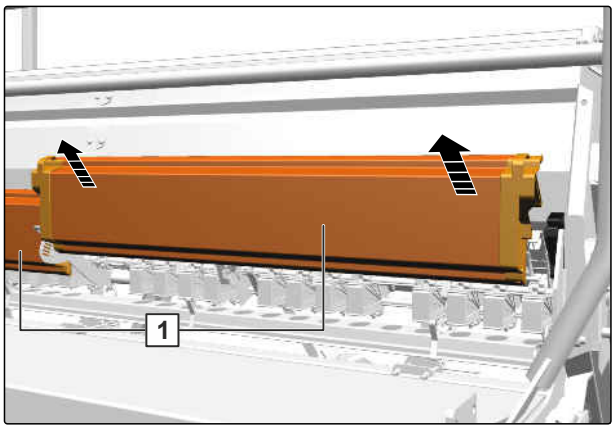
NOTE

This setting affects the seed rate.

Calibrate the seed rate after the adjustment.

1. Read the required setting for the seed metering wheel combinations from the *"Selecting the setting values"* section.

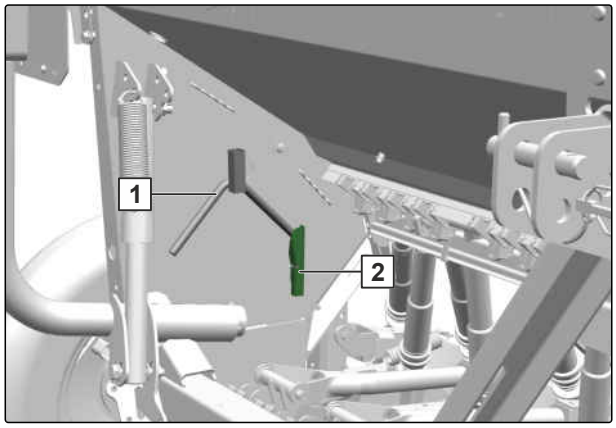
2. Remove the calibration troughs [1].



CMS-I-00011386

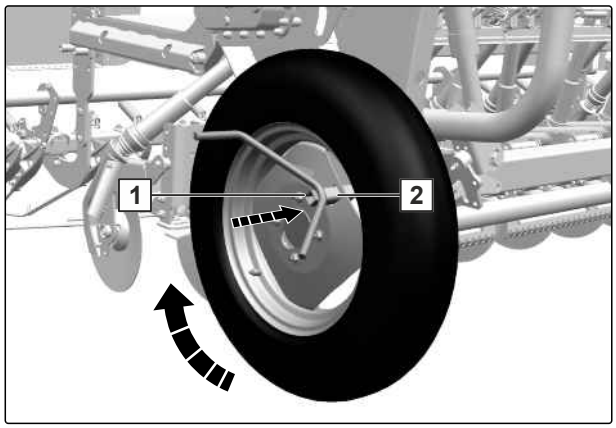
3. Take the calibration crank [1] from the holder [2].

4. Lift the seed drill until the seed drill wheels can rotate freely.



CMS-I-00011387

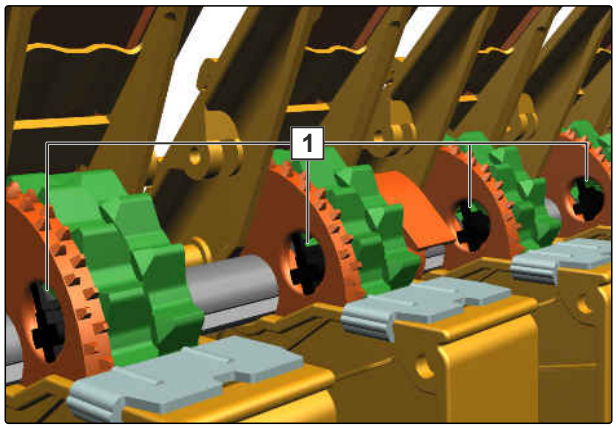
5. Insert the calibration crank with the driver bushing [1] into the square tube [2] in the right seed drill wheel.



CMS-I-00011388

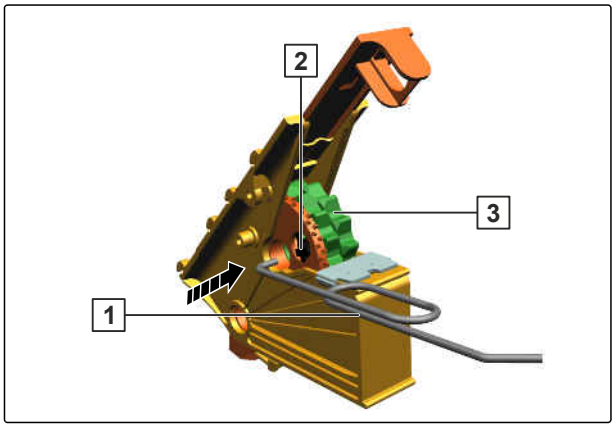
6. Turn the seed drill wheel to the right until the holes [1] in the fine seed metering wheels are visible.

7. Lower the seed drill.



CMS-I-00011389

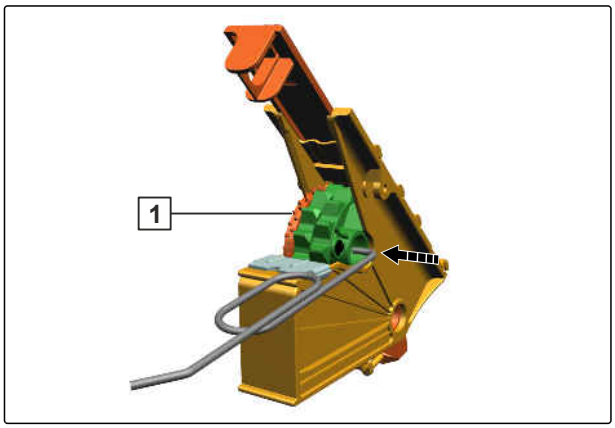
8. *To set the implement for fine seeds:*
   Push the coupling pin [2] into the hole with the spanner [1] up to the stop in the normal seed metering wheel [3], so that the normal seed metering wheel can rotate freely on the seeding shaft



CMS-I-00011390

   or

   To set the implement for normal seeds:
   Push the coupling pin with the spanner up to the stop against the fine seed metering wheel [1] out of the normal seed metering wheel, so that the fine seed metering wheel and normal seed metering wheel are coupled with each other and are driven together by the seeding shaft.



CMS-I-00011391

9. Repeat step 8 on all of the seed metering wheel combinations.

10. Put the calibration troughs back on.

6.3.2.3 Installing bean metering wheels

CMS-T-00017233-A.1

For seeding beans, the seed metering wheel combinations consisting of the normal seed metering wheel and fine seed metering wheel must be replaced with bean metering wheels.

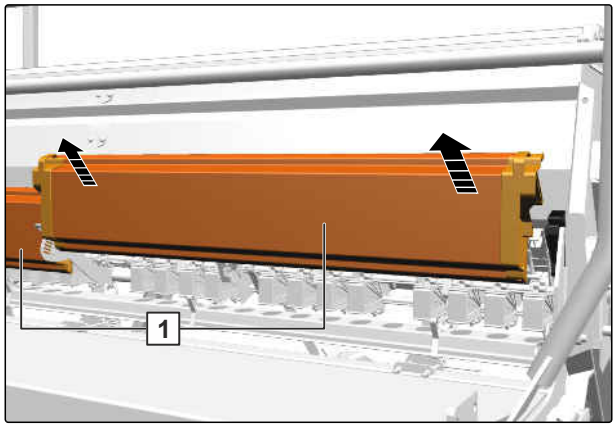
After removing the seeding shaft equipped with seed metering wheel combinations, the seed metering wheel combinations are either individually replaced with bean metering wheels or the seeding shaft equipped with seed metering wheel combinations is replaced as a whole with a second seeding shaft that is equipped with bean metering wheels.

NOTE

This setting affects the seed rate.

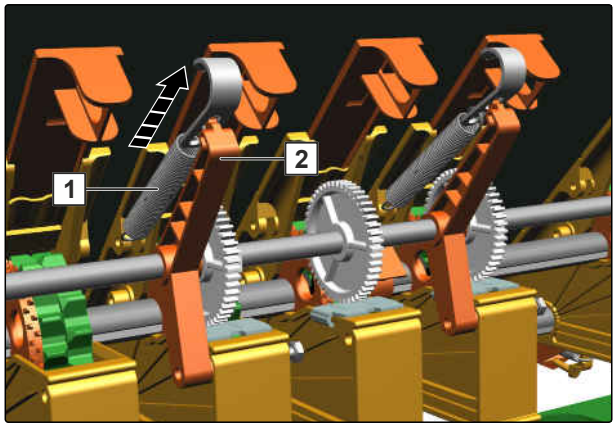
Calibrate the seed rate after the adjustment.

1. Remove the calibration troughs **1**.



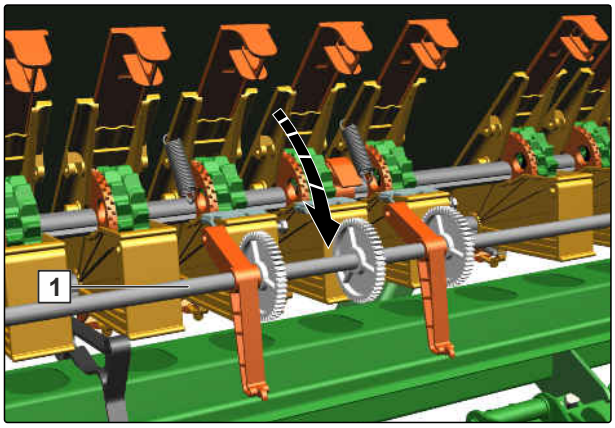
CMS-I-00011386

2. Release the tension springs **1** from the lay shaft pivot bearings **2**.



CMS-I-00011654

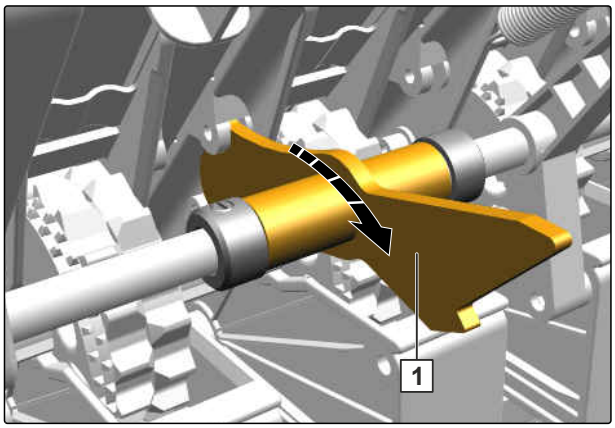
3. fold down the lay shaft 1.



CMS-I-00011655

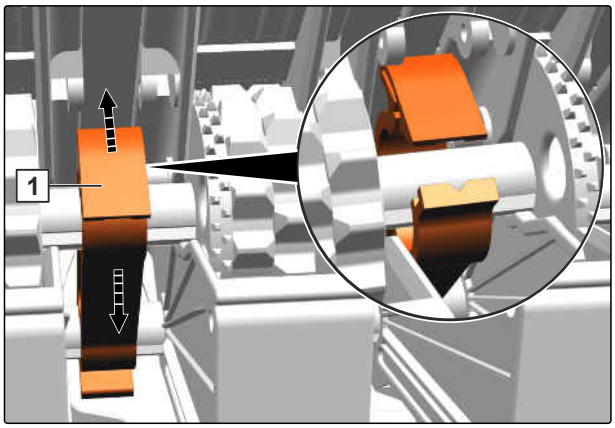
➡ The bracket 1 that locks the lay shaft axially is pulled out of the recess of a seed housing.

➡ If there is a solenoid, it is folded down along with the lay shaft.



CMS-I-00011656

4. Open the seeding shaft thrust bearing 1.



CMS-I-00011657

5. Loosen the bolts [1] of the connecting sleeve [2].

6. Slide the connecting sleeve onto the seeding shaft [3] towards the centre of the implement.

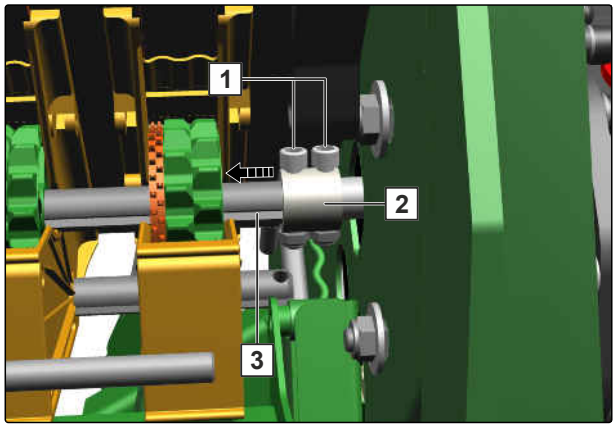
7. Lift out the seeding shaft.

8. Pull the connecting sleeve off of the seeding shaft.

9. *If a second seeding shaft that is already equipped with bean metering wheels and a seeding shaft spur gear is available:*
   Continue with step 18

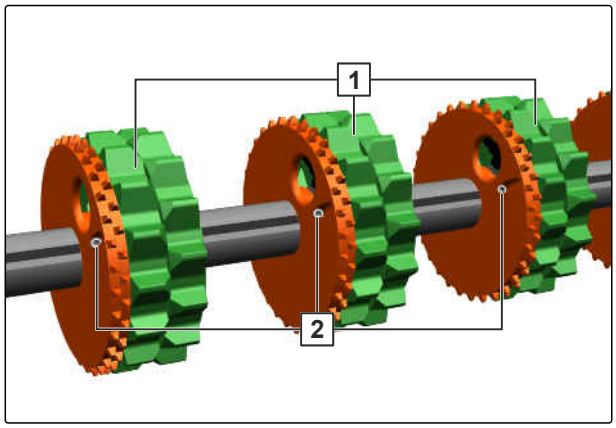
   or

   If only one seeding shaft is available and the seed metering wheel combinations must be individually replaced with bean metering wheels on the lifted-out shaft:
   Perform the following steps up to step 17.



CMS-I-00011658

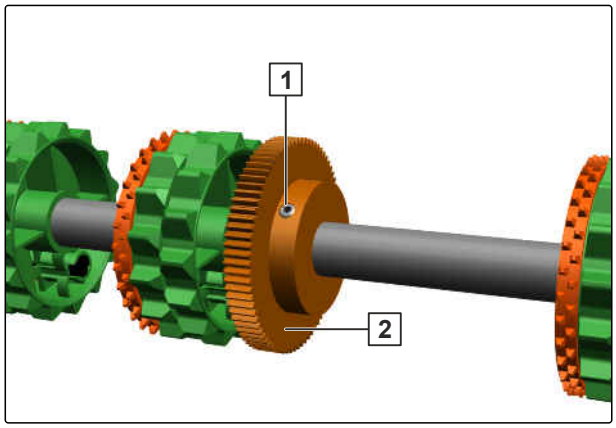
10. Loosen the grub screw [2] in the fine seed metering wheel on all of the seed metering wheel combinations [1].



CMS-I-00011659

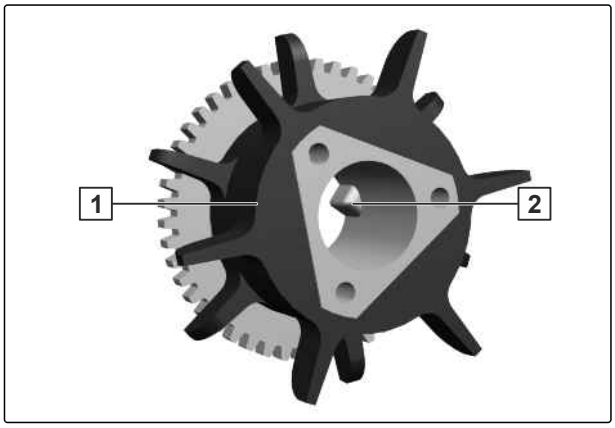
11. Loosen the grub screw [1] in the seeding shaft spur gear [2].

12. Pull all of the seed metering wheel combinations and the seeding shaft spur gear off of the seeding shaft.



CMS-I-00011662

13. Remove the triangular driver [2] on each bean metering wheel [1] that can be switched off to create tramlines.



CMS-I-00011663

14. Put all of the bean metering wheels on the seeding shaft and slide them where the seed metering wheel combinations were previously positioned.

15. During the previous step, put the seeding shaft spur gear on the seeding shaft in the corresponding position and slide it to its original spot.

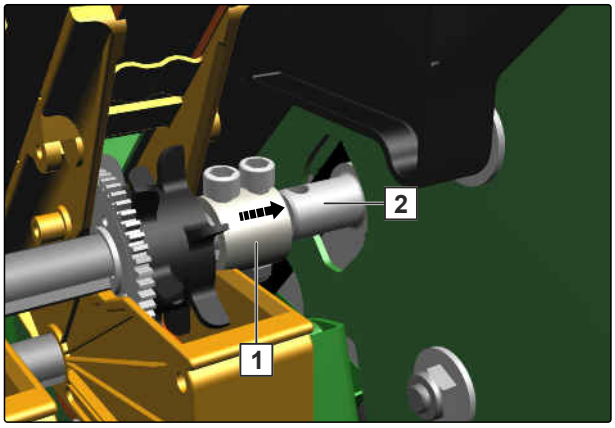
16. Tighten the grub screw in the seeding shaft spur gear.

17. Continue with the next step.

18. Put the connecting sleeve on the seeding shaft.

19. Insert the seeding shaft such that the seeding shaft and the bean metering wheels are resting in the seed housings.

20. Slide the connecting sleeve [1] on the output shaft [1] towards the Vario gearbox.

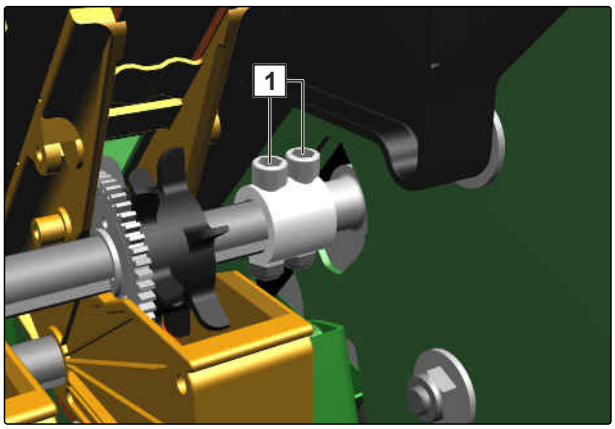


CMS-I-00011665

21. Tighten the bolts [1] for the connecting sleeve.

22. Fold up the lay shaft, and while doing so, insert the bracket that secures the lay shaft axially into the recess of a seed housing with the short arm. When folding up, mesh the gear wheels of the lay shaft and with the gear wheels of the seeding shaft together at the same time.

23. Hook the tension springs onto the lay shaft pivot bearings.



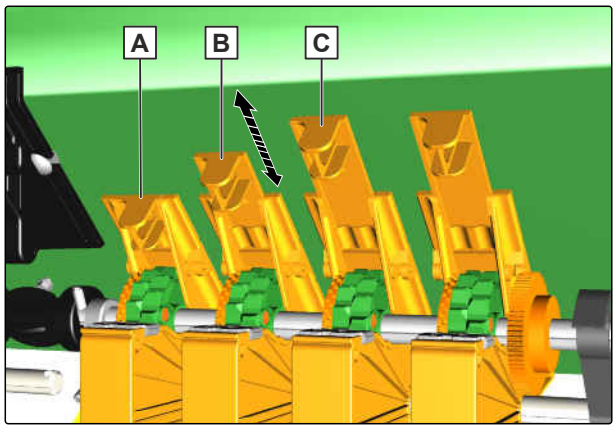
CMS-I-00011664

24. Put the calibration troughs back on.

6.3.2.4 Adjusting the sliding shutter

CMS-T-00015200-A.1

The sliding shutters are used to adjust the opening between the seed hopper and the metering housing according to the spreading material.



CMS-I-00009837

Each sliding shutter latches into one of the 3 positions:

- Closed **A**
- 3/4 open **B**
- Open **C**

NOTE

This setting affects the seed rate.

Calibrate the seed rate after the adjustment.

1. Read the required sliding shutter position from the *"Selecting the setting values"* section.
2. Remove the calibration troughs.
3. Pull or push the sliding shutter into the required position.
4. Close the sliding shutters of the seed housings that are not needed.
5. Put the calibration troughs back on.

6.3.2.5 Adjusting the bottom flap

CMS-T-00015199-A.1

The gap between the seed metering wheel and the bottom flap depends on the size of the seed. The bottom flap lever is used to adjust the gap. The bottom flap has a spring bearing and can deflect on foreign objects in the seed.

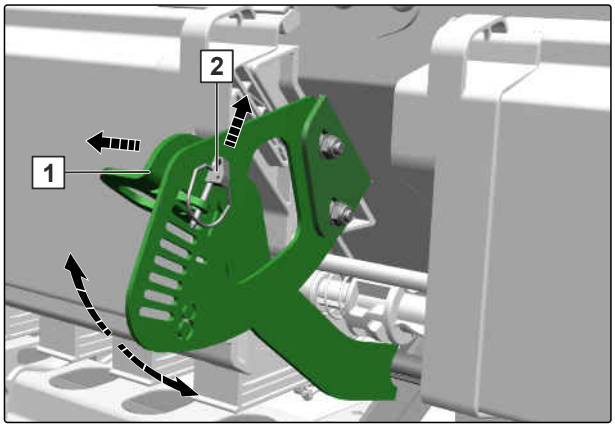
The bottom flap lever adjusts the bottom flap shaft. The bottom flap lever can lock into one of 8 positions in a group of holes.

NOTE

This setting affects the seed rate.

Calibrate the seed rate after the adjustment.

1. Read the required bottom flap position from the *"Selecting the setting values"* section.
2. Remove the linch pin **2**.
3. Press the bottom flap lever **1** to the left and set it to the determined value in the group of holes.
4. Secure the position with the linch pin.



CMS-I-00011668

6.3.2.6 Activating or deactivating the agitator shaft support

CMS-T-00015189-A.1

When seeding spelt-type seed, the stirring elements on the rotating agitator shaft prevent faulty seeding caused by seed blockage in the seed hopper.

The agitator shaft must be disabled when seeding certain types of seed. This applies e.g. for rapeseed, which can stick together due to the intense agitation by the agitator shaft.

The table in the section *"Selecting the setting values"* provides information on the seed types for which the agitator shaft support must be activated or deactivated.

NOTE

This setting affects the seed rate.

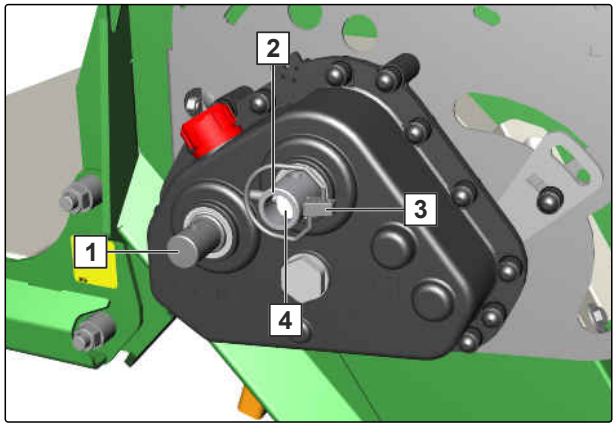
Calibrate the seed rate after the adjustment.

1. Check the table in the section "Selecting the setting values" to see if the agitator shaft support must be activated or deactivated for the selected seed.

2. *To activate the agitator shaft support:*
   Pull the linch pin [3] out of the parking position in the output shaft [1], insert it through the holes in the gearbox hollow shaft [2] and the agitator shaft [3], and secure it

   or

   To deactivate the agitator shaft support:
   Pull the linch pin out of the holes in the gearbox hollow shaft and the agitator shaft, insert it in the parking position in the output shaft, and secure it.



CMS-I-00009841

6.3.2.7 Installing the fine seed metering wheel brushes

CMS-T-00015203-A.1

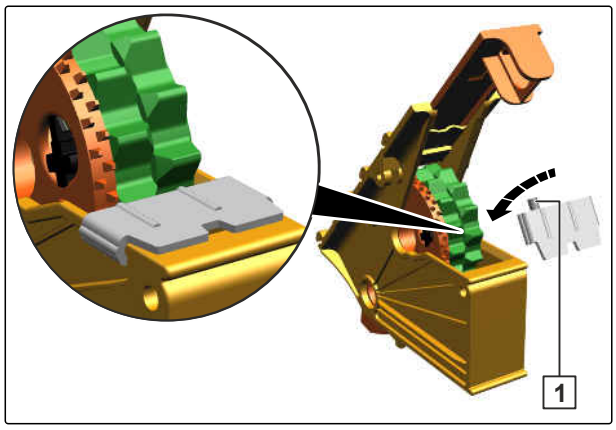
The fine seed metering wheel brushes are used to clean the fine seed metering wheels.

When seeding certain dressed peas that have an unfavourable shape, the fine seed metering wheel brushes prevent the peas from going back to the seed hopper, and rather fall into the seed line tube.

1. Remove the calibration troughs.

2. Clip a fine seed metering wheel brush onto each seed housing [1].

3. Put the calibration troughs back on.



CMS-I-00011643

6.3.2.8 Calibrating the metering unit

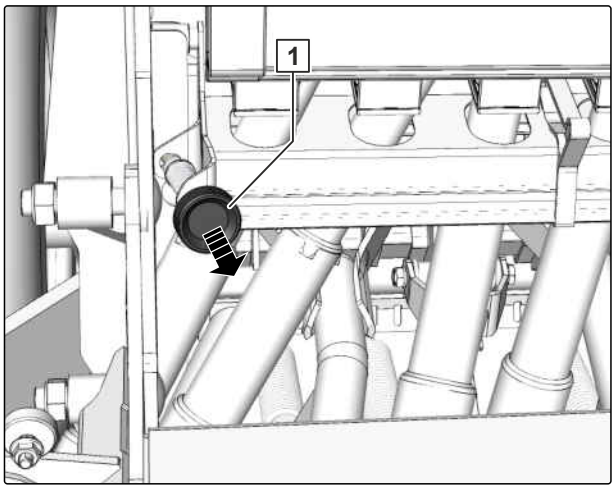
CMS-T-00017371-A.1

NOTE

The tramline counter must not display "0" during calibration, otherwise no seed is conveyed by the tramline seed metering wheels or an incorrect gearbox position is determined.

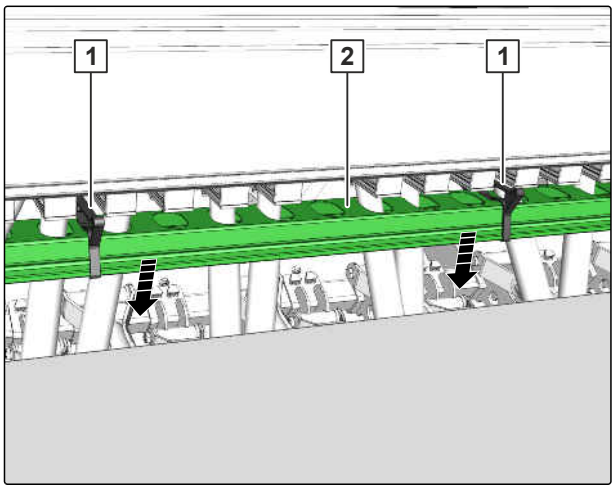
1. Read the required setting for the seed metering wheel combinations from the *"Selecting the setting values"* section.

2. *To unlock the funnel rail:*
   Pull the spring-loaded lever **1** to the front on both sides of the implement.



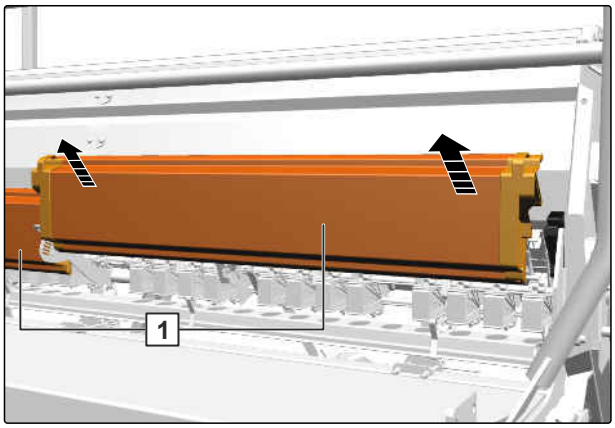
CMS-I-00011826

3. *To fold down the funnel rail:*
   Pull the funnel rail **2** down by the handles **1**.



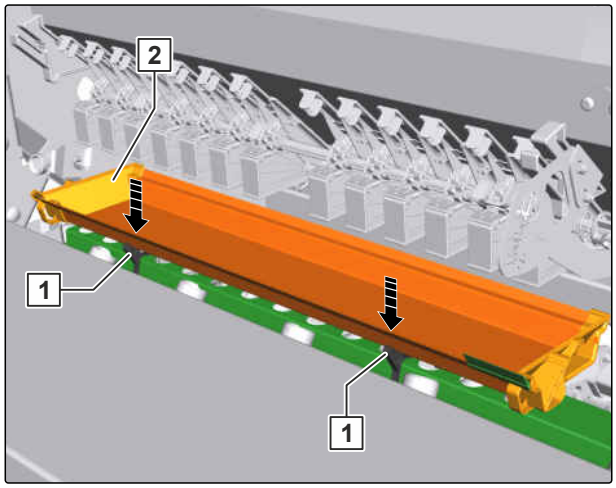
CMS-I-00011827

4. Remove the calibration troughs **1**.



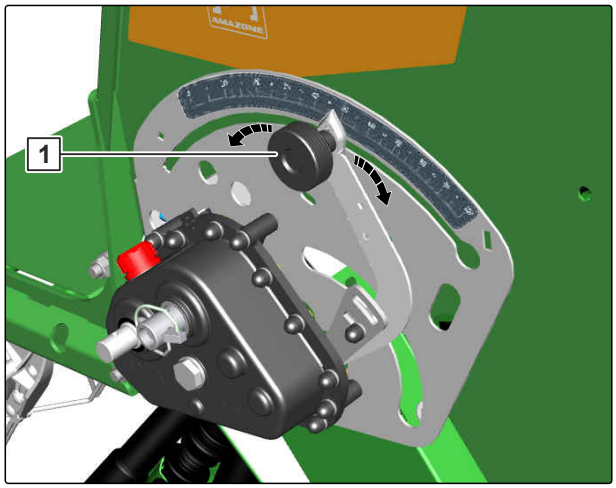
CMS-I-00011386

5. Put calibration troughs [2] on the two handles [1] of the respective funnel rail.



CMS-I-00011829

6. *To release the locking mechanism of the gearbox setting lever:*
   Turn the lock button [1] counterclockwise.



CMS-I-00011868

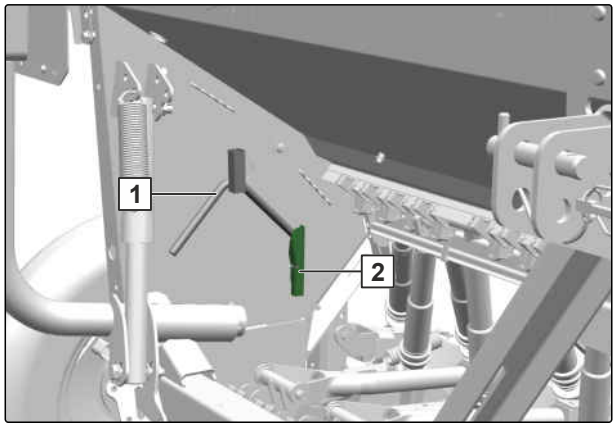
Seed metering wheels	Gearbox position
Normal seed metering wheels	50
Fine seed metering wheels	15
Bean metering wheels	50
Fertiliser metering wheels	50

7. Set the gearbox setting lever to the required value from the table.

8. *To lock the gearbox setting lever:*
   Turn the locking button clockwise.

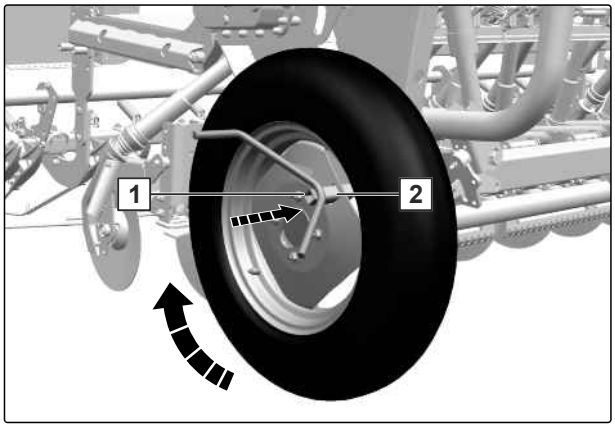
9. Take the calibration crank [1] from the holder [2].

10. Lift the seed drill until the seed drill wheels can rotate freely.



CMS-I-00011387

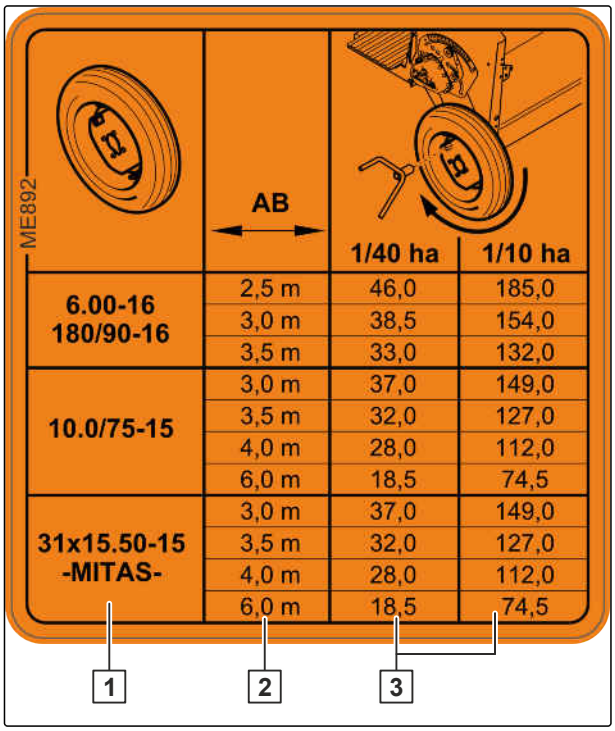
11. Insert the calibration crank with the driver bushing 1 into the square tube 2 in the right seed drill wheel.



CMS-I-00011388

The number of crank turns on the wheel is determined by: the size of the tyres on the seed drill 1, the working width of the seed drill 2 and the area 3 that should be used for calibration.

With very low seeding rates, such as with rapeseed, it is advisable to perform the calibration for 1/10 ha.



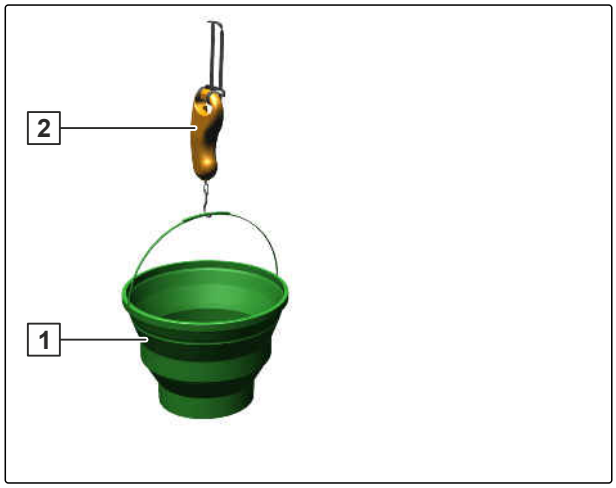
CMS-I-00011875

12. Turn the seed drill wheel in the direction shown by the arrow until the seed falls out of all seed housings into the calibration troughs.

13. *To weigh the collected seed from the calibration troughs:*
    Hang the collapsible bucket 1 on the scale 2 and pour in the seed.

14. *Depending on the selected calibration area from the table:*
    Multiply the collected quantity of seed with the factor "40" or "10".

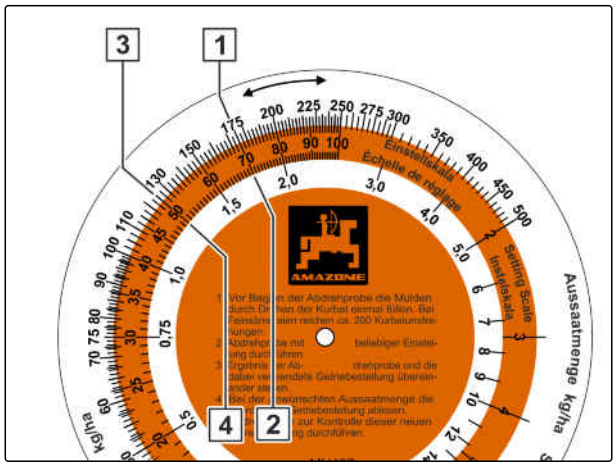
➡ The later spread rate (kg/ha) has been calculated.



CMS-I-00011884

The desired seed rate is generally not achieved with the first calibration. To achieve the desired seed rate, the calculator disc and the calibration factor from the first calibration must be used to determine the desired seed rate.

- Determined spread rate 175 kg/ha 1
- Utilised gearbox position 70 2
- Desired spread rate 125 kg/ha 3
- Gearbox position 50 4 for the desired spread rate



CMS-I-00002787

15. Align the determined seed rate 1 with the utilised gearbox position 2 on the calculator disc.

16. Read the gearbox position 4 for the desired spread rate 3 from the calculator disc.

17. Set the gearbox setting lever to the value read from the scale.

18. Repeat the calibration.

6.3.2.9 Calibrating the metering unit

CMS-T-00017823-A.1

6.3.2.9.1 Calibrating the seed metering unit

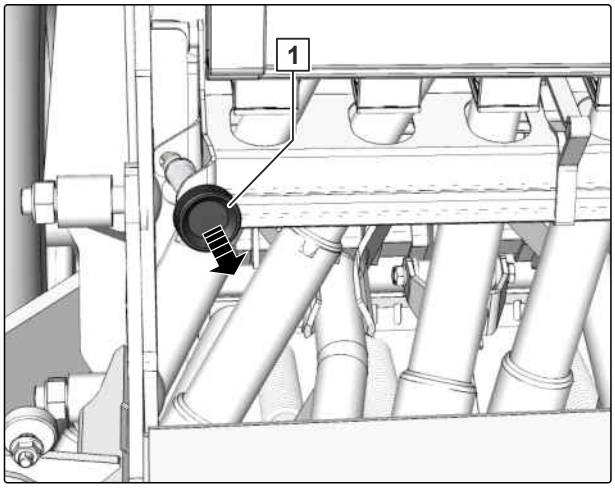
CMS-T-00017824-A.1

NOTE

The tramline counter must not display "0" during calibration, otherwise no seed is conveyed by the tramline seed metering wheels or an incorrect gearbox position is determined.

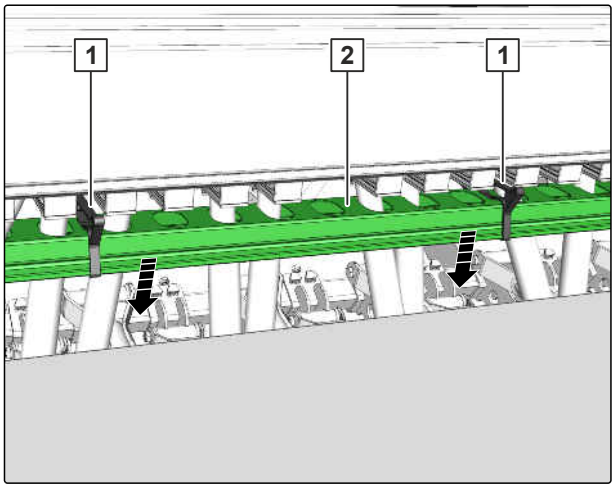
1. Read the required setting for the seed metering wheel combinations from the *"Selecting the setting values"* section.

2. *To unlock the funnel rail:*
   Pull the spring-loaded lever [1] to the front on both sides of the implement.



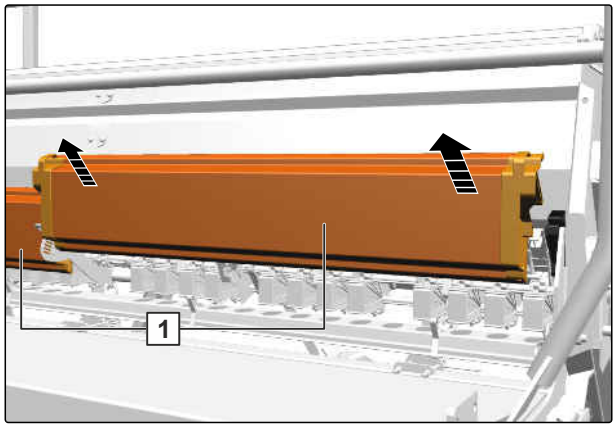
CMS-I-00011826

3. *To fold down the funnel rail:*
   Pull the funnel rail [2] down by the handles [1].



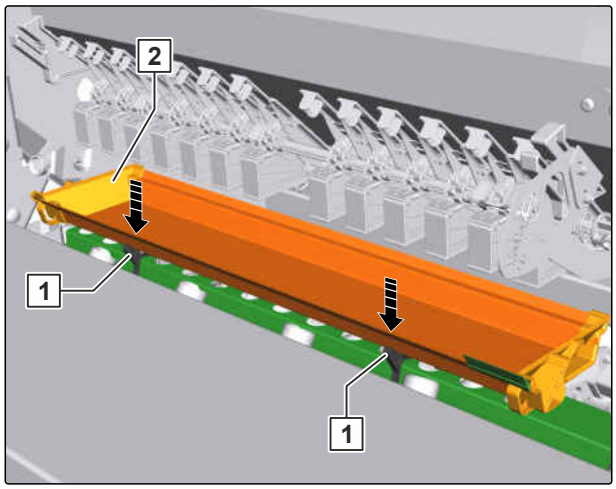
CMS-I-00011827

4. Remove the calibration troughs 1.



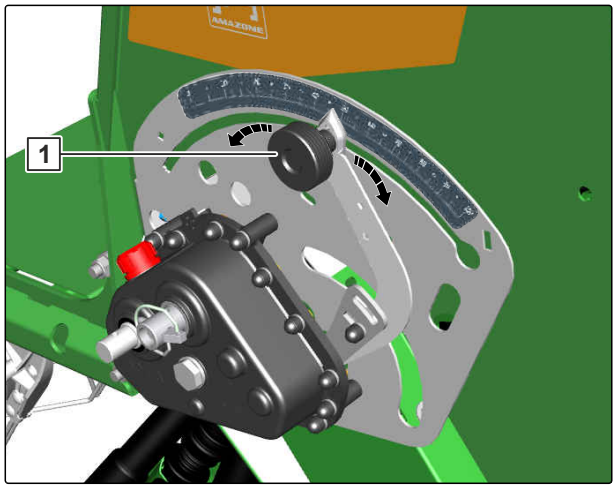
CMS-I-00011386

5. Put calibration troughs 2 on the two handles 1 of the respective funnel rail.



CMS-I-00011829

6. *To release the locking mechanism of the gearbox setting lever:*
   Turn the lock button 1 counterclockwise.



CMS-I-00011868

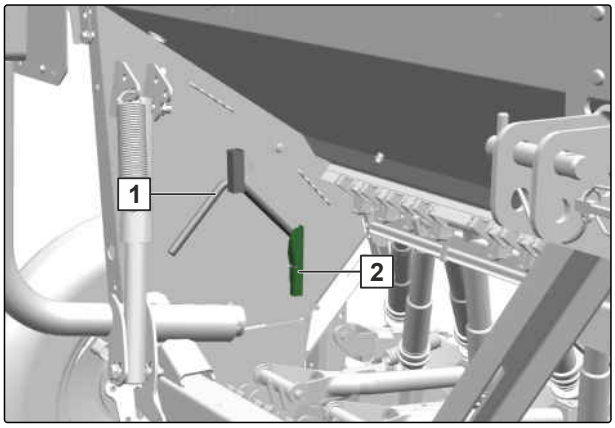
Seed metering wheels	Gearbox position
Normal seed metering wheels	50
Fine seed metering wheels	15
Bean metering wheels	50

7. Set the gearbox setting lever to the required value from the table.

8. *To lock the gearbox setting lever:*
   Turn the locking button clockwise.

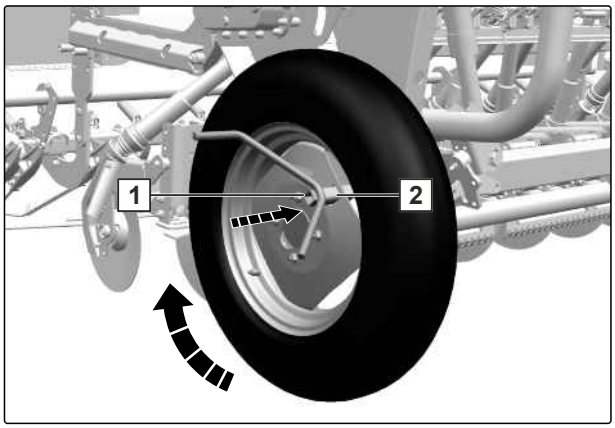
9. Take the calibration crank [1] from the holder [2].

10. Lift the seed drill until the seed drill wheels can rotate freely.



CMS-I-00011387

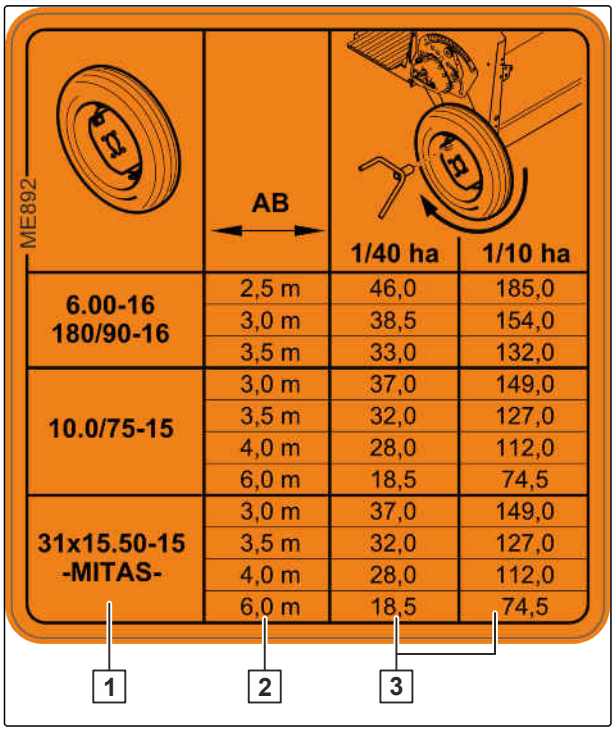
11. Insert the calibration crank with the driver bushing [1] into the square tube [2] in the right seed drill wheel.



CMS-I-00011388

The number of crank turns on the wheel is determined by: the size of the tyres on the seed drill [1], the working width of the seed drill [2] and the area [3] that should be used for calibration.

With very low seeding rates, such as with rapeseed, it is advisable to perform the calibration for 1/10 ha.



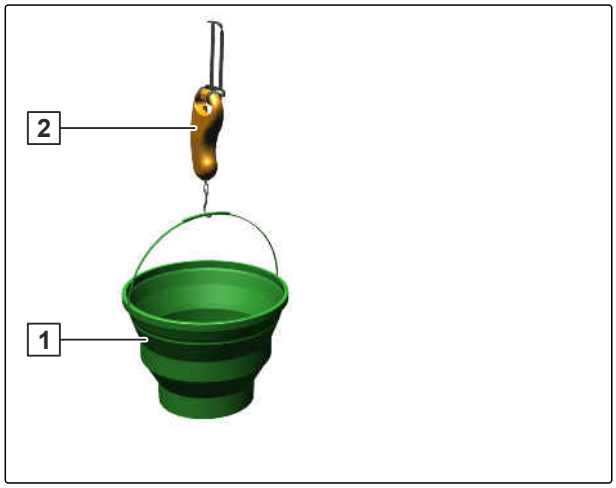
CMS-I-00011875

12. Turn the seed drill wheel in the direction shown by the arrow until the seed falls out of all seed housings into the calibration troughs.

13. *To weigh the collected seed from the calibration troughs:*
    Hang the collapsible bucket 1 on the scale 2 and pour in the seed.

14. *Depending on the selected calibration area from the table:*
    Multiply the collected quantity of seed with the factor "40" or "10".

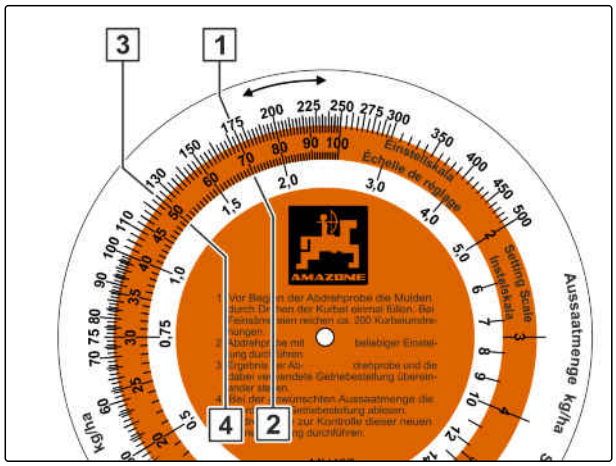
➡ The later spread rate (kg/ha) has been calculated.



CMS-I-00011884

The desired seed rate is generally not achieved with the first calibration. To achieve the desired seed rate, the calculator disc and the calibration factor from the first calibration must be used to determine the desired seed rate.

- Determined spread rate 175 kg/ha 1
- Utilised gearbox position 70 2
- Desired spread rate 125 kg/ha 3
- Gearbox position 50 4 for the desired spread rate



CMS-I-00002787

15. Align the determined seed rate 1 with the utilised gearbox position 2 on the calculator disc.

16. Read the gearbox position 4 for the desired spread rate 3 from the calculator disc.

17. Set the gearbox setting lever to the value read from the scale.

18. Repeat the calibration.

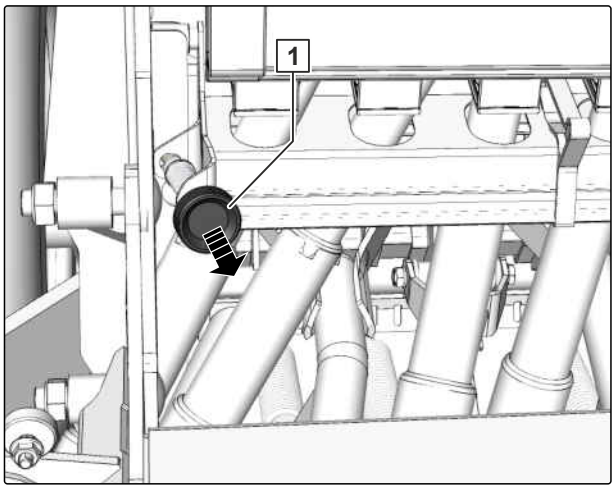
6.3.2.9.2 Calibrating the fertiliser metering unit

CMS-T-00017825-A.1

NOTE

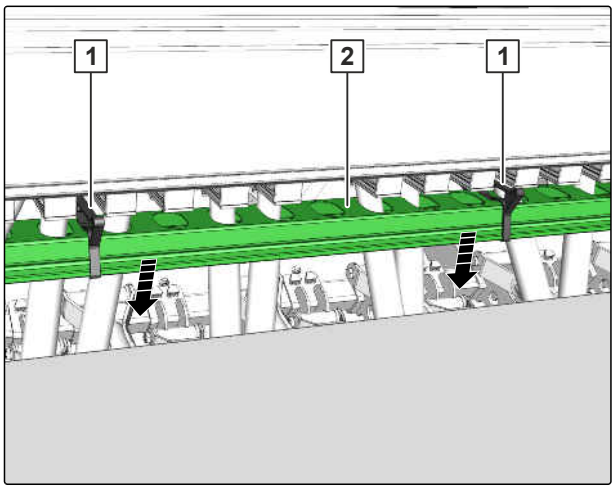
The tramline counter must not display "0" during calibration, otherwise no seed is conveyed by the tramline seed metering wheels or an incorrect gearbox position is determined.

1. *To unlock the funnel rail:*
   Pull the spring-loaded lever [1] to the front on both sides of the implement.



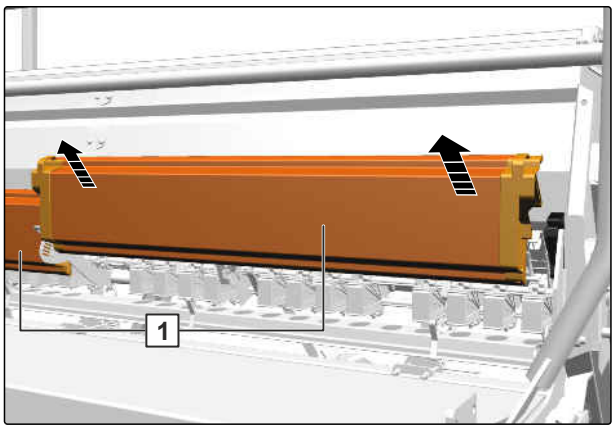
CMS-I-00011826

2. *To fold down the funnel rail:*
   Pull the funnel rail [2] down by the handles [1].



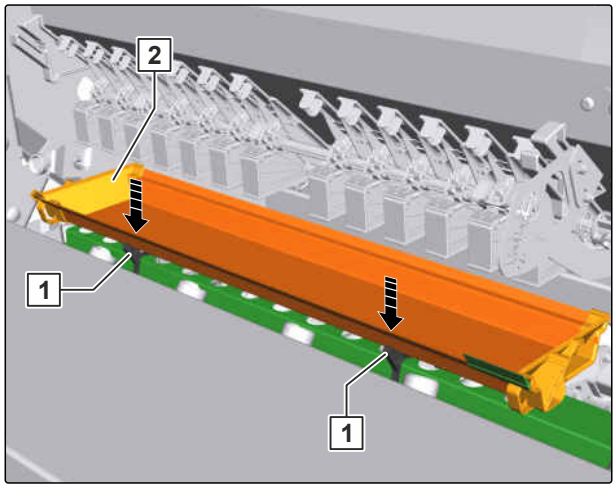
CMS-I-00011827

3. Remove the calibration troughs [1].



CMS-I-00011386

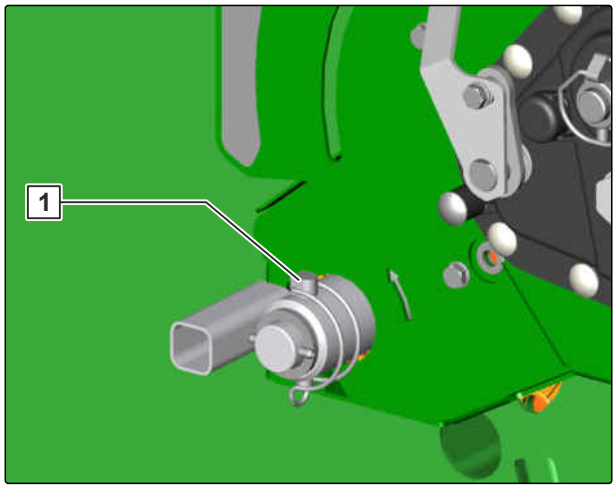
4. Put calibration troughs [2] on the two handles [1] of the respective funnel rail.



CMS-I-00011829

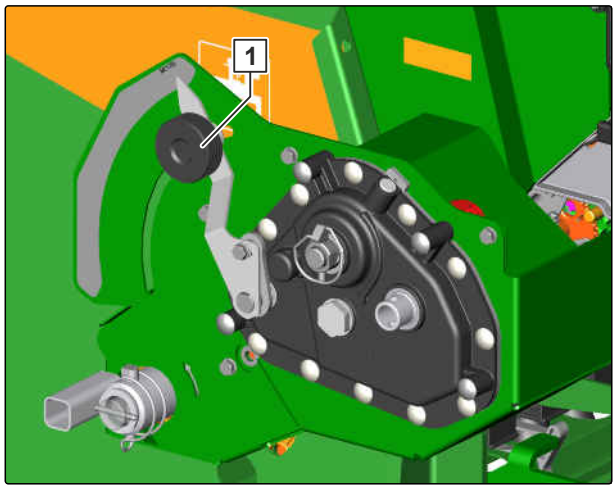
The seeding shaft of the fertiliser metering unit must be uncoupled from the seeding shaft of the seed metering unit, so that only fertiliser is collected in the calibration troughs during calibration.

5. *To uncouple the seeding shaft of the fertiliser metering unit from the seeding shaft of the seed metering unit:*
   Remove the linch pin [1].



CMS-I-00012269

6. *To release the locking mechanism of the gearbox setting lever:*
   Turn the lock button [1] counterclockwise.



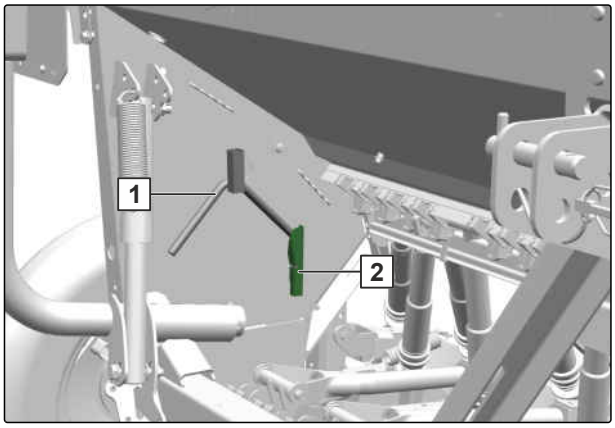
CMS-I-00012270

7. Set the gearbox setting lever to the required value from the table.

Seed metering wheels	Gearbox position
Normal seed metering wheels	50
Fine seed metering wheels	15
Bean metering wheels	50

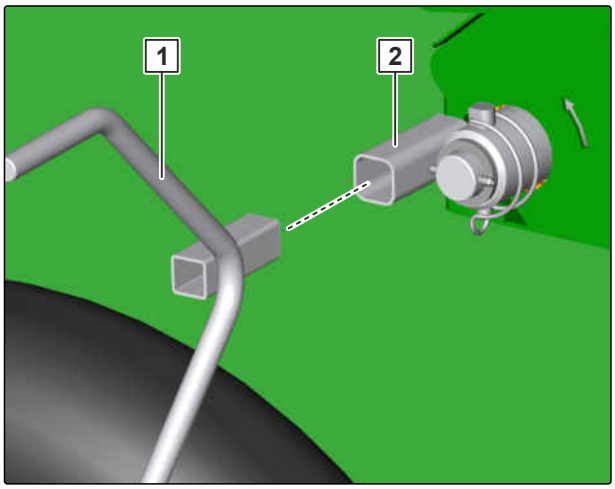
8. *To lock the gearbox setting lever:*
   Turn the locking button clockwise.

9. Take the calibration crank 1 from the holder 2.



CMS-I-00011387

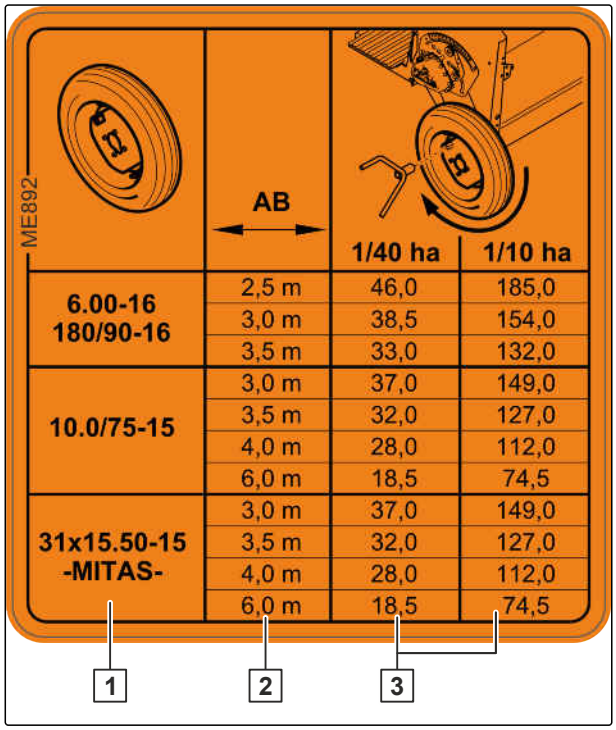
10. Insert the calibration crank 1 in the square tube 2.



CMS-I-00012271

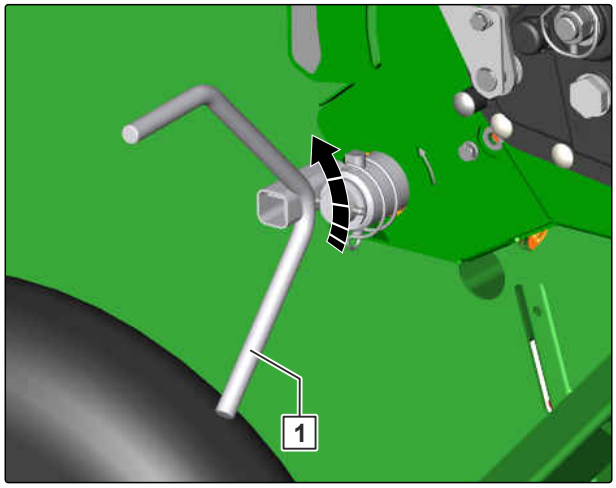
The number of crank turns is determined by: the size of the tyres on the seed drill [1], the working width of the seed drill [2] and the area [3] that should be used for calibration. The crank turns on the fertiliser metering unit do not differ from the tyre rotations for the calibration of the seed metering unit.

With very low seeding rates, such as with rapeseed, it is advisable to perform the calibration for 1/10 ha.



CMS-I-00011875

11. Turn the calibration crank [1] in the direction shown by the arrow until the fertiliser falls out of all seed housings into the calibration troughs.

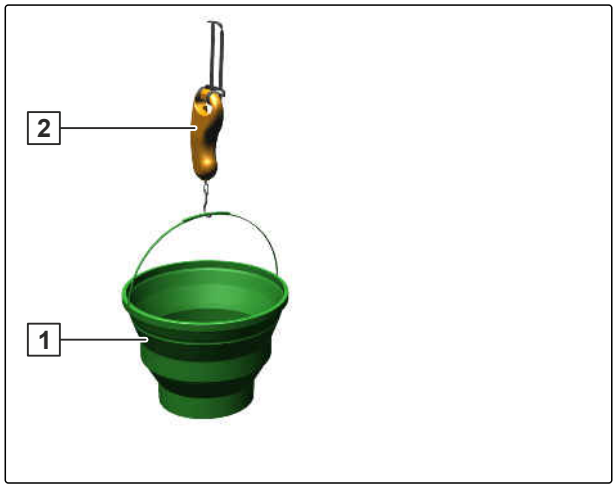


CMS-I-00012272

12. *To weigh the collected fertiliser from the calibration troughs:*
Hang the collapsible bucket [1] on the scale [2] and pour in the fertiliser.

13. *Depending on the selected calibration area:*
Multiply the collected quantity of seed with the factor "40" or "10".

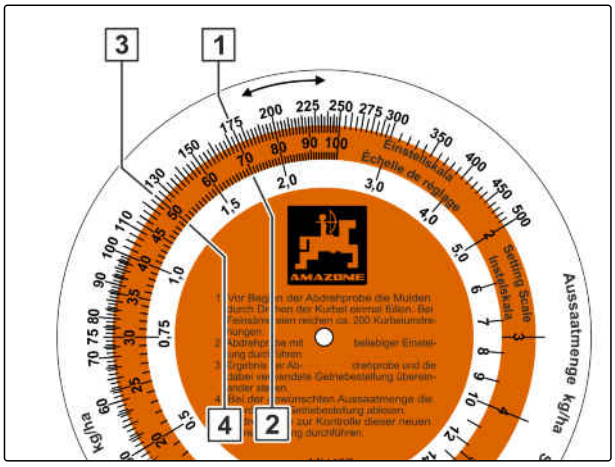
➥ The later spread rate (kg/ha) has been calculated.



CMS-I-00011884

The desired seed rate is generally not achieved with the first calibration. To achieve the desired seed rate, the calculator disc and the calibration factor from the first calibration must be used to determine the desired seed rate.

- Determined spread rate 175 kg/ha 1
- Utilised gearbox position 70 2
- Desired spread rate 125 kg/ha 3
- Gearbox position 50 4 for the desired spread rate



CMS-I-00002787

14. Align the determined seed rate 1 with the utilised gearbox position 2 on the calculator disc.

15. Read the gearbox position 4 for the desired spread rate 3 from the calculator disc.

16. Set the gearbox setting lever to the value read from the scale.

17. Repeat the calibration.

6.3.3 Setting the fill level sensor

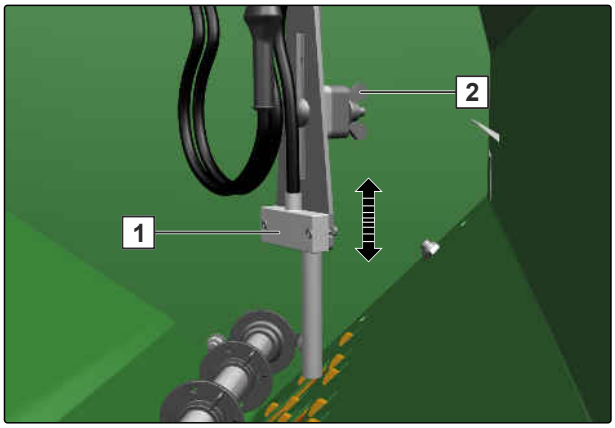
CMS-T-00017131-A.1

The height of the electronic fill level sensor can only be adjusted when the seed hopper is empty. The fill level sensor may not touch the wall of the hopper.

1. Loosen the wing nut 2.

2. *To adjust the seed level at which the user is prompted to refill when it is undercut:*
   Move the fill level sensor 1 up or down.

3. Tighten the wing nut.



CMS-I-00011372

6.3.4 Filling the hopper

CMS-T-00017724-A.1

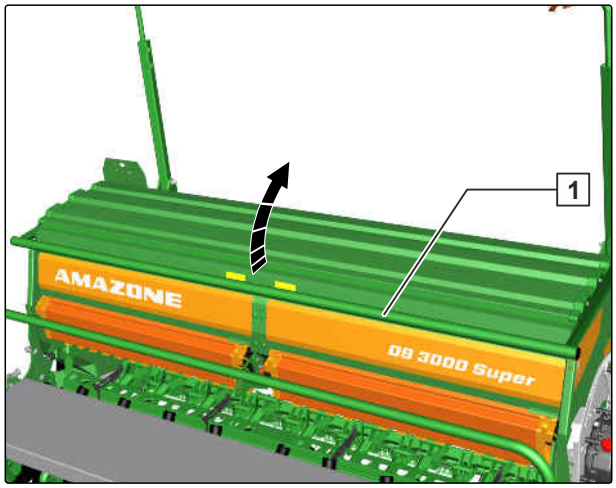
6.3.4.1 Filling the seed hopper

CMS-T-00017726-A.1

1. Lower the implement.

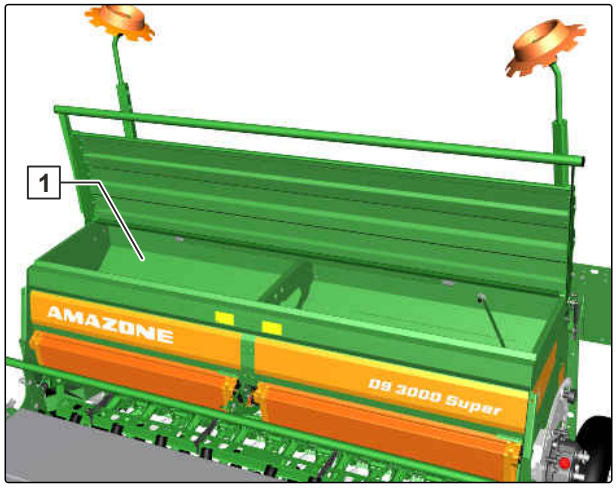
2. Unfold the loading board steps.

3. *To open the seed hopper:*
   Pull the hopper cover up by the handle **1**.



CMS-I-00012085

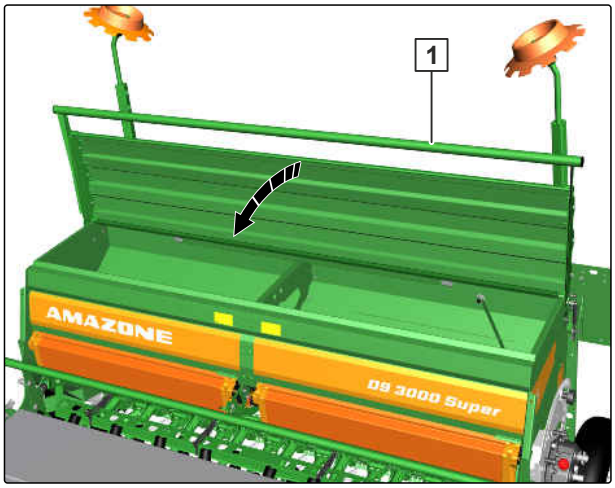
4. Pour seed into the hopper.



CMS-I-00012088

5. *To close the seed hopper:*
   Pull the hopper cover down by the handle **1**.

6. Fold up the loading board steps.



CMS-I-00012089

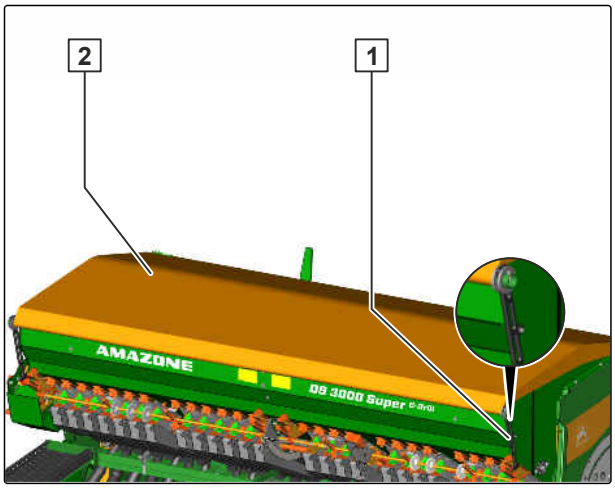
6.3.4.2 Filling the C-Drill hopper

CMS-T-00017725-A.1

1. Lower the implement.

2. Unfold the loading board steps.

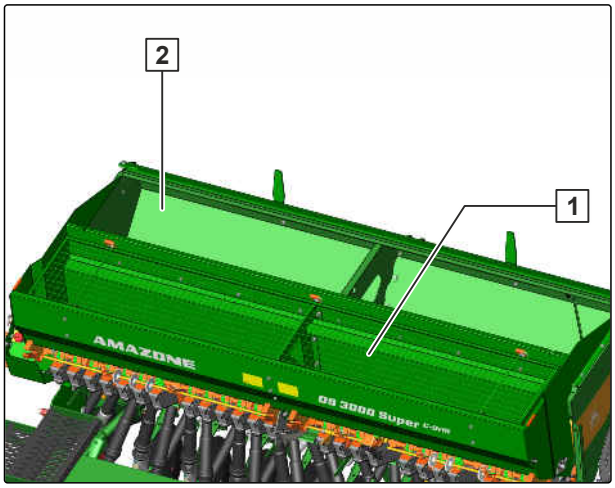
3. *To open the hopper:*
   Release the rubber tabs **2** on both sides and slide the roller tarpaulin **2** to the rear



CMS-I-00012083

4. *To fill the hopper with fertiliser:*
   Fill in fertiliser through the charging sieve in hopper chamber **1**.

5. *To fill the hopper with seed:*
   Fill seed into hopper chamber **2**.



CMS-I-00012084

6. Close the hopper with the roller tarpaulin.

7. Fasten the roller tarpaulin with the rubber tabs on both sides.

8. Fold up the loading board steps.

6.3.5 Adjusting the coulter pressure and placement depth

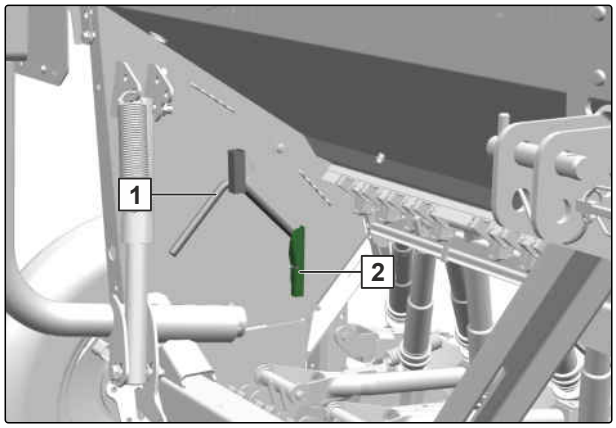
CMS-T-00017759-A.1

6.3.5.1 Adjusting the central coulter pressure and placement depth manually

CMS-T-00017760-A.1

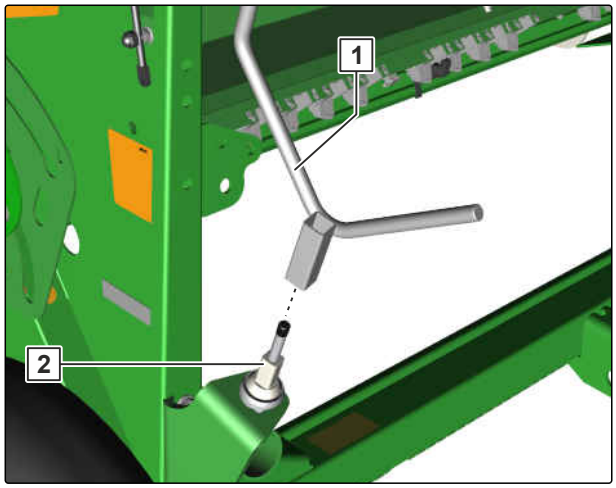
The coulter pressure is adjusted centrally with the calibration crank.

1. Take the calibration crank 1 from the holder 2.



CMS-I-00011387

2. Put the calibration crank 1 on the spindle nut 2.



CMS-I-00012145

3. *To increase the coulter pressure or the placement depth:*
   Turn the calibration crank **1** clockwise

   or

   To reduce the coulter pressure or the placement depth:
   Turn the calibration crank **1** counterclockwise.



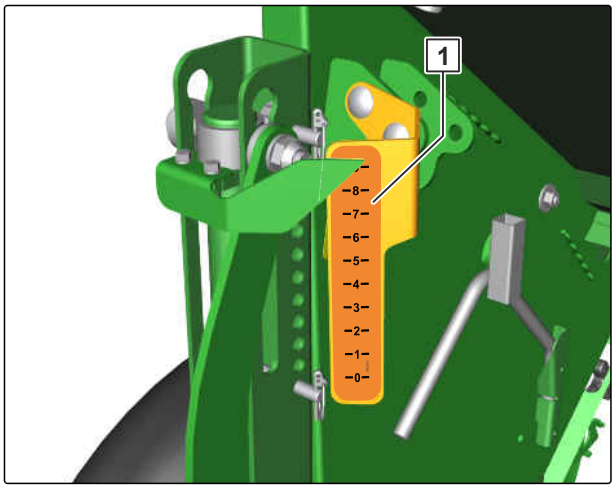
CMS-I-00012153

6.3.5.2 Adjusting the central coulter pressure and placement depth hydraulically

CMS-T-00017761-A.1

The scale **1** shows the currently set coulter pressure.

If the seeding rate is increased using the hydraulic seed rate remote control, there is automatically more coulter pressure and the exact following harrow pressure increases.



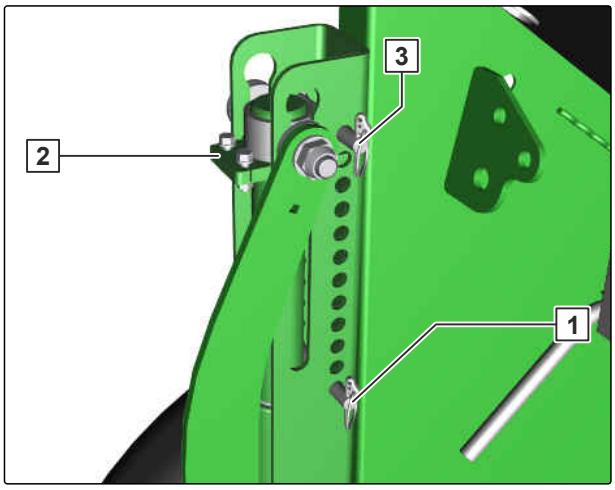
CMS-I-00012169

1. *Depending on the desired coulter pressure or placement depth:*
   Move the *"blue"* tractor control unit into float position

   or

   Apply pressure to the *"blue"* tractor control unit.

Each hole in the group of holes is marked with a number. The higher the number on the hole where



CMS-I-00012168

the pin is inserted, the greater the coulter pressure or the seed placement depth.

2. *To limit the greatest adjustable coulter pressure or placement depth:*
   Insert the pin **1** into a hole below the stop **2**

   or

   To limit the lowest adjustable coulter pressure or placement depth:
   Insert the pin **3** into a hole above the stop **2**.

3. Secure both pins with a linch pin.

6.3.5.3 Adjusting the coulter pressure and placement depth on the outer coulters

CMS-T-00017774-A.1

The depth of the outer coulters behind the seed drill wheels is limited by an adjustable coulter stop.

The outside coulters can avoid obstacles by deflecting upwards.

For all other coulters, the coulter pressure is adjusted centrally.

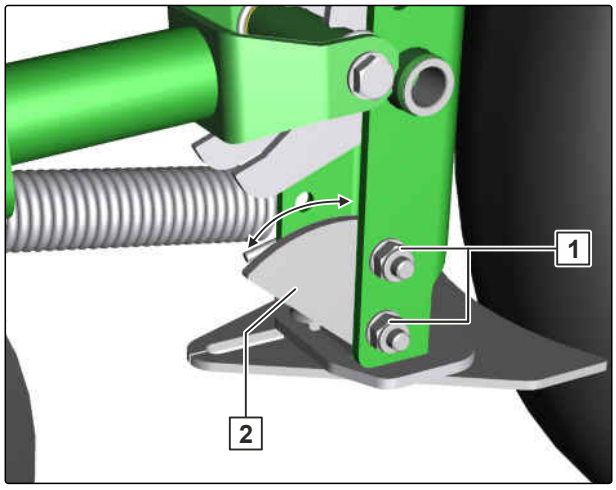
1. Loosen the nuts **1**.

2. *To increase the coulter pressure and the placement depth:*
   Move the coulter stop **2** to the right

   or

   To reduce the coulter pressure and the placement depth:
   Move the coulter stop **2** to the left.

3. *To fix the coulter stop **2** in the position:*
   Tighten the nuts **1**.

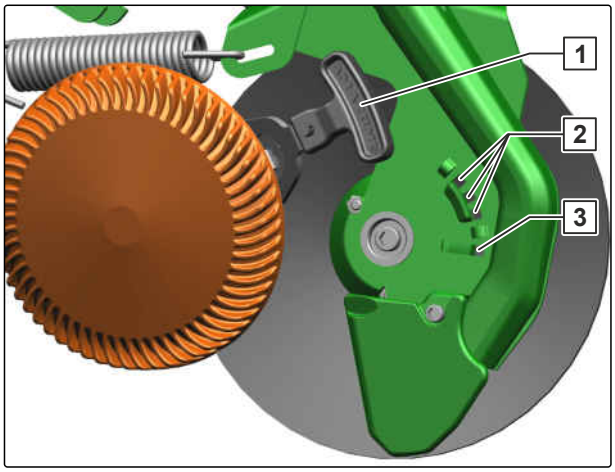


CMS-I-00012193

6.3.5.4 Adjusting the placement depth on the RoTeC coulter

CMS-T-00006301-C.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 adjustment of the seed placement depth must be adapted to the respective operating conditions. The optimum adjustment can only be determined during field operation. The greatest placement depth is achieved by removing the depth control discs or depth control wheels.



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 manually"* or *"Adjusting the coulter pressure hydraulically"*.

6.3.6 Adjusting the exact following harrow or trailing tine harrow

CMS-T-00017478-A.1

6.3.6.1 Adjusting the position of the harrow tines

CMS-T-00017479-A.1

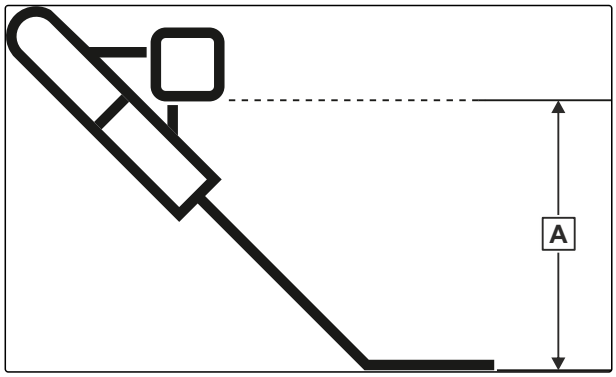
6.3.6.1.1 Adjusting the harrow tines by removing the bolts

CMS-T-00017483-A.1

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

To ensure that the seed is covered with fine soil even when the ground is undulating, the harrow tines can deflect downwards by 50 mm to 80 mm.

The distance **A** between the carrier tube and the ground is adjusted. The distance must be between 230 mm and 280 mm.



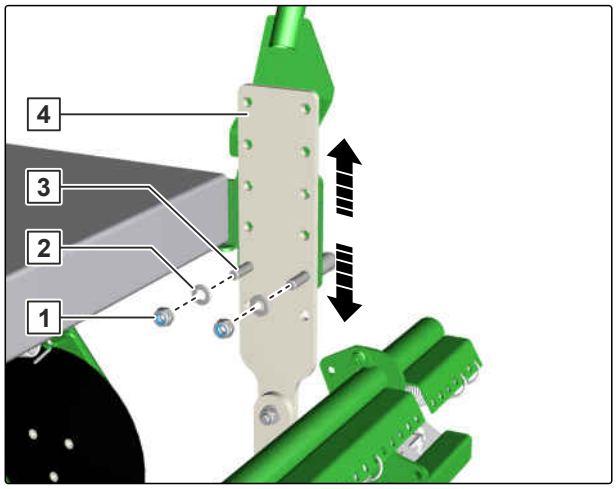
CMS-I-00004668

Depending on the equipment, the harrows can be adjusted with removable bolts or using the universal operating tool.

1. *To be able to remove the bolts:*
   Loosen the nuts **1**.
2. Remove the washers **2**.
3. Remove the bolts **3**.
4. *To adjust the harrow tines at a steeper angle:*
   Move the holding arm **4** up

   or

   To adjust the harrow tines lower down:
   Move the holding arm **4** down.
5. Install the bolts **3**.
6. Install the washers **2**.
7. Install the nuts **1** and tighten them.
8. Repeat the procedure on the opposite side.



CMS-I-00011899

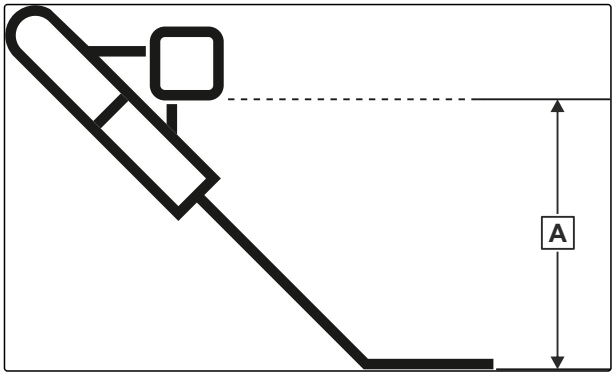
6.3.6.1.2 Adjusting the exact following harrow tines with a ratchet wrench

CMS-T-00017484-A.1

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

To ensure that the seed is covered with fine soil even when the ground is undulating, the harrow tines can deflect downwards by 50 mm to 80 mm.

The distance **A** between the carrier tube and the ground is adjusted. The distance must be between 230 mm and 280 mm.



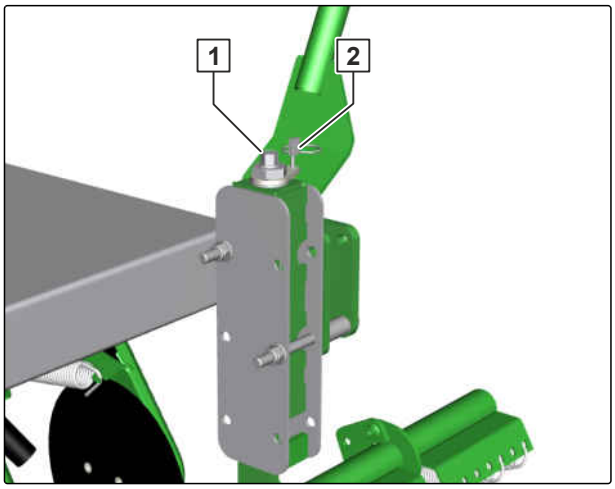
CMS-I-00004668

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

1. Remove the linch pin **2**.
2. Put a suitable ratchet wrench on the spindle **1**.

The same adjustments must be made on both spindles.

3. Turn the spindle with the ratchet wrench until the desired position is reached.
4. *To secure the adjustment:*
   Install the linch pin **2**.



CMS-I-00011907

6.3.6.2 Adjusting the harrow pressure

CMS-T-00017480-A.1

6.3.6.2.1 Adjusting the exact following harrow pressure hydraulically

CMS-T-00017493-A.1

The pins **1** and **3** serve as a stop for the lever **2**. When the tractor control unit is actuated, the harrow pressure increases and the lever rests against the upper pin.

1. Put the *"blue"* control valve into the float position.
2. Switch off the tractor engine.
3. Apply the parking brake.

4. Insert the pin 1 above the lever 2.

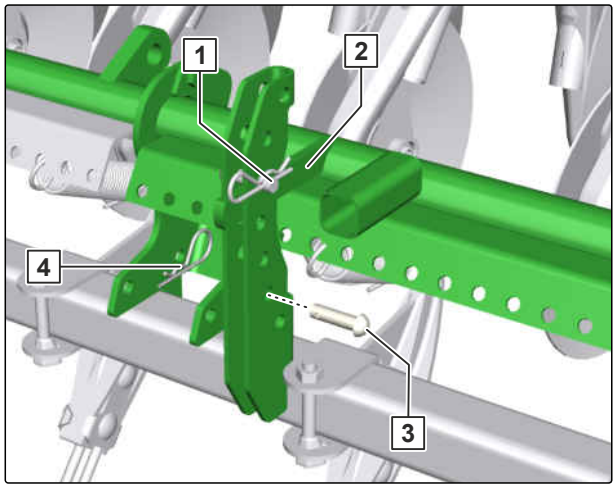
5. Secure the pin 1 with a spring cotter pin.

6. *To set the desired exact following harrow pressure:*
   Actuate the *"blue"* tractor control unit.

7. Insert the pin 3 into a hole underneath the lever 2.

8. Secure the pin 3 with a spring cotter pin 4.

9. Put the *"blue"* control valve into the float position.

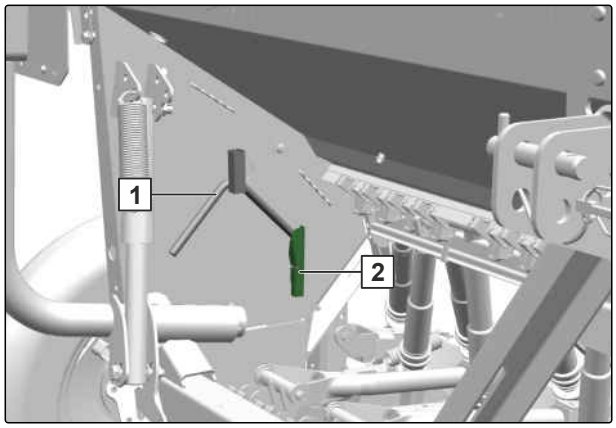


CMS-I-00011913

6.3.6.2.2 Adjusting the harrow pressure manually

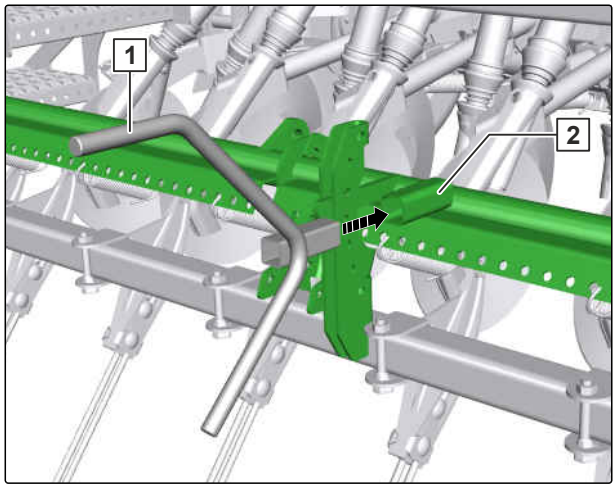
CMS-T-00017494-A.1

1. Take the calibration crank 1 from the holder 2.



CMS-I-00011387

2. Insert the calibration crank 1 in the guide tube 2.



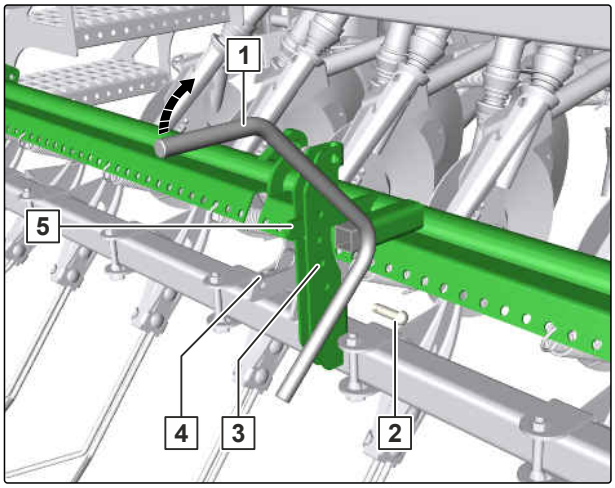
CMS-I-00011929

The harrow pressure is increased by tensioning the tension springs.

3. *To tension the tension springs:*
   Move the calibration crank [1] up.

4. Insert the pin [2] into a hole [3] underneath the lever [5].

5. Secure the pin [2] with a spring cotter pin [4].



CMS-I-00011931

6.3.7 Adjusting the roller harrow

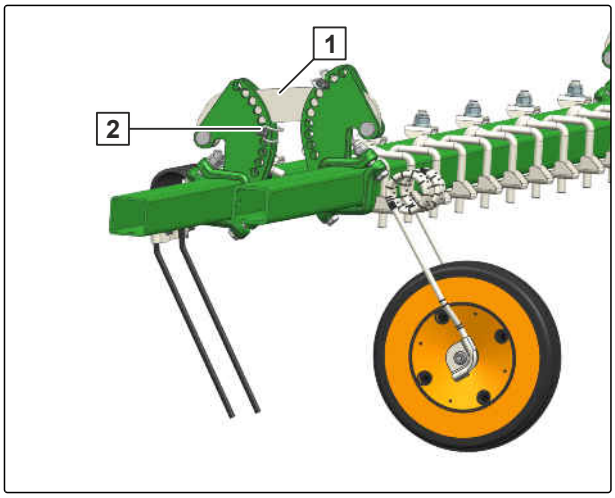
CMS-T-00017545-A.1

6.3.7.1 Adjusting the pitch of the roller harrow tines

CMS-T-00007387-C.1

1. Raise the implement until the harrow tines no longer touch the ground.

2. *To change the pitch of the harrow tines:*
   insert the linch pin [2] underneath the link [1].



CMS-I-00005161

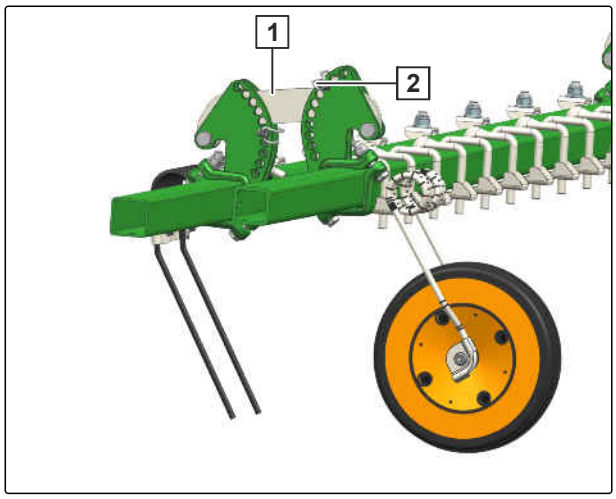
3. *To check the setting:*
   Seed for 30 m at working speed and then check the work pattern.

6.3.7.2 Adjusting the working depth of the roller harrow tines

CMS-T-00007388-C.1

1. Raise the implement until the harrow tines no longer touch the ground.

2. *To change the working depth of the harrow tines:*
   insert the linch pin **2** above the link **1**.



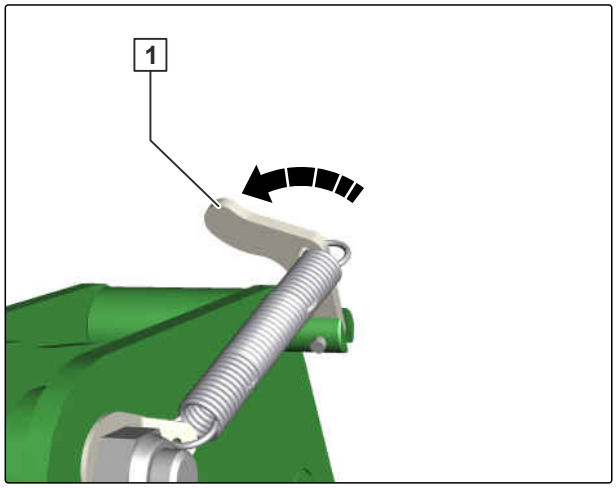
CMS-I-00005162

3. *To check the setting:*
   Seed for 30 m at working speed and then check the work pattern.

6.3.7.3 Adjusting the roller contact pressure

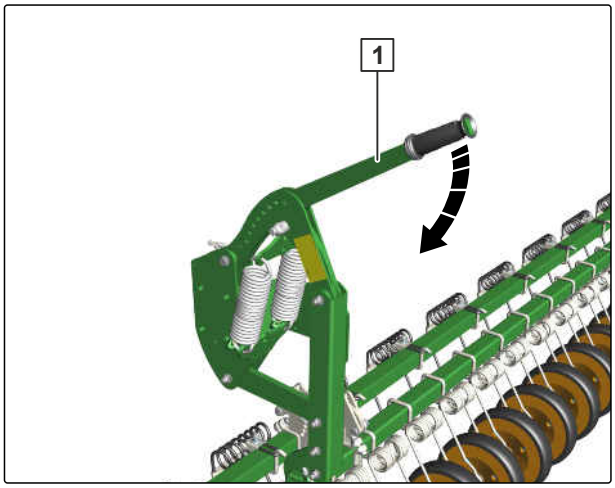
CMS-T-00017530-A.1

1. Swivel the lever **1** up on both sides.



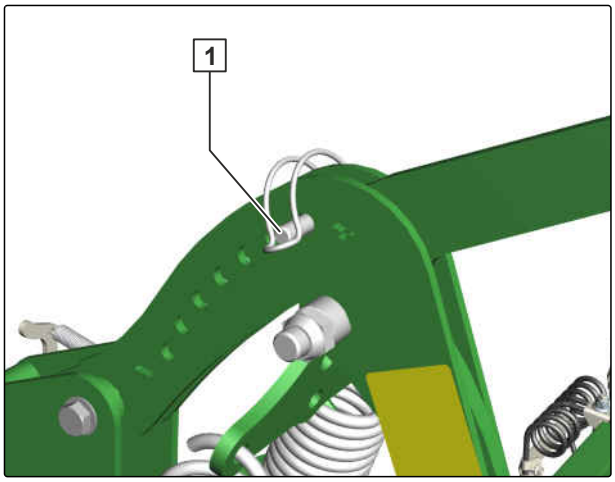
CMS-I-00011948

2. Pull both setting levers 1 to adjust the desired roller contact pressure.



CMS-I-00011954

3. Secure both setting levers with linch pins 1.

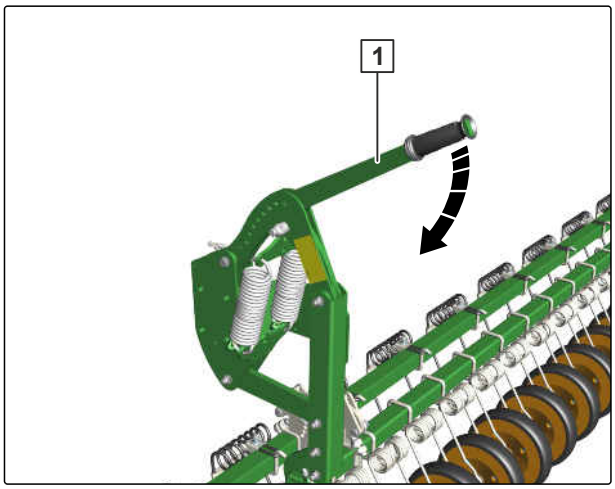


CMS-I-00011955

6.3.7.4 Lifting the roller harrow

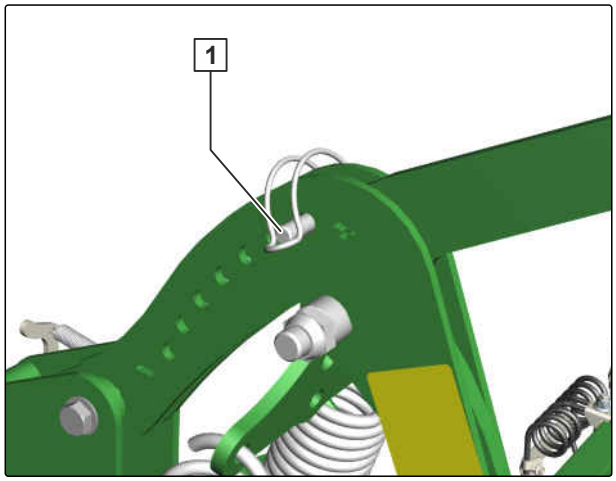
CMS-T-00017531-A.1

1. *To relieve the linch pin:*
   Pull the setting lever 1 slightly down.



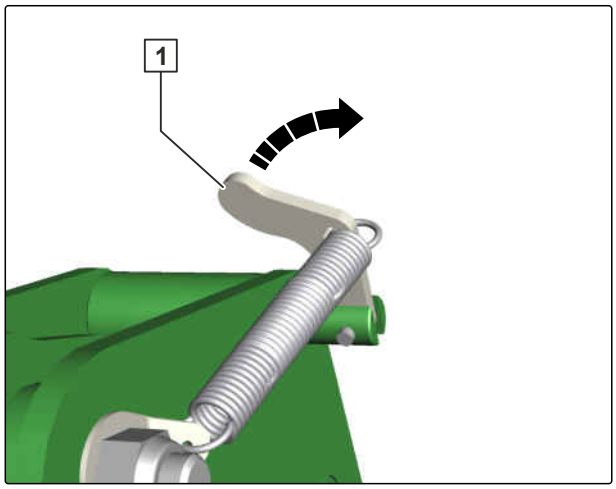
CMS-I-00011954

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



CMS-I-00011955

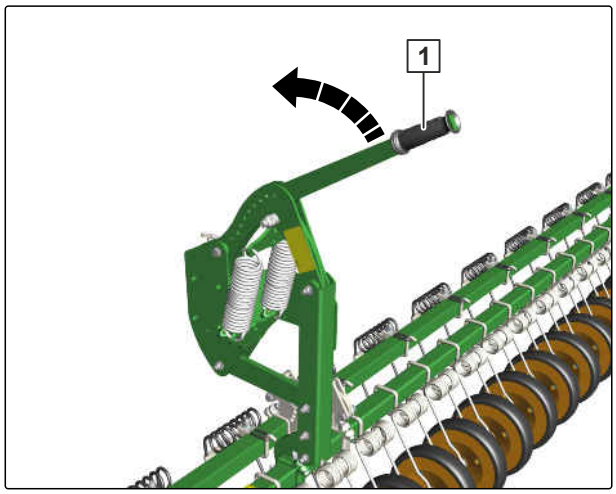
3. Swivel the lever **1** down.



CMS-I-00011957

4. Move the setting lever **1** in the direction shown by the arrow until it engages.

5. Repeat the procedure for the second setting lever.



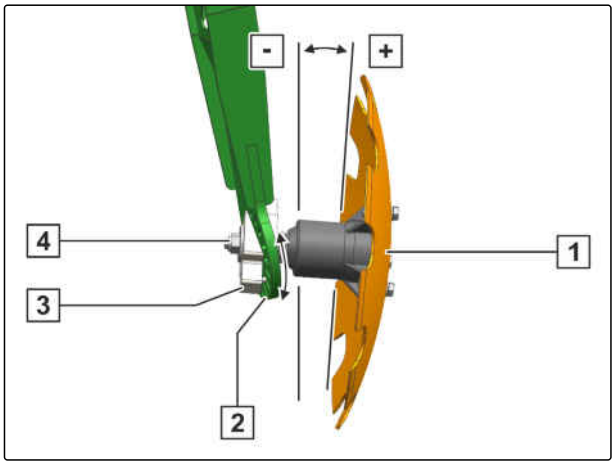
CMS-I-00011956

6.3.8 Adjusting the tramline rhythm

CMS-T-00017580-A.1

6.3.8.1 Adjusting the track disc pitch

CMS-T-00004377-D.1



CMS-I-00003171

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

   or

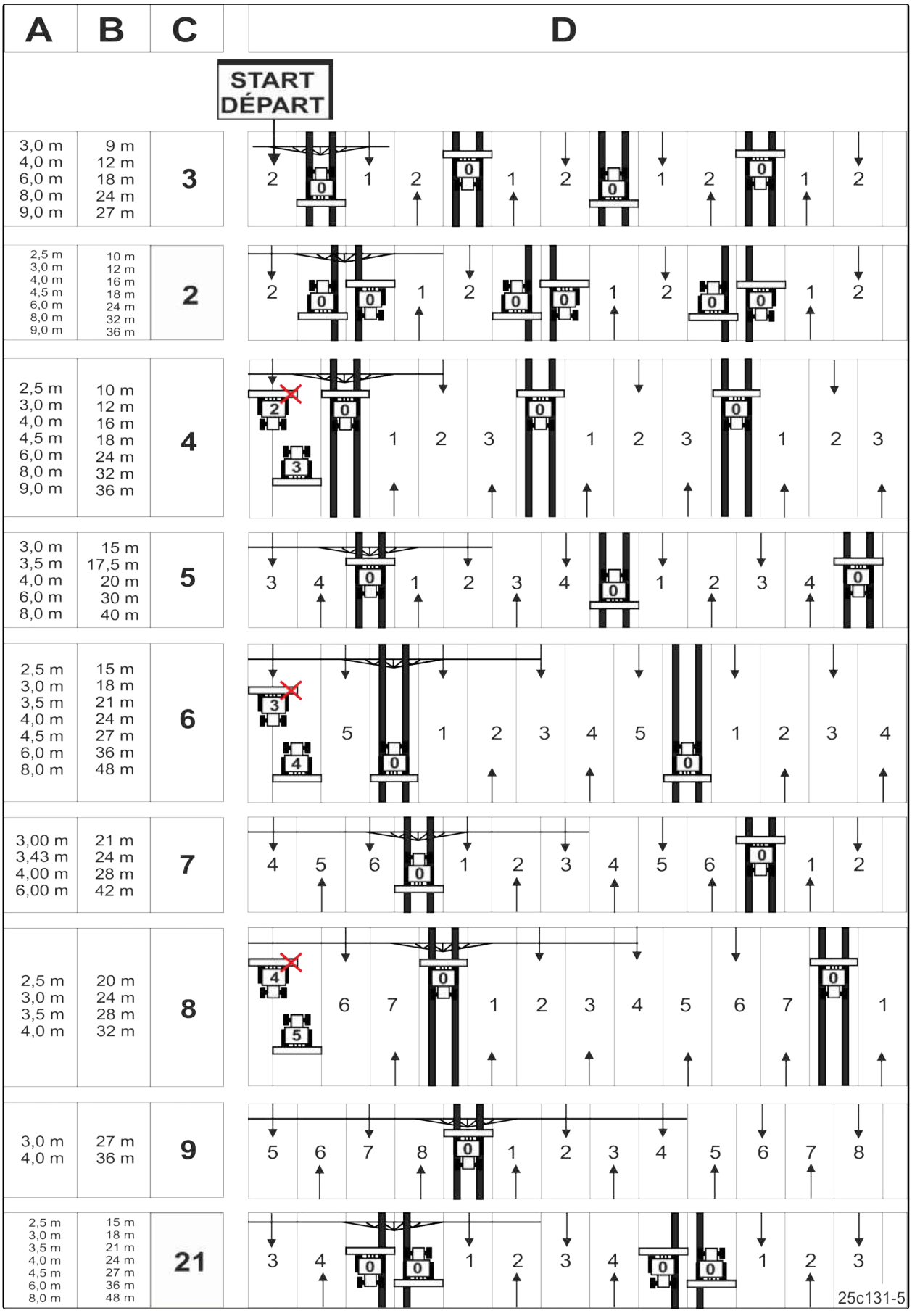
   To reduce the effect of the track disc:
   reduce the pitch.
3. Move the clamping part **3** in the grid **2** to the desired position.
4. Tighten the nut.
5. *To check the setting:*
   seed for 30 m at working speed and then check the work pattern.

6.3.8.2 Determining the tramline spacing graphically

CMS-T-00017819-A.1

The graph shows examples for creating tramlines.

- A: Working width of the seed drill
- B: Tramline spacing (working width of the sprayer/ spreader)
- C: Tramline control
- D: Tramline counter



CMS-I-00012248

► Read the required values from the graph.

6.3.8.3 Determining the tramline spacing using the table

CMS-T-00017739-A.1

Tramline control	Seed drill working width					
	2.5 m	3 m	3.5 m	4 m	4.5 m	6 m
	Tramline spacing					
2	10 m	12 m	X	16 m	18 m	24 m
3	X	9 m	X	12 m	X	18 m
4	10 m	12 m	X	16 m	18 m	24 m
5	X	15 m	X	20 m	X	30 m
6	15 m	18 m	21 m	24 m	27 m	36 m
7	X	21 m	X	28 m	X	42 m
8	20 m	24 m	28 m	32 m	36 m	X
9	X	27 m	X	36 m	X	X
21	15 m	18 m	21 m	24 m	27 m	24 m 36 m
5 /13 right	X	X	X	18 m	X	X
5 /13 left	X	X	X		X	X

The tramline control is derived from the required tramline spacing and the working width of the seed drill.

► Read the required tramline spacing from the table.

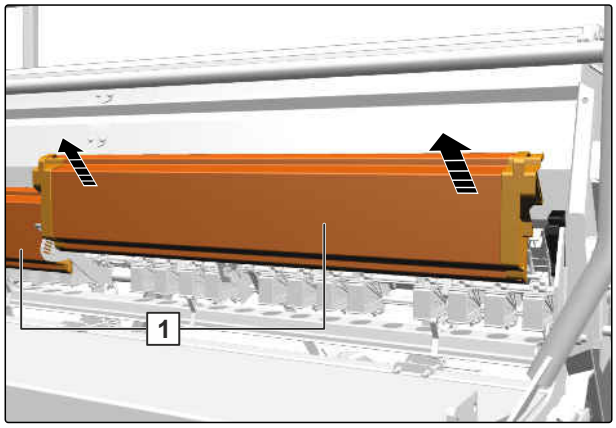
6.3.8.4 Creating a tramline metering wheel

CMS-T-00017703-A.1

Depending on the wheelmark width, a different number of tramline metering wheels are created next to each other.

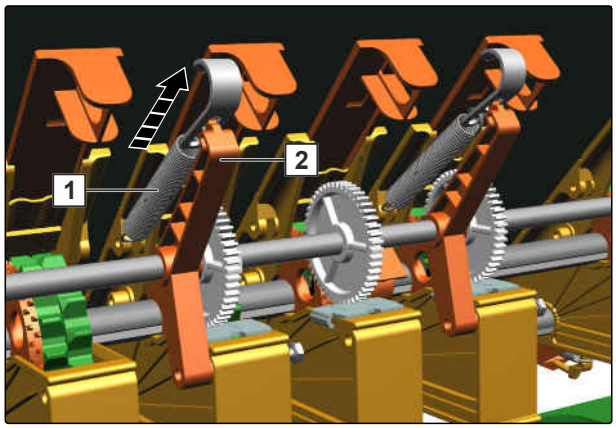
Depending on the track width, the tramline metering wheels created next to each other are positioned differently.

1. Remove the calibration troughs 1.



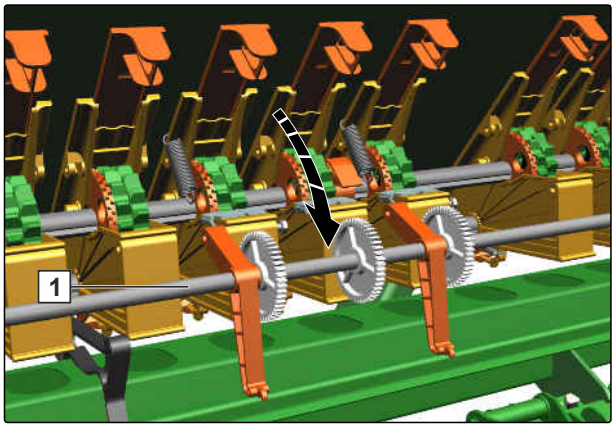
CMS-I-00011386

2. Release the tension springs 1 from the lay shaft pivot bearings 2.



CMS-I-00011654

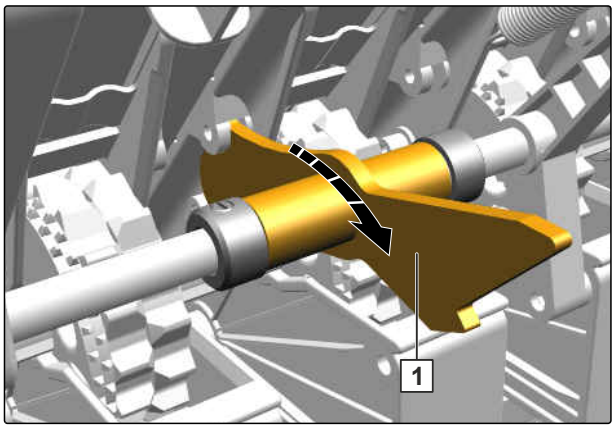
3. fold down the lay shaft 1.



CMS-I-00011655

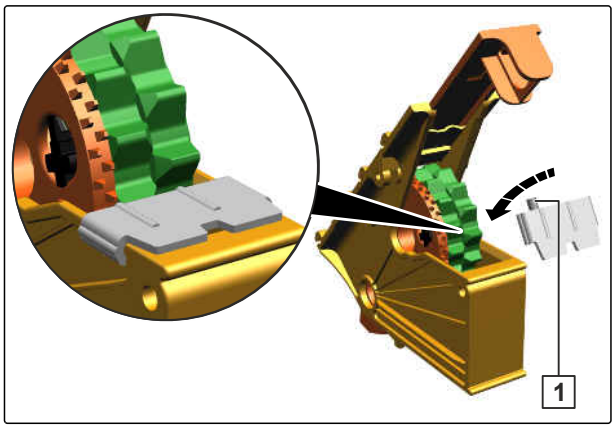
➡ The bracket 1 that locks the lay shaft axially is pulled out of the recess of a seed housing.

➡ If there is a solenoid, it is folded down along with the lay shaft.



CMS-I-00011656

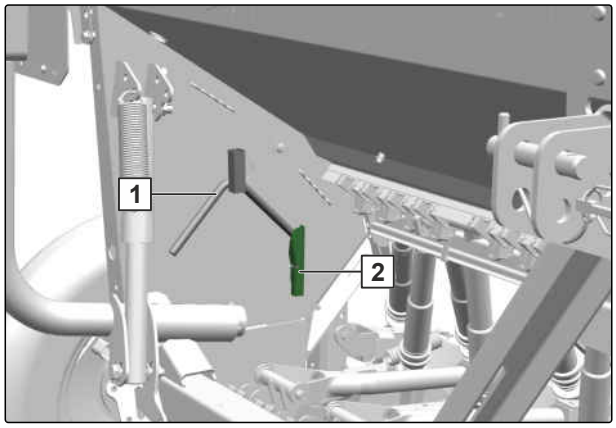
4. *To mark the tramline seed metering wheels:*
Clip a fine seed metering wheel brush onto each tramline seed housing 1.



CMS-I-00011643

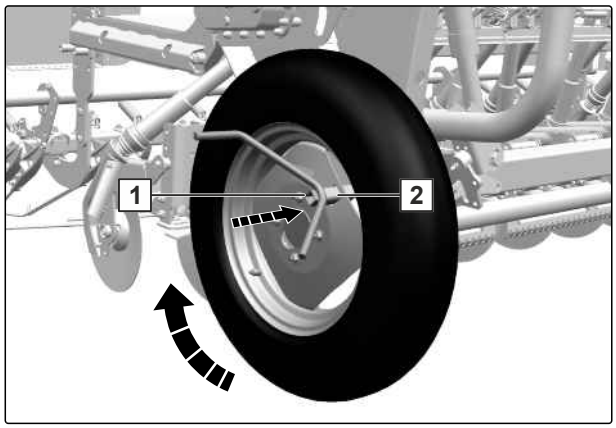
5. Take the calibration crank [1] from the holder [2].

6. Lift the seed drill until the seed drill wheels can rotate freely.



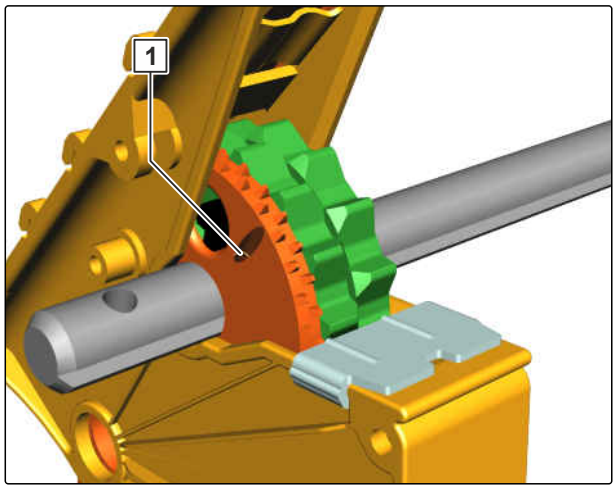
CMS-I-00011387

7. Insert the calibration crank with the driver bushing [1] into the square tube [2] in the right seed drill wheel.



CMS-I-00011388

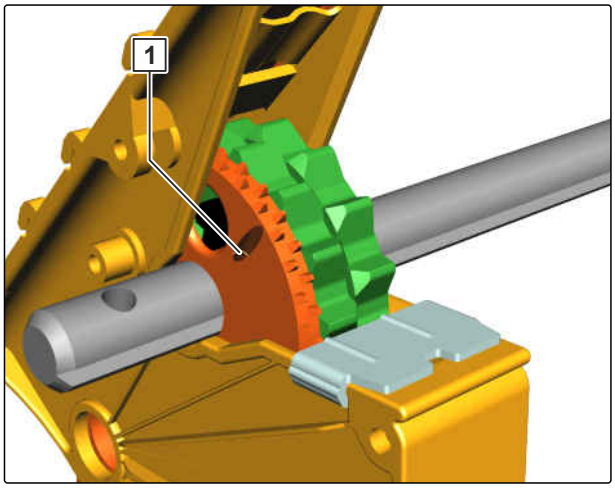
8. Turn the seed drill wheel in the direction shown by the arrow until the hexagon socket bolts and the holes on the fine seed metering wheels of the tramline seed housings are visible.



CMS-I-00012068

➡ The hexagon socket bolt [1] on the fine seed metering wheel is visible.

9. *To ensure that the seed metering wheels can move freely on the seeding shaft:*
   Loosen the hexagon socket bolt **1** with the hexagon socket wrench.

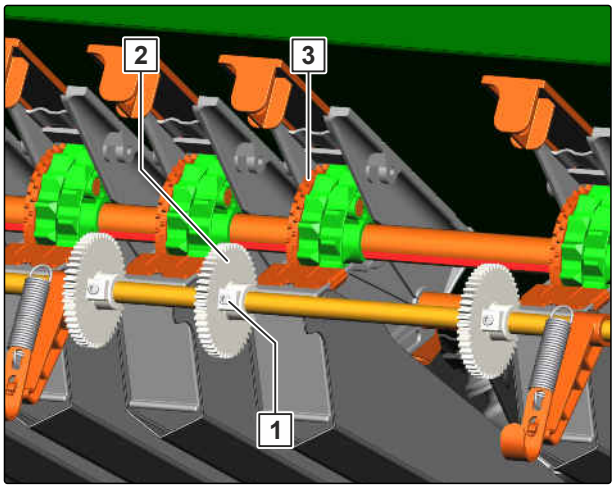


CMS-I-00012068

10. *To position the spur gears **2** on the lay shaft:*
    Loosen the hexagon socket bolts **1**.

11. *To mesh the spur gear and the fine seed metering wheel **3** together:*
    Position the spur gear **2** opposite to the fine seed metering wheel **3**.

12. Tighten the hexagon socket bolt **1**.



CMS-I-00012071

13. Fold up the lay shaft, and while doing so, insert the bracket that secures the lay shaft axially into the recess of a seed housing with the short arm. When folding up, mesh the spur gears of the lay shaft and with the fine seed metering wheels of the seeding shaft together at the same time.

14. Hook the tension springs onto the lay shaft pivot bearings.

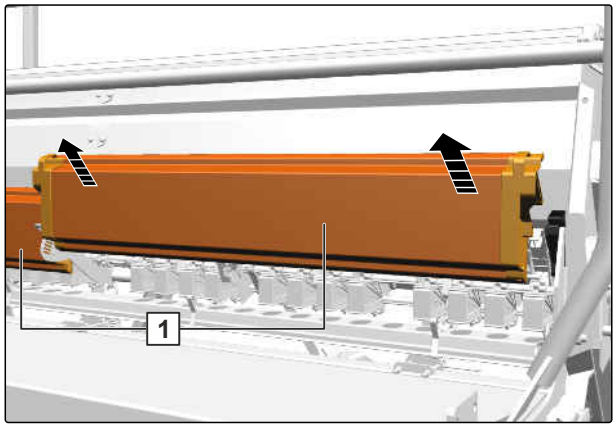
15. Put the calibration troughs back on.

6.3.9 Operating the one-sided switching

CMS-T-00017623-A.1

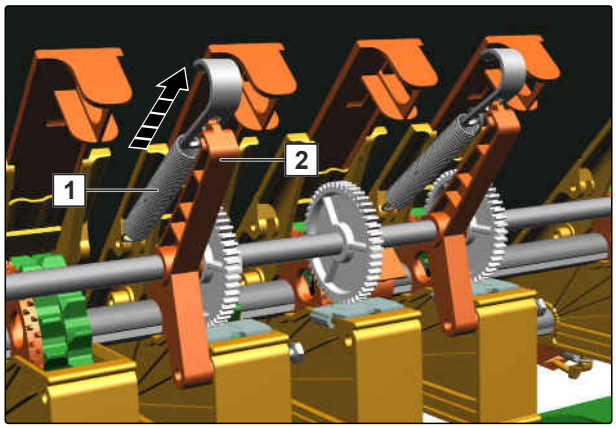
With the coupling for one-sided shut-off, the left side of the seeding shaft can be shut off and seed delivery to the coulters can be interrupted.

1. Remove the calibration troughs 1.



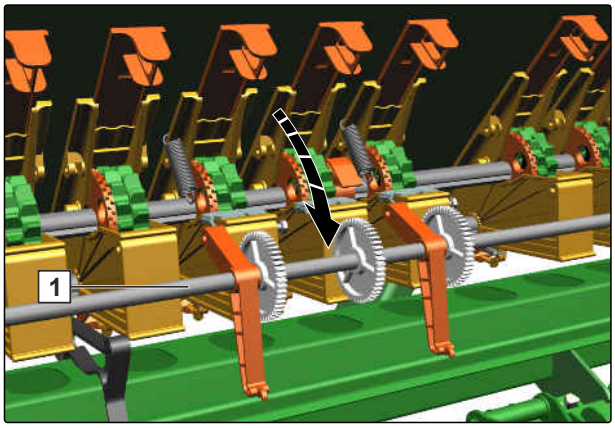
CMS-I-00011386

2. Release the tension springs 1 from the lay shaft pivot bearings 2.



CMS-I-00011654

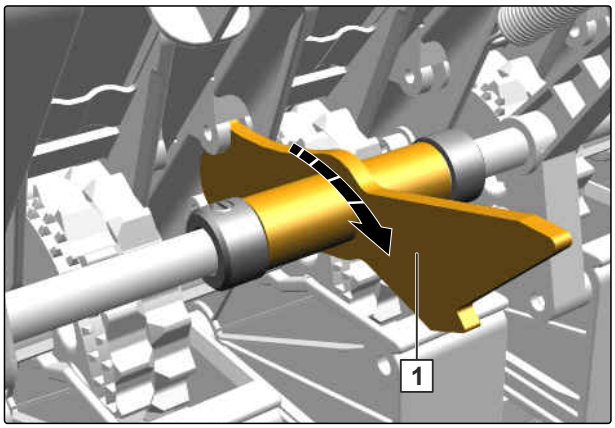
3. fold down the lay shaft 1.



CMS-I-00011655

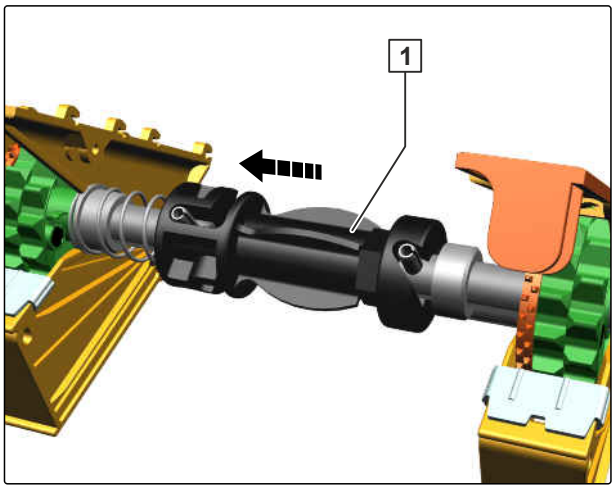
➡ The bracket 1 that locks the lay shaft axially is pulled out of the recess of a seed housing.

➡ If there is a solenoid, it is folded down along with the lay shaft.



CMS-I-00011656

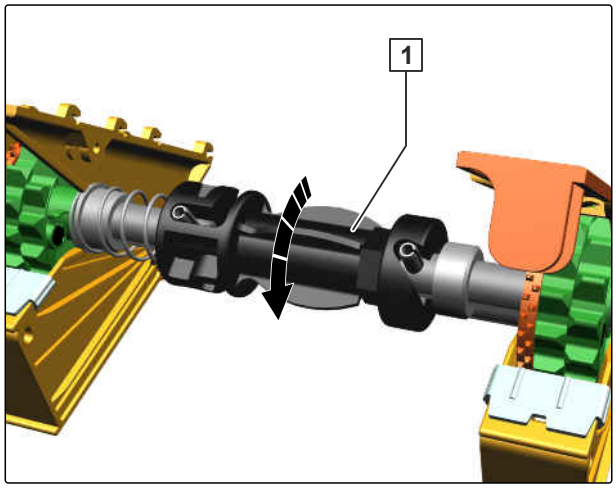
4. Pull the coupling 1 to the left side.



CMS-I-00012037

5. Turn the coupling 1 down.

➡ The one-sided switching is active.



CMS-I-00012039

6.3.10 Preparing the track marker for operation

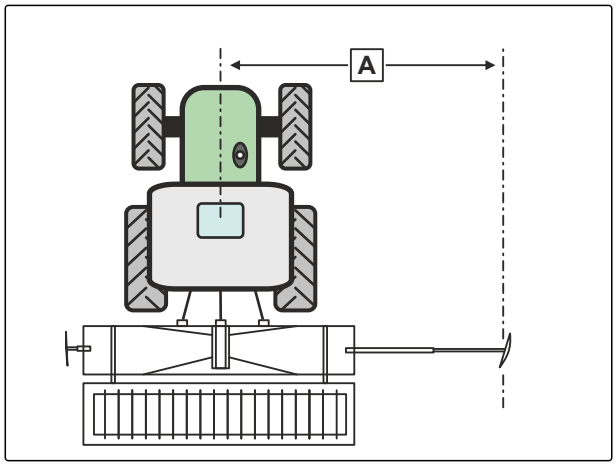
CMS-T-00001725-G.1

6.3.10.1 Determining the track marker length

CMS-T-00004725-C.1

Working width of the implement	Distance A
2.5 m	2.5 m
3 m	3 m
3.5 m	3.5 m
4 m	4 m

▶ Read the distance A from the centre of the implement to the track marker disc from the table.

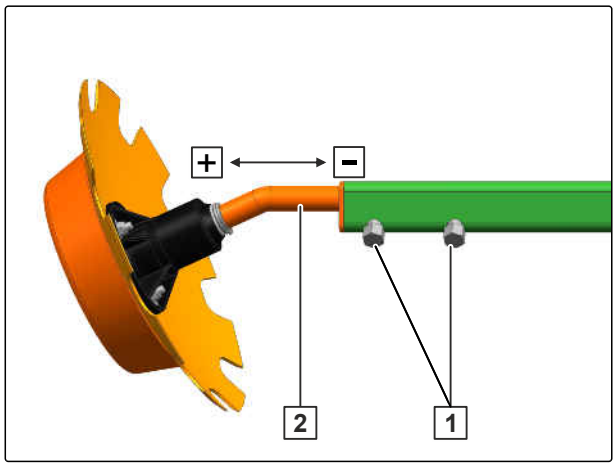


CMS-I-00003078

6.3.10.2 Adjusting the track marker length

CMS-T-00001487-D.1

1. Loosen the bolts 1 with the universal operating tool
2. Pull out the track marker disc 2 until the desired distance is reached.
3. Tighten the bolts with the universal operating tool.
4. Make the same setting for the opposite side of the implement.
5. *To check the setting,*
   drive for 30 m at working speed and then check the work pattern.



CMS-I-00001074

6.3.10.3 Adjusting the track marker intensity

CMS-T-00001726-F.1

1. Loosen the bolts 1.

To move the pitch to the desired position, turn the track marker axis 2.

2. *On light soils,*
   reduce the pitch -

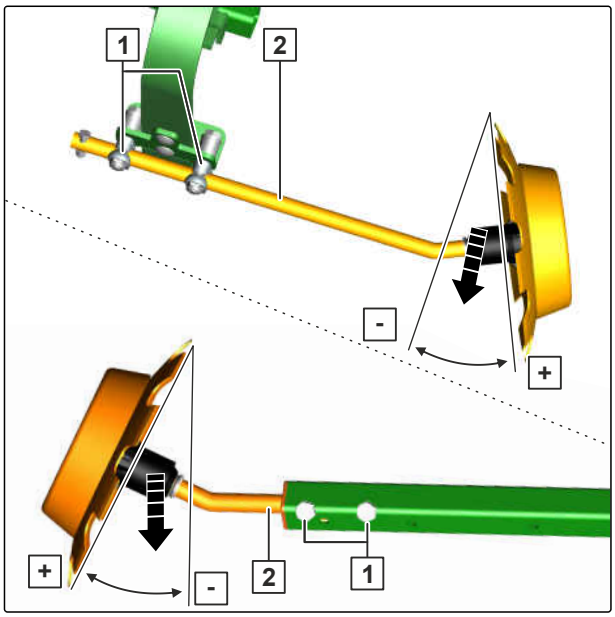
   or

   On heavy soils,
   increase the pitch +.

3. Tighten the bolts.

4. Make the same setting for the opposite side of the implement.

5. *To check the setting:*
   Drive for 30 m at working speed. Check the work pattern.



CMS-I-00001077

6.3.11 Adjusting the seed drill wheel mark eradicator

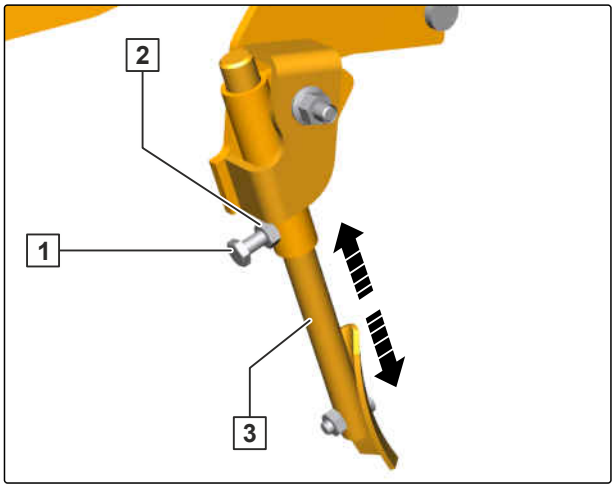
CMS-T-00017822-A.1

1. Remove the bolt 1.

2. Set the desired working depth for the seed drill wheel mark eradicators.

3. Tighten the bolt.

4. Secure the bolt with the lock nut 2.

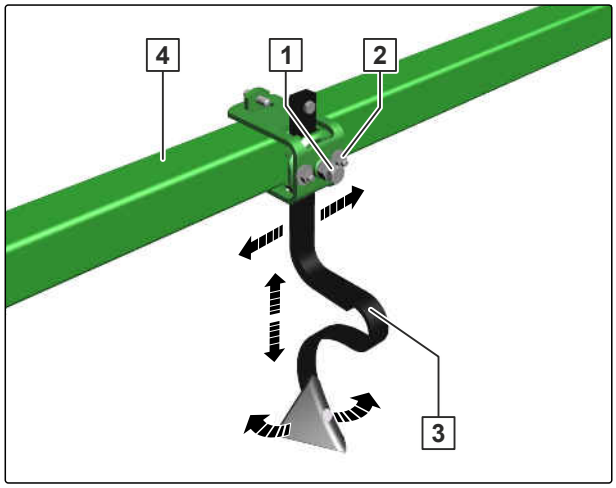


CMS-I-00012260

6.3.12 Adjusting the spring-suspended tractor wheel mark eradicator

CMS-T-00017787-A.1

1. Loosen the hexagon bolt **1** the lock nut behind it.
2. Loosen the nuts **2** on both sides.
3. *To set the desired tractor track width:*
   Position the tractor wheel mark eradicator **3** horizontally on the square tube **4**.
4. *To set the desired working depth:*
   Position the tractor wheel mark eradicator vertically.



CMS-I-00012215

Upon request, the tractor wheel mark eradicator can also be swivelled to the left or right.

5. Swivel the tractor wheel mark eradicator to the left or right.

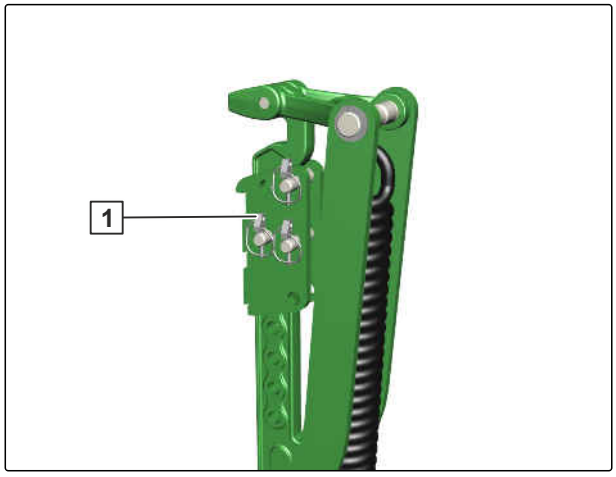
6.3.13 Adjusting the reinforced tractor wheel mark eradicator

CMS-T-00017785-A.1

6.3.13.1 Adjusting the working depth of the wheel mark eradicator

CMS-T-00008981-B.1

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

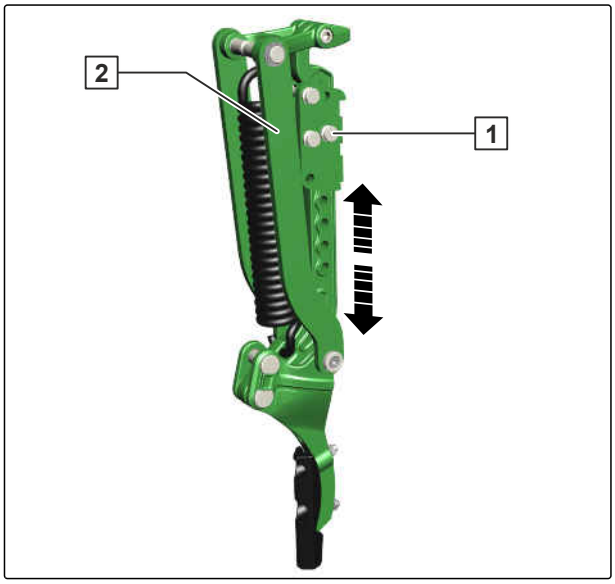


CMS-I-00008365

2. Hold onto the wheel mark eradicator bracket **2** and pull out the pin **1**.

3. Move the wheel mark eradicator bracket **2** to the desired height.

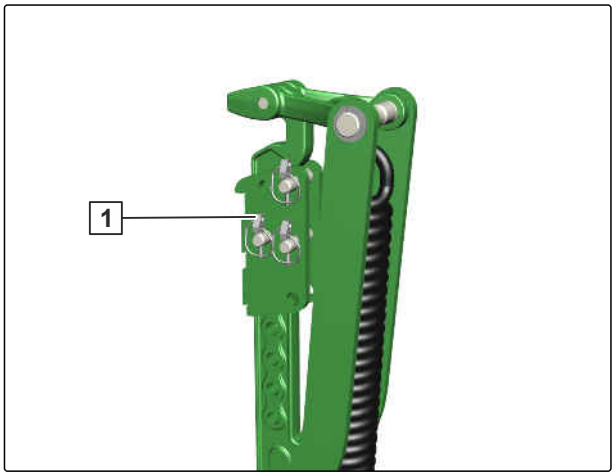
4. Insert the pin **1** in the suitable hole.



CMS-I-00008366

5. Secure the pin with a linch pin **1**.

6. *To check the setting:*
Seed for 30 m at working speed and then check the work pattern.



CMS-I-00008365

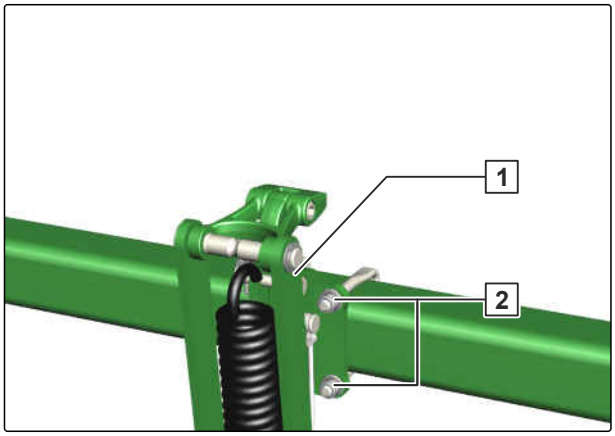
6.3.13.2 Adjusting the wheel mark eradicator to the track width

CMS-T-00008985-D.1

1. Loosen the nuts **2** on both sides of the wheel mark eradicator bracket.

2. Move the wheel mark eradicator bracket **1** to the desired lateral position.

3. Tighten the nuts.



CMS-I-00008363

6.4 Preparing the implement for road travel

CMS-T-00014236-A.1

6.4.1 Moving the track marker to transport position

CMS-T-00015301-A.1

1. *If the implement is used in a seeding combination and the track markers are fastened onto the rotary harrow or rotary cultivator:*
   Lift the active track markers according to the instructions in the operating manual of the rotary harrow or rotary cultivator, and secure both track markers in transport position.

2. *If the tramline counter displays the tramline number "0" in the control box:*
   Advance the tramline counter with the control lever on the control box

   or

   If the tramline counter displays "0" on the control computer:
   Advance the tramline counter with the control computer.

3. Actuate the *"yellow"* tractor control unit.

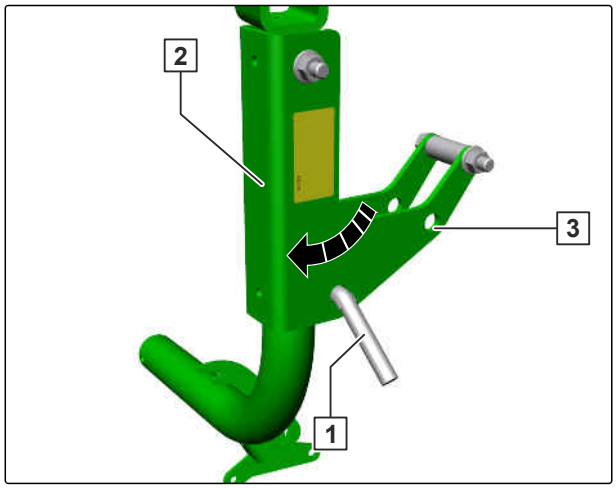
➡ The active track marker will be folded in.

The track markers on the D9 4000 Super must be additionally folded in towards the centre of the implement, so that the permissible transport height is not exceeded.

4. Remove the pin **1**.

5. Fold the track markers **2** towards the centre of the implement.

6. *To fix the track marker in the position:*
   Insert the pin **1** in the hole **3**.

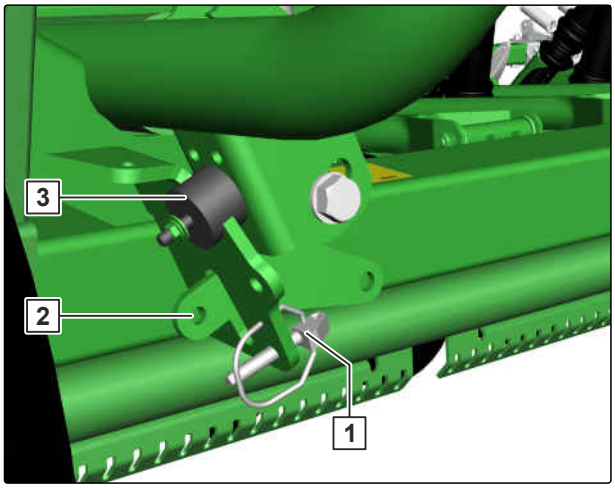


CMS-I-00012203

6.4.2 Securing the track markers

CMS-T-00017750-A.1

1. Press the track marker against the rubber spring element 3.
2. *To secure the track markers:*
   Remove the linch pin 1.
3. Insert the linch pin in the hole 2.
4. Repeat the procedure for the second track marker.



CMS-I-00012122

6.4.3 Folding the tramline marker on the exact following harrow

CMS-T-00007448-C.1

NOTE

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

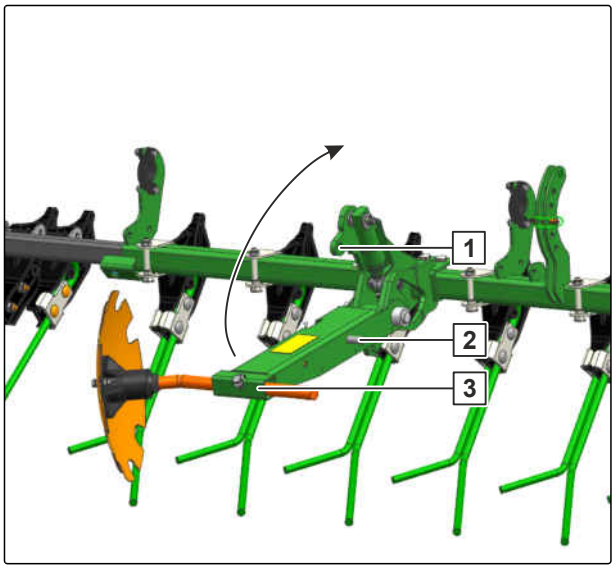
1. *To deactivate tramline control:*
   See ISOBUS software operating manual

   or

   see control computer operating manual.
2. *To lift the tramline marker from the ground:*
   actuate the *"yellow 1"* tractor control unit.

➡ The tramline marker is hydraulically lifted and can be moved into transport position.

3. Raise the track disc carrier 3.
4. Secure the track disc carrier in the transport bracket 1 with a pin 2.



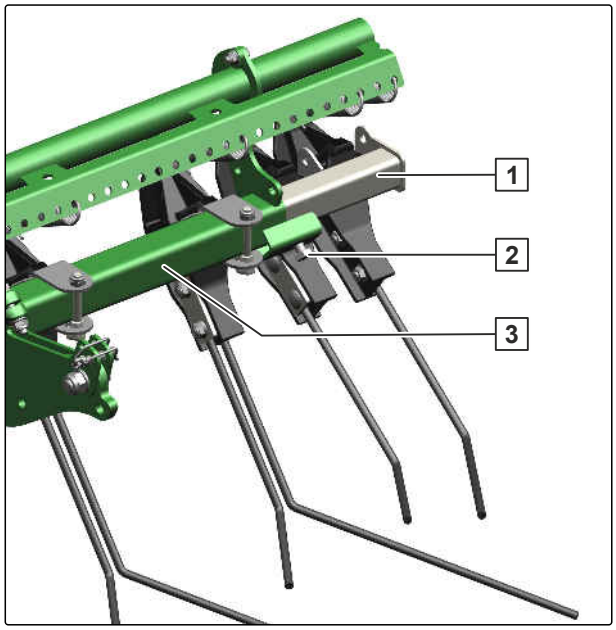
CMS-I-00005176

6.4.4 Moving the exact following harrow or seed harrow into transport position

CMS-T-00006417-B.1

The outer harrow elements can exceed the permissible transport width during transport. To avoid exceeding the permitted transport width, the exact following harrow or seed harrow must be moved into transport position before road transport.

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

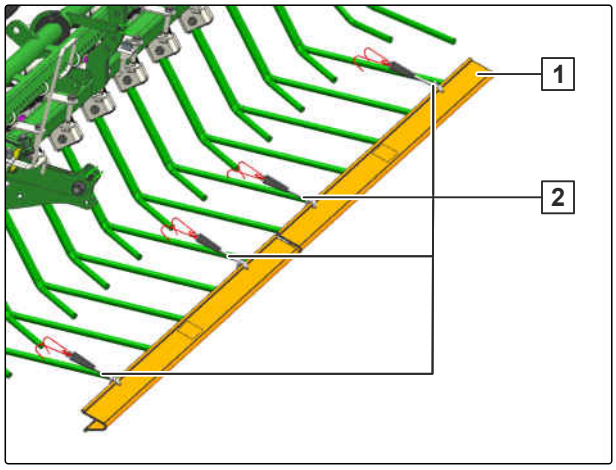


CMS-I-00004675

6.4.5 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

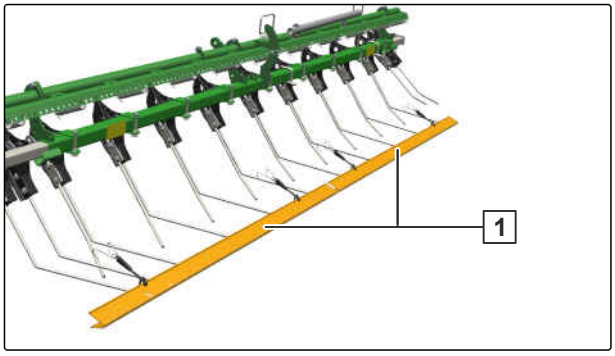
Using the implement 7

CMS-T-00014237-A.1

7.1 Removing the road safety bars

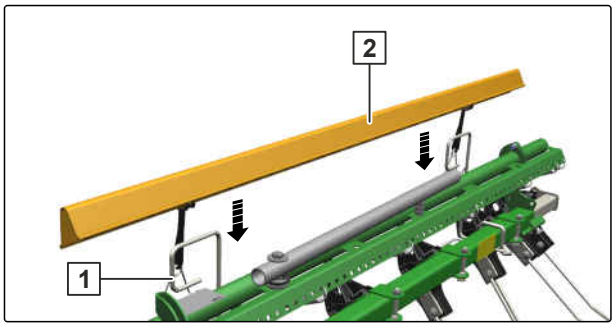
CMS-T-00011601-A.1

1. Remove the road safety bars 1 from the exact following harrow.



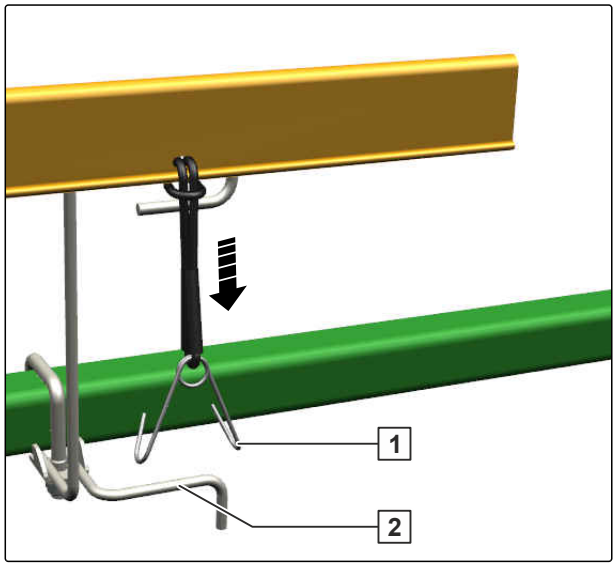
CMS-I-00007544

2. Turn the road safety bars 2 by 180°, place on top of each other on the holders 1.



CMS-I-00007545

3. *To fix the road safety bar:*
   Stretch the hook 1 and fasten it on the holder 2.



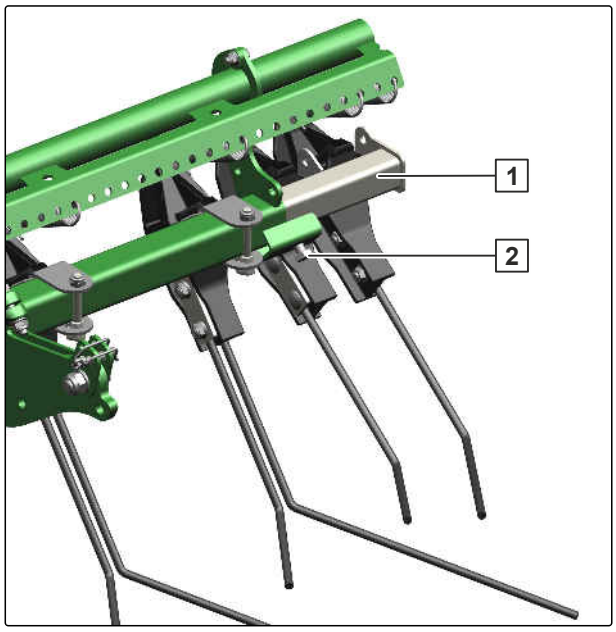
CMS-I-00007546

7.2 Moving the exact following harrow or seed harrow into working position

CMS-T-00006334-D.1

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

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



CMS-I-00004674

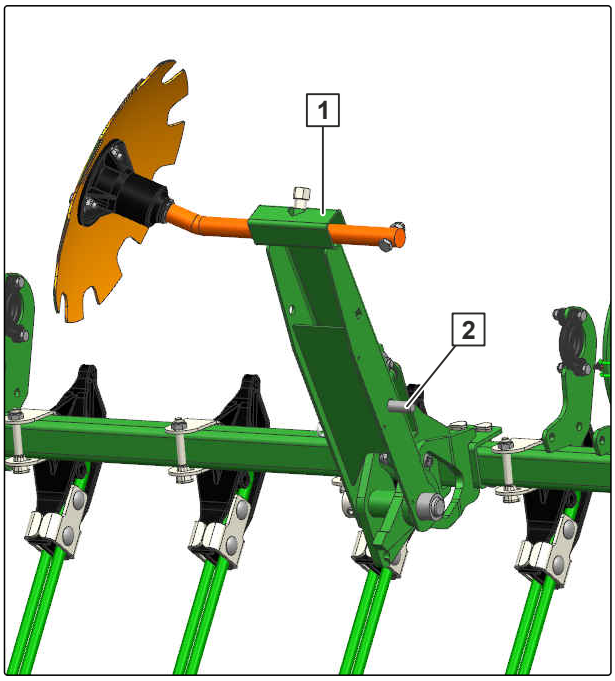
7.3 Unfolding the tramline marker on the exact following harrow

CMS-T-00007404-D.1

1. Set the implement down on the field.
2. Take hold of the track disc carrier **1**.
3. Put the *"yellow"* tractor control unit in the neutral position.
4. Pull out the pin **2**.
5. Put the *"yellow"* tractor control unit in float position.

➡ The tramline marker folds into working position.

6. Swivel the track disc carriers into working position.

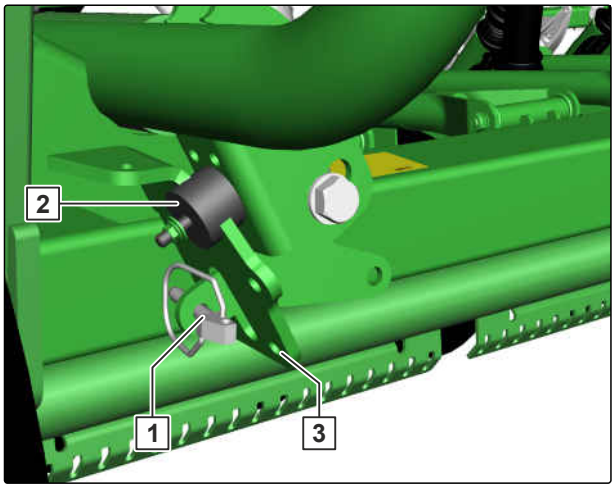


CMS-I-00005174

7.4 Unlocking the track markers

CMS-T-00017749-A.1

1. Press the track marker against the rubber spring element **2**.
2. *To unlock the track marker:*
   Remove the linch pin **1**.
3. Insert the linch pin in the hole **3**.
4. Repeat the procedure for the second track marker.



CMS-I-00012121

7.5 Unfolding the track markers

CMS-T-00017779-A.1

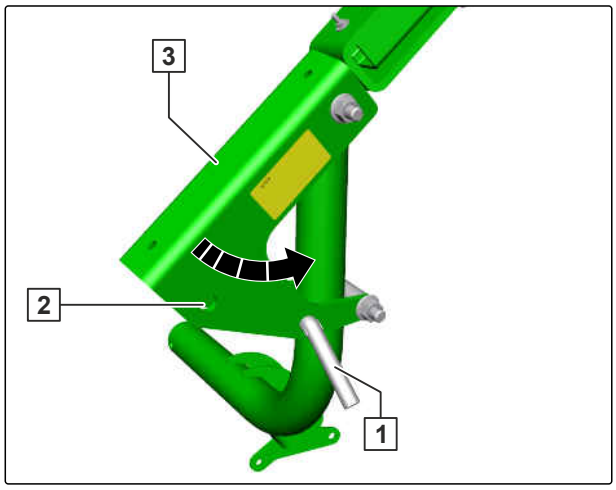
1. *If the implement is used in a seeding combination and the track markers are fastened onto the rotary harrow or rotary cultivator:*
   Lower the active track markers according to the instructions in the operating manual of the rotary harrow or rotary cultivator, and secure both track markers in working position.

2. *If the tramline counter displays the tramline number "0" in the control box:*
   Advance the tramline counter with the control lever on the control box

   or

   If the tramline counter displays "0" on the control computer:
   Advance the tramline counter with the control computer.

The track markers on the D9 4000 Super are additionally folded in towards the centre of the implement, so that the permissible transport height is not exceeded. The track markers on the D9 4000 must therefore be unfolded again separately.



CMS-I-00012204

3. Remove the pin **1**.

4. Fold the track marker **3** in a vertical position.

5. *To fix the track marker in the position:*
   Insert the pin **1** in the hole **2**.

6. Actuate the *"yellow"* tractor control unit.

➡ The track markers will be unfolded.

7.6 Using the implement

CMS-T-00008414-A.1

1. Align the implement parallel to the ground.

2. Lower the implement on the field.

3. Move the hydraulic system of the 3-point power lift into float position.

4. Switch on the tractor PTO shaft. Slowly couple the tractor PTO shaft only at an idle or at low tractor engine speed.

5. *To check the settings of the implement:*
seed for 30 m at working speed and then check the work pattern.

NOTE

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

- Placement depth
- Coulters
- Metering unit

7.7 Checking the placement depth

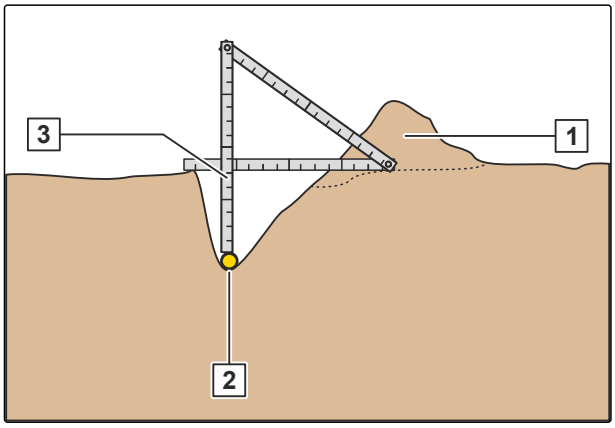
CMS-T-00004517-D.1

1. Remove the fine soil 1 over the seed 2.

2. Determine the placement depth 3.

3. Cover the seed with fine soil again.

4. Check the placement depth in several places in a longitudinal and transverse direction relative to the implement.



CMS-I-00003257

7.8 Turning on the headlands

CMS-T-00008416-A.1

NOTE

When the implement is lifted, the metering unit is switched off.

1. *To prevent lateral loads when driving in curves on the headlands:*
Lift the implement.

2. *To avoid damage to the implement:*
   Pay attention to obstacles when turning.

3. *When the direction of the implement matches that of the direction of travel:*
   lower the implement.

Eliminating faults

8

CMS-T-00017662-A.1

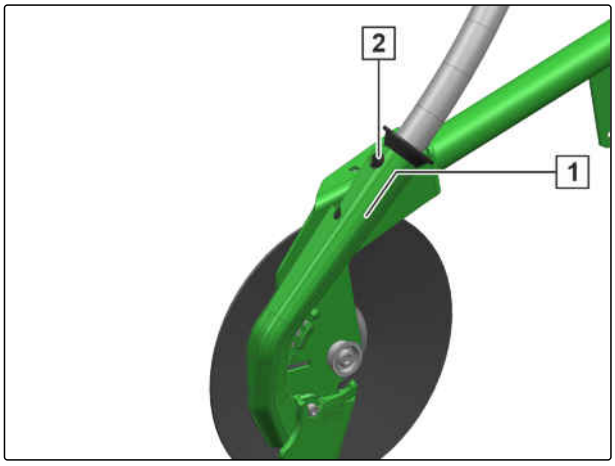
Errors	Cause	Solution
The RoTeC coulter is not spreading seed	The seed outlet is slightly blocked.	► Raise the implement. ► Clean the seed outlet from below.
	The seed outlet is strongly blocked.	► see page 116
The exact following harrow does not cover the seed sufficiently with fine soil	The harrow tines are not aligned parallel to the ground.	► See *"Adjusting the position of the harrow tines on seed drills with exact following harrow lift"*
	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 116
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 trailing tine harrow does not cover the seed sufficiently with fine soil	The harrow tines are worn.	► see page 117
The roller harrow does not cover the seed sufficiently with fine soil	The harrow tines are worn.	► see page 117
	The rollers are damaged.	► see page 118
The arm of the track marker shears off	The arm of the track marker folded to the rear when hitting an obstacle. In doing so, the shear bolt was damaged.	► see page 118
The lighting for road travel has a malfunction.	Lamp or lighting supply line is damaged.	► Replace the lamp. ► Replace the lighting supply line.
The wheel mark eradicator does not reach the desired working depth.	When the worn tine has been replaced, the working depth of the soil tillage implement must be corrected. The wheel mark	► see page 119

Errors	Cause	Solution
	eradicator brackets are too high above the soil	

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.

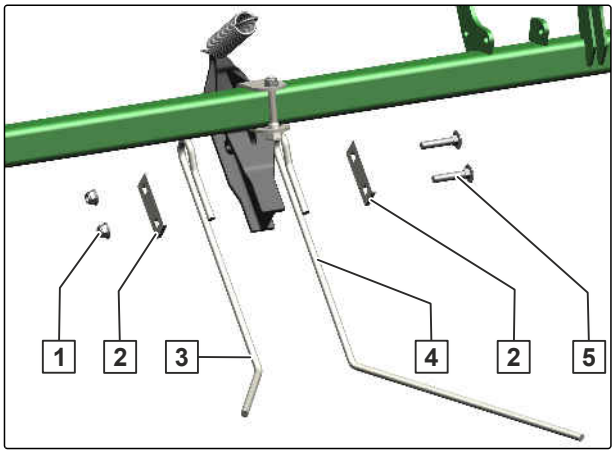


CMS-I-00004767

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

CMS-T-00010566-A.1

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.



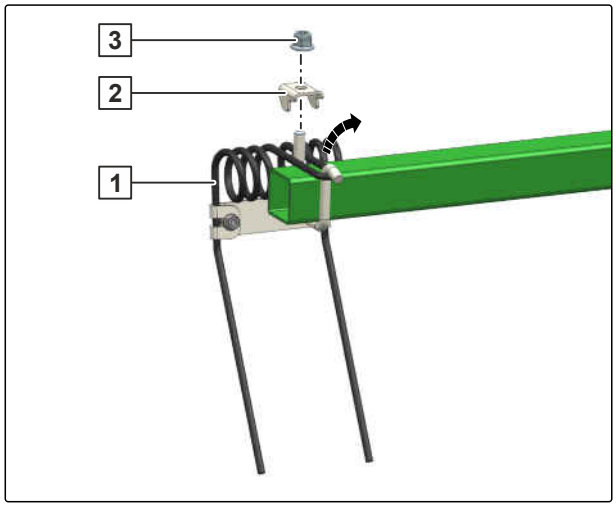
CMS-I-00004677

The trailing tine harrow does not cover the seed sufficiently with fine soil

CMS-T-00017664-A.1

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

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



CMS-I-00005330

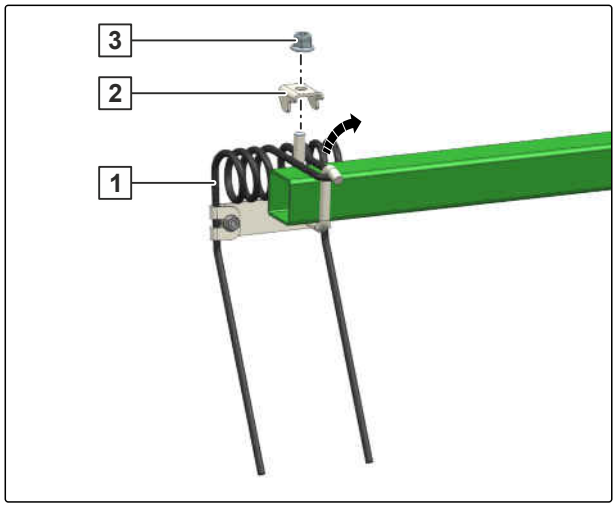
The roller harrow does not cover the seed sufficiently with fine soil

CMS-T-00007582-A.1

The harrow tines are worn.

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

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

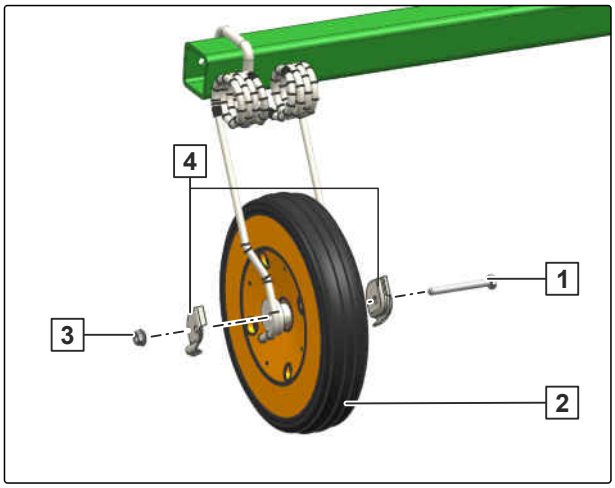


CMS-I-00005330

The rollers are damaged.

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

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



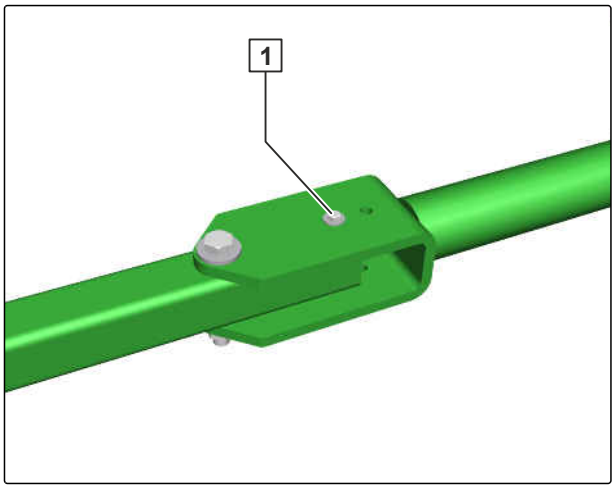
CMS-I-00005332

The arm of the track marker shears off

CMS-T-00017672-A.1

Shear bolt to be used	M6 x 90 (strength 8.8)

► *If the shear bolt is broken off:*
Replace the shear bolt 1.

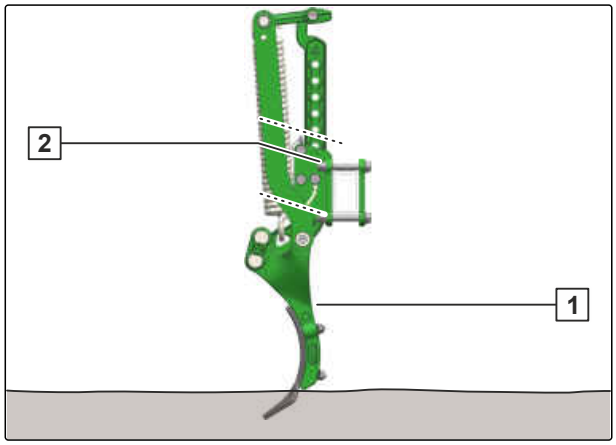


CMS-I-00012045

The wheel mark eradicator does not reach the desired working depth

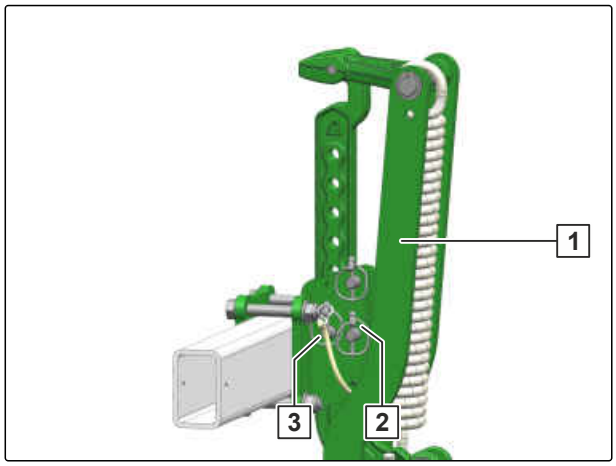
CMS-T-00005076-A.1

1. *To allow the wheel mark eradicators* **1** *to work deeper,*
   rotate the wheel mark eradicator bracket **2** by 180 degrees.



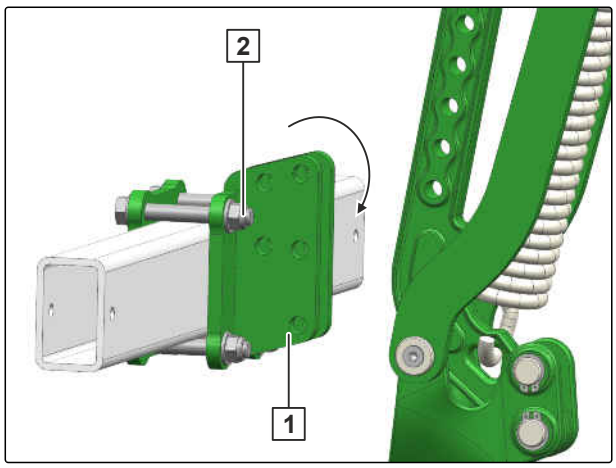
CMS-I-00003357

2. Release both linch pins and locking pins **2**.
3. Release the linch pin **3**.
4. Hold the wheel mark eradicator **1**.
5. Remove the locking pin.
6. Remove the wheel mark eradicator.



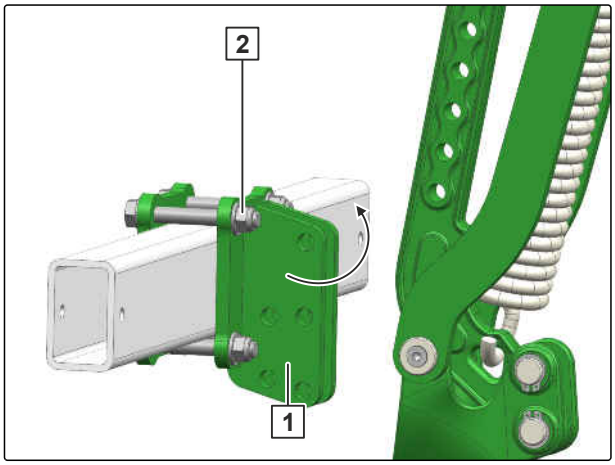
CMS-I-00003340

7. Loosen and remove the nuts for the clamp connection **2**.
8. Remove the wheel mark eradicator bracket **1**.



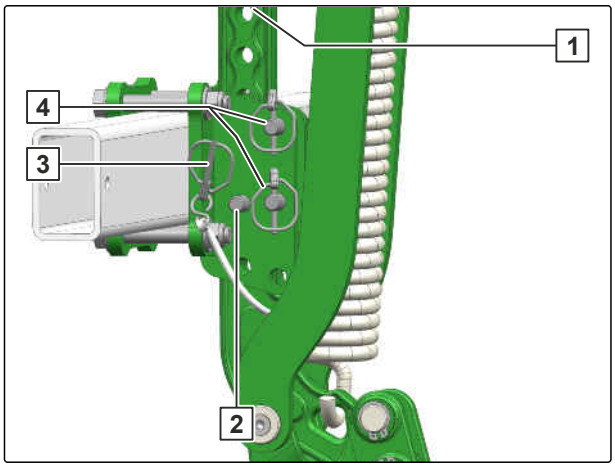
CMS-I-00003338

9. Install the wheel mark eradicator bracket **2** rotated by 180 degrees.
10. Install the nuts for the clamp connection **3**.
11. After 5 hours of operation, check the bolt connection for tight fit.



CMS-I-00003337

12. Fasten the wheel mark eradicator **1** in the bracket with the locking pins **4**.
13. Secure the locking pins with the linch pins.
14. Move the wheel mark eradicator to the desired position.
15. Secure the wheel mark eradicator with the locking pin **2**.
16. Secure the locking pin with the linch pin **3**.



CMS-I-00003339

Parking the implement

9

CMS-T-00014238-A.1

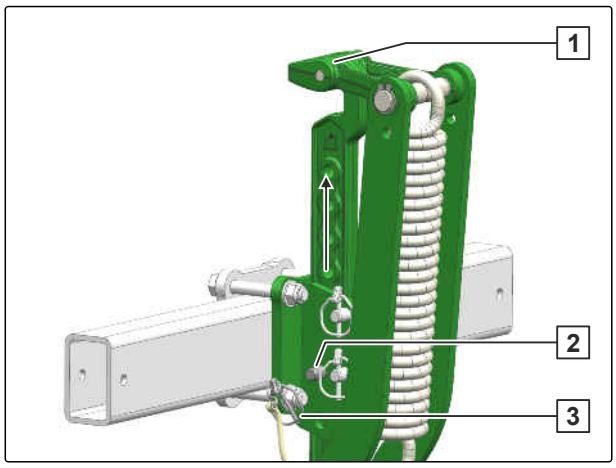
9.1 Moving the wheel mark eradicator into parking position

CMS-T-00001616-B.1

IMPORTANT

Damage to the wheel mark eradicators due to the implement weight

► *When you park the implement,* put the wheel mark eradicators into parking position.



CMS-I-00000992

1. Remove the linch pin 3.
2. Hold the wheel mark eradicator by the recessed grip 1.
3. Remove the locking pin 2.
4. Using the recessed grip, move the wheel mark eradicator into the topmost position.
5. Secure the wheel mark eradicator with the locking pin.
6. Secure the locking pin with the linch pin.

9.2 Emptying the hopper chambers and seed housing

CMS-T-00015294-A.1

1. *When the tramline counter displays "0" when emptying the hopper chambers:*
   Advance the tramline counter.
2. *If the seed drill is equipped with a control terminal and electronically regulated seed rate adjustment:*
   Refer to the operating manual of the control computer for further settings.

3. Put the bottom flap setting lever in hole 1.

4. Set the pointer of the gearbox lever to the gearbox setting value 100.

5. Tighten the locking knob.

6. Pull the lever out of the locking device.

7. Lower the funnel rail.

8. Pull the calibration troughs up out of the brackets.

9. Place the calibration troughs on the funnel rail.

10. Open all sliding shutters.

11. Swivel the bottom flap lever down over the group of holes.

➡ Open all of the bottom flaps and the seed flows out of the seed hopper into the calibration trays.

12. *When the calibration troughs are filled:*
Put the bottom flap setting lever in hole 1.

13. Empty the calibration trays.

14. Repeat the steps until the hopper chambers are empty.

15. Use the tractor to lift the implement until the wheels can turn freely.

16. Apply the parking brake, switch the tractor engine off and remove the ignition key.

17. Insert the calibration crank into the square tube on the right wheel.

18. Turn the seed drill wheel with the calibration crank until the calibration troughs are filled with seed or fertiliser.

19. Empty the calibration troughs.

20. Repeat the steps until the seed housings are completely empty.

21. Clean the hopper chambers and seed housings.

22. *Before parking the implement for a longer period of time:*
    Lock the bottom flap lever in hole 8.

23. Insert the calibration troughs in the holders.

24. Push the funnel rail up until it engages into place.

9.3 Uncoupling implements that were coupled as a solo implement

CMS-T-00015292-A.1

9.3.1 Uncoupling the three-point mounting frame

CMS-T-00001401-D.1

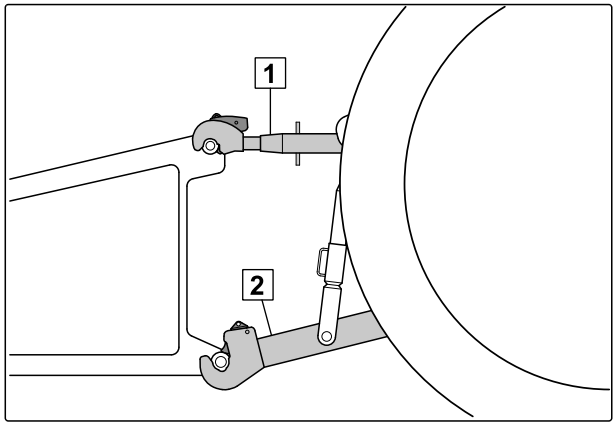
1. Park the implement on a level surface with solid ground.

2. Release the top link 1.

3. Uncouple the top link from the implement.

4. Release the lower links 2.

5. Uncouple the lower links from the implement from the tractor seat.



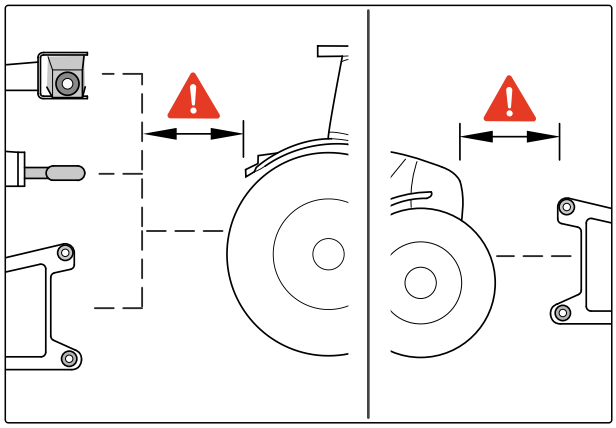
CMS-I-00001249

9.3.2 Driving the tractor away from the implement

CMS-T-00005795-D.1

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

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

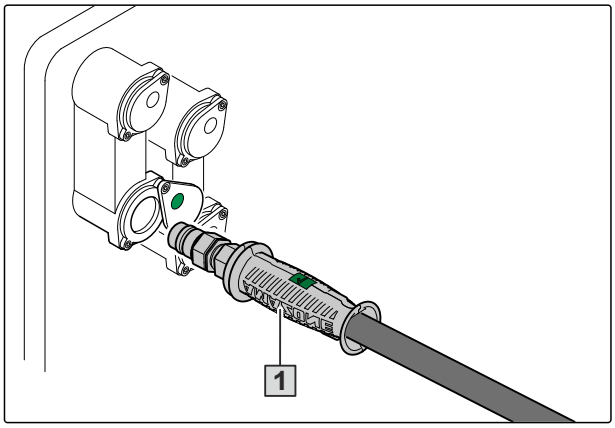


CMS-I-00004045

9.3.3 Disconnecting the hydraulic hose lines

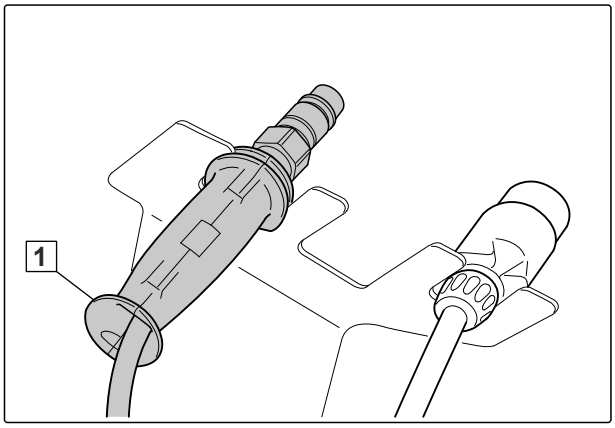
CMS-T-00000277-F.1

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



CMS-I-00001065

5. Hang the hydraulic hose lines [1] in the hose cabinet.

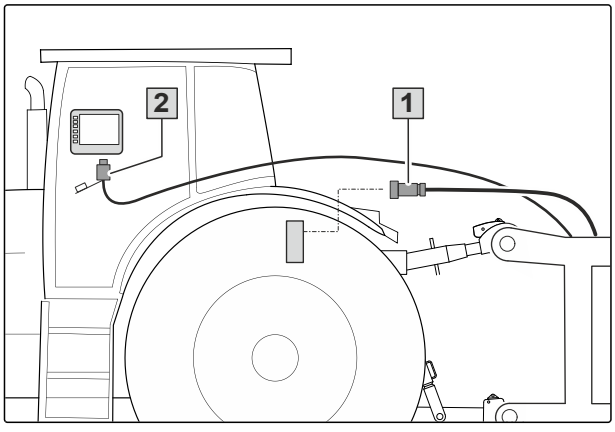


CMS-I-00001250

9.3.4 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.

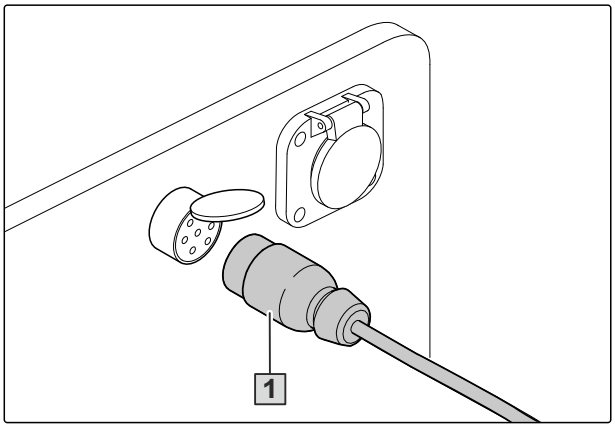


CMS-I-00006891

9.3.5 Uncoupling the power supply

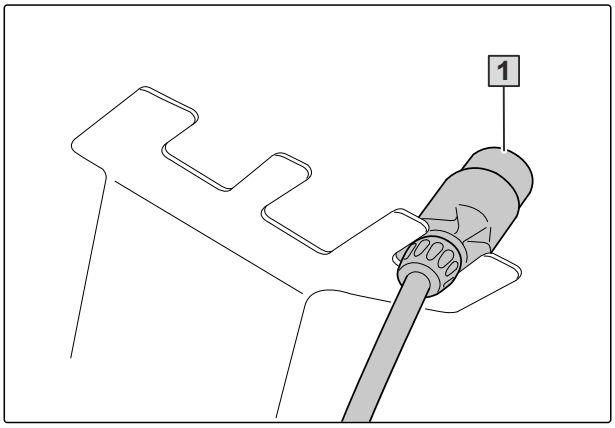
CMS-T-00001402-H.1

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

9.4 Uncoupling implements that were coupled onto a rotary harrow or rotary cultivator

CMS-T-00015293-A.1

The D9 mounted seed drill can be coupled either onto a KE Rotamix rotary harrow, KX Cultimix rotary cultivator or KG Cultimix rotary cultivator.

Uncoupling of an implement that was flexibly coupled with the liftpack system or rigidly coupled with coupling parts onto the seed drill is described in the operating manual for the rotary harrow or rotary cultivator.

- ▶ Uncouple the implement from the rotary harrow or rotary cultivator according to the corresponding instructions in the operating manual of the rotary harrow or rotary cultivator.

Repairing the implement 10

CMS-T-00014239-A.1

10.1 Cleaning the implement

CMS-T-00000593-G.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 implement with a high-pressure cleaner or a hot water high-pressure cleaner.

10.2 Maintaining the implement

CMS-T-00014240-A.1

10.2.1 Maintenance schedule

After initial operation	
Checking the gear oil level	see page 133
Checking the hydraulic hose lines	see page 134

After the first 50 operating hours	
Cleaning the seed hopper	see page 130
Cleaning the C-Drill hopper	see page 131

At the end of the season	
Checking the RoTeC depth control discs and RoTeC depth control wheels	see page 128

As required	
Cleaning the seed hopper	see page 130
Cleaning the C-Drill hopper	see page 131
Refilling the gear oil	see page 133

Daily	
Checking the lower link pins and top link pins	see page 134

Every 50 operating hours / Weekly	
Checking the RoTeC furrow former	see page 129
Checking the cutting discs	see page 130
Checking the hydraulic hose lines	see page 134
Checking the furrow former on the WS drag coulter	see page 135

Every 50 operating hours / Every 3 months	
Checking the coulter on the spring-suspended tractor wheel mark eradicator	see page 137
Checking the coulter on the reinforced tractor wheel mark eradicator	see page 138

Every 100 operating hours / Every 12 months	
Checking the gear oil level	see page 133

Every 500 operating hours / Every 3 months	
Check the basic setting of the bottom flaps	see page 136

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

CMS-T-00006349-D.1

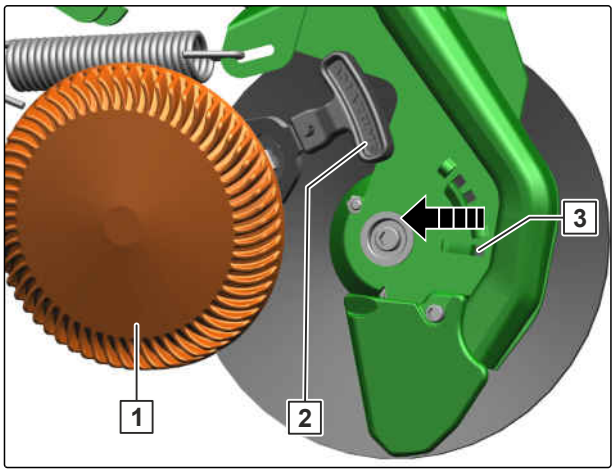
INTERVAL

- At the end of the season

1. Check the RoTeC depth control discs or RoTeC depth control wheels for damage such as cracks or fractures.

2. *If a RoTeC depth control disc or RoTeC depth control wheel is damaged,*
   replace the RoTeC depth control disc or RoTeC depth control wheel.

3. *To remove the damaged RoTeC depth control disc or RoTeC depth control wheel* **1** *from the coulter:*
   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.



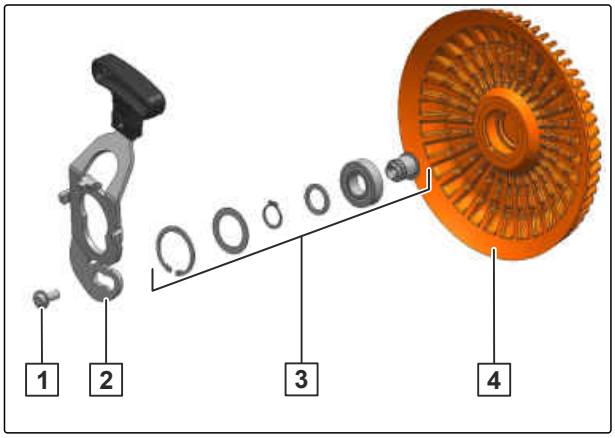
CMS-I-00004665

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.

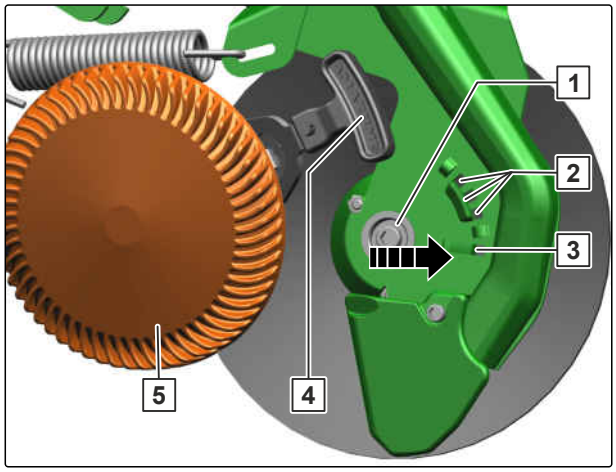
6. Install the lever **2** with the bolt **1** on the new RoTeC depth control disc or RoTeC depth control wheel **4**.



CMS-I-00004802

7. *To install the new RoTeC depth control disc or RoTeC depth control wheel* **5** *on the coulter:*
Set the notch of the lever **4** on the bearing seat **1** of the cutting disc, press it firmly against the RoTeC depth control disc or RoTeC depth control wheel and pull the lever towards the front in the elongated slot **3** until the RoTeC depth control disc or RoTeC depth control wheel engages.

8. *To adjust the placement depth:*
Pull on the lever for the RoTeC depth control disc or RoTeC depth control wheel, move it up and engage it in the desired hole **2**.



CMS-I-00004836

10.2.3 Checking the RoTeC furrow former

CMS-T-00006374-C.1

INTERVAL

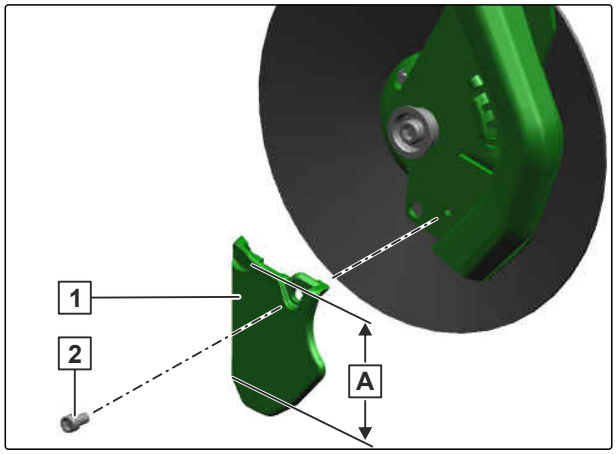
- Every 50 operating hours
  or
  Weekly

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**.



CMS-I-00004667

NOTE

The bolts for the furrow former are coated and may not be reused.

5. Install the a new bolt **2**.

10.2.4 Checking the cutting discs

CMS-T-00007567-B.1

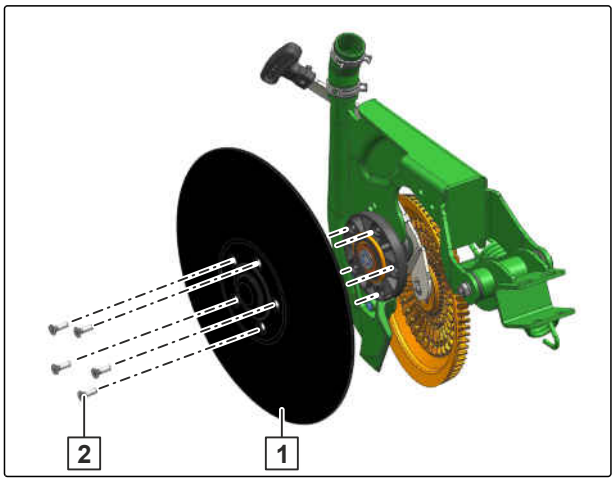
INTERVAL

- Every 50 operating hours

  or

  Weekly

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



CMS-I-00005324

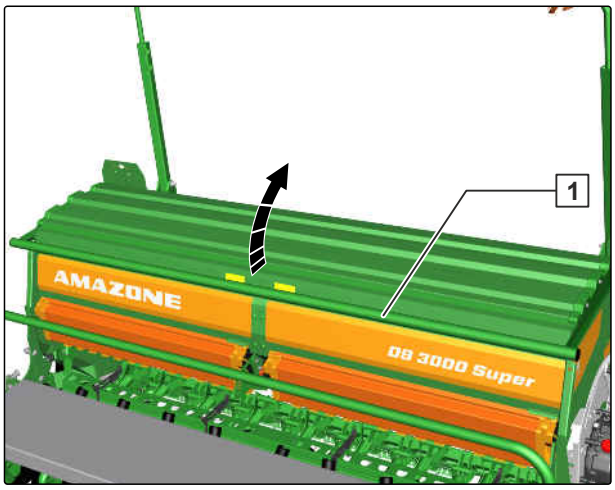
10.2.5 Cleaning the seed hopper

CMS-T-00017732-A.1

INTERVAL

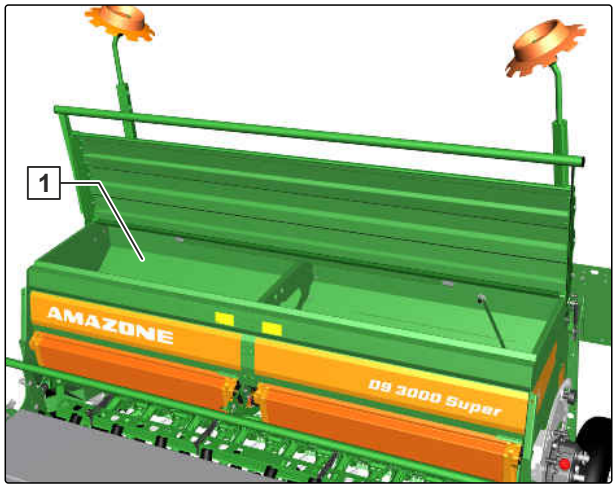
- After the first 50 operating hours
- As required

1. Lower the implement.
2. Unfold the loading board steps.
3. *To open the seed hopper:*
   Pull the hopper cover up by the handle 1.



CMS-I-00012085

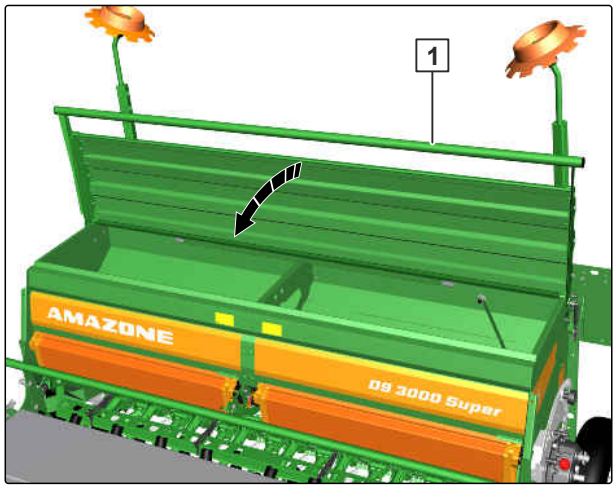
4. Clean the seed hopper.



CMS-I-00012088

5. *To close the seed hopper:*
   Pull the hopper cover down by the handle **1**.

6. Fold up the loading board steps.



CMS-I-00012089

10.2.6 Cleaning the C-Drill hopper

CMS-T-00017733-A.1

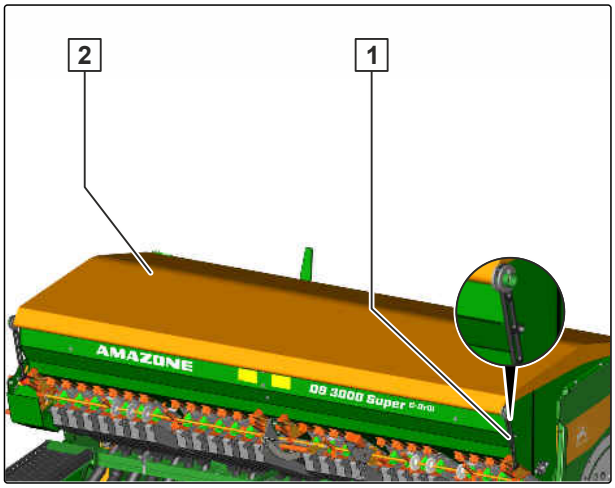
INTERVAL

- After the first 50 operating hours
- As required

1. Lower the implement.

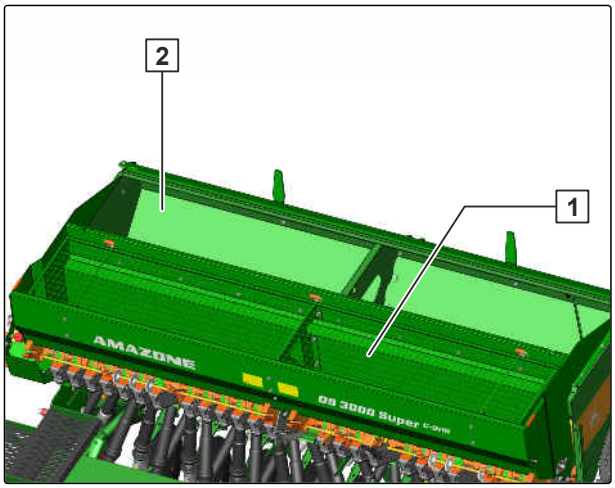
2. Unfold the loading board steps.

3. *To open the hopper:*
   Release the rubber tabs [2] on both sides and slide the roller tarpaulin [2] to the rear.



CMS-I-00012083

4. Clean the seed hopper [2] and fertiliser hopper [1].



CMS-I-00012084

5. Close the hopper with the roller tarpaulin.

6. Fasten the roller tarpaulin with the rubber tabs on both sides.

7. Fold up the loading board steps.

10.2.7 Checking the gear oil level

CMS-T-00017682-A.1

INTERVAL

- After initial operation
- Every 100 operating hours

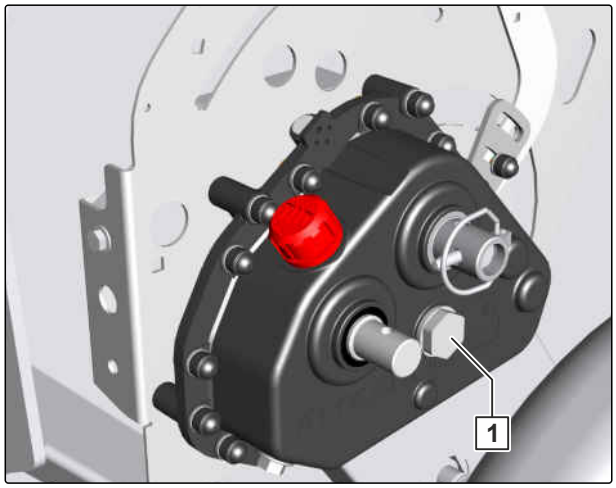
  or

  Every 12 months

NOTE

There is no need to change the oil.

1. Position the implement on a horizontal surface.
2. *If the oil level is not visible in the oil sight glass* **1**:
   See *"Refilling the gear oil"*.



CMS-I-00012049

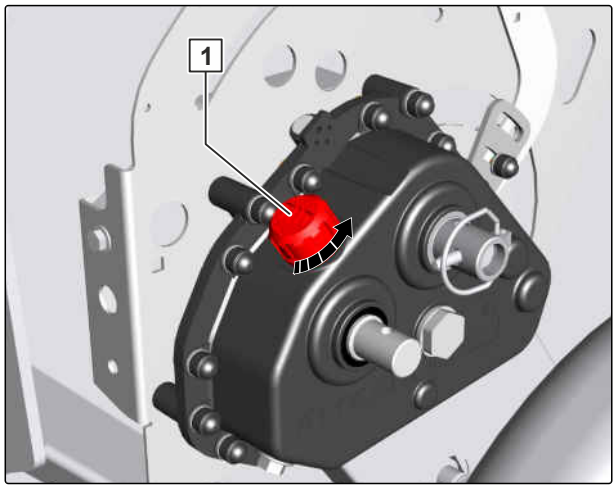
10.2.8 Refilling the gear oil

CMS-T-00017681-A.1

INTERVAL

- As required

1. *To refill gear oil:*
   Open the oil filler neck **1**.
2. Refill the gear oil.
3. Close the oil filler neck **1**.



CMS-I-00012050

10.2.9 Checking the lower link pins and top link pins

CMS-T-00002330-K.1

INTERVAL

- Daily

Criteria for visual inspection of lower link pins and top link pins:

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

1. Check the lower link pins and top link pins for the listed criteria.

2. Replace worn pins.

10.2.10 Checking the hydraulic hose lines

CMS-T-00002331-G.1

INTERVAL

- After initial operation
- Every 50 operating hours

  or

  Weekly

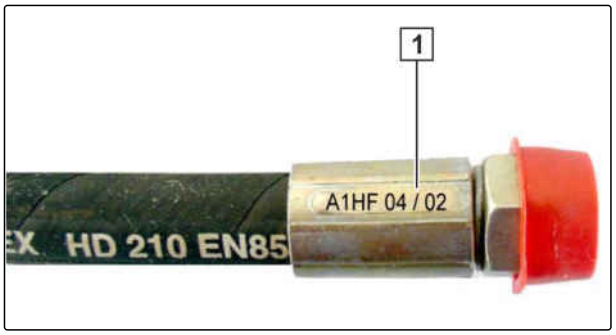
1. Check the hydraulic hose lines for damage, such as chafing point, cuts, tears and deformation.

2. Check the hydraulic hose lines for leaks.

3. Retighten loose bolted connections.

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

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



CMS-I-00000532

WORKSHOP WORK

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

10.2.11 Checking the furrow former on the WS drag coulter

CMS-T-00009214-A.1

INTERVAL

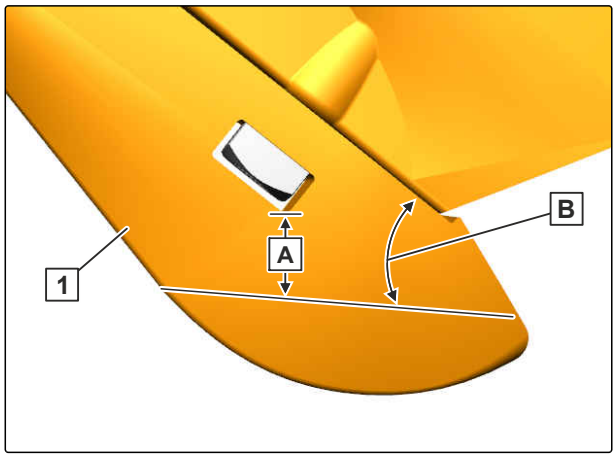
- Every 50 operating hours

  or

  Weekly

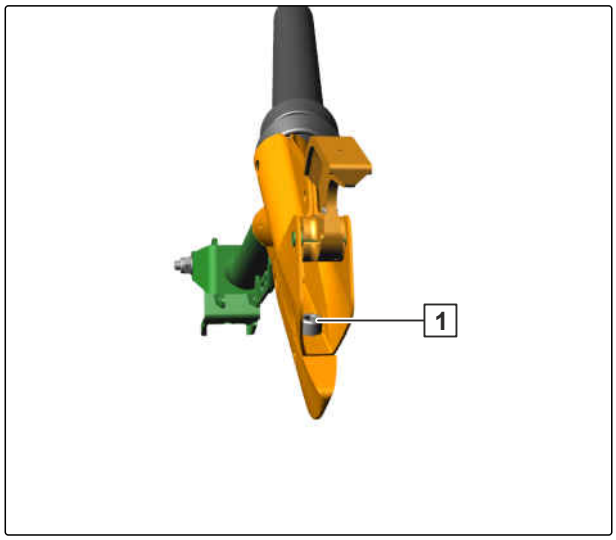
1. *To determine the dimension* **A**:
   Set the angle **B** to 40 degrees.

2. *When the indicated measurement* **A** *on a furrow former is smaller than 14 mm,*
   replace the furrow former.



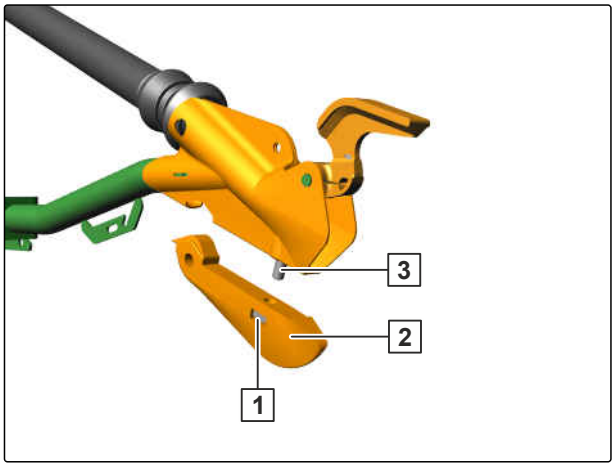
CMS-I-00006340

3. *To replace the furrow former:*
   Remove the bolt **1**.



CMS-I-00006341

4. remove the bolt 3 and dispose of it.
5. Replace the worn furrow former 2 and nut 1.
6. Insert the new bolt 3 and tighten it.



CMS-I-00006342

10.2.12 Check the basic setting of the bottom flaps

CMS-T-00017677-A.1

INTERVAL

- Every 500 operating hours

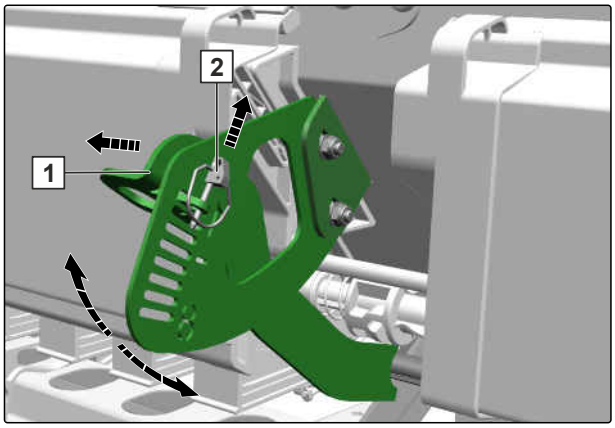
  or

  Every 3 months

REQUIREMENTS

- ⊘ Seed hopper is empty
- ⊘ Seed housing is empty

1. Remove the linch pin 2.
2. Press the bottom flap lever 1 to the left and set it to the value 1 in the group of holes.
3. Secure the position with the linch pin.

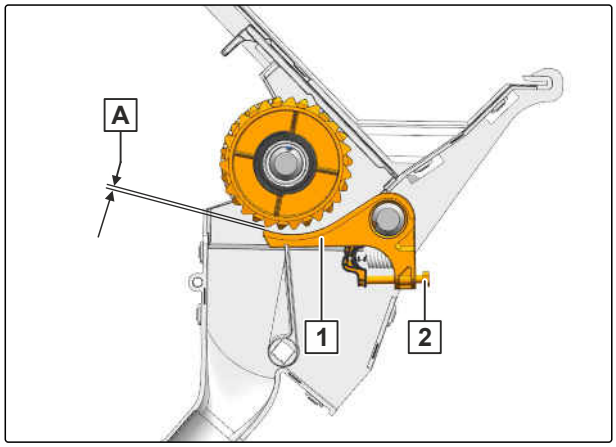


CMS-I-00011668

The distance **A** between the bottom flap and the metering wheel must be between 0.1 mm and 0.5 mm.

4. Check the distance between the bottom flap and metering wheel.

5. *If the distance between the bottom flap and the metering wheel is not in the range of distance **A**,*
   set the prescribed distance with the bolt **2**.



CMS-I-00007513

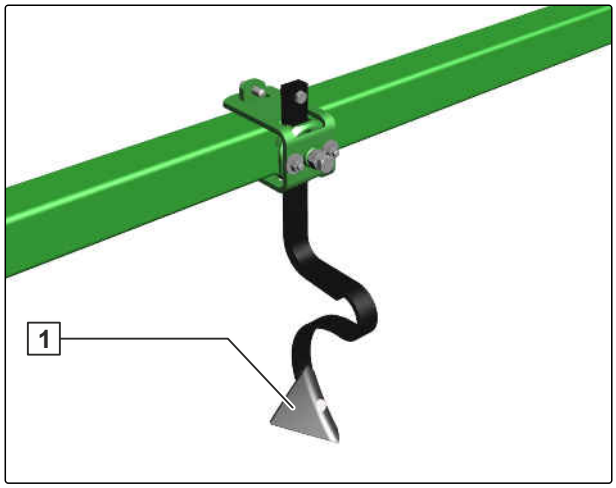
10.2.13 Checking the coulter on the spring-suspended tractor wheel mark eradicator

CMS-T-00017793-A.1

INTERVAL

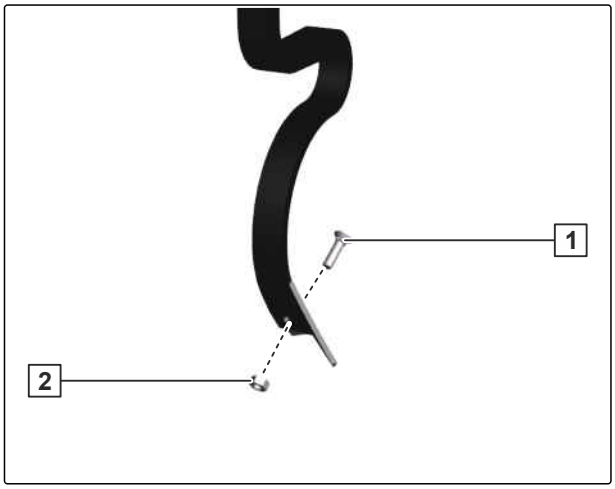
- Every 50 operating hours
  or
  Every 3 months

1. *When the coulter foot **1** is damaged or strongly worn:*
   Replace the coulter foot.



CMS-I-00012222

2. *To replace the coulter foot:*
   Loosen and remove the nut **2**.
3. Remove the bolt **1**.
4. Replace the coulter foot.
5. Install the bolt.
6. Install the nut **2** and tighten it.



CMS-I-00012221

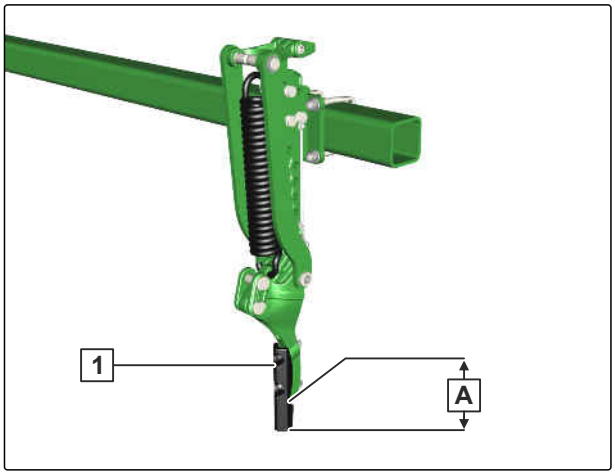
10.2.14 Checking the coulter on the reinforced tractor wheel mark eradicator

CMS-T-00017794-A.1

INTERVAL

- Every 50 operating hours
  or
  Every 3 months

1. *If the distance **A** between the coulter tip and the tool carrier is less than 15 mm,*
   replace the wheel mark eradicator coulter **1**.



CMS-I-00008741

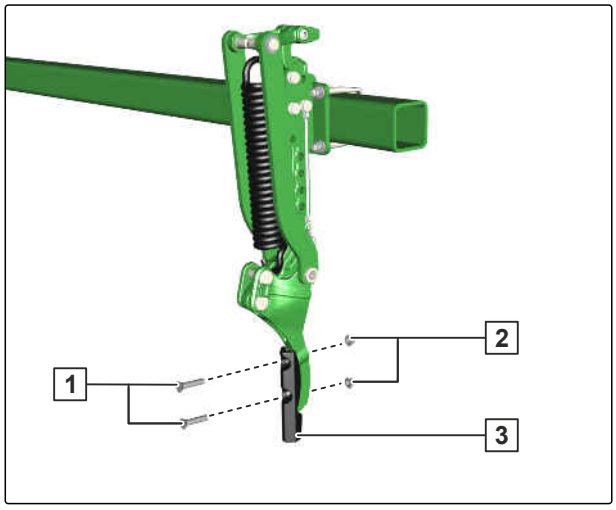
2. *To replace the coulter on the wheel mark eradicator:*
   Remove the nuts **2**.

3. Remove the bolts **1**.

4. Replace the coulter **3**.

5. Install the bolts **1**.

6. Install the nuts **2**.



CMS-I-00008740

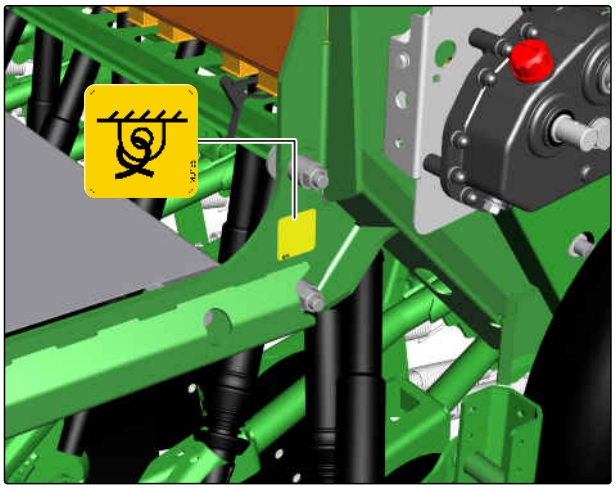
Loading the implement 11

CMS-T-00017782-A.1

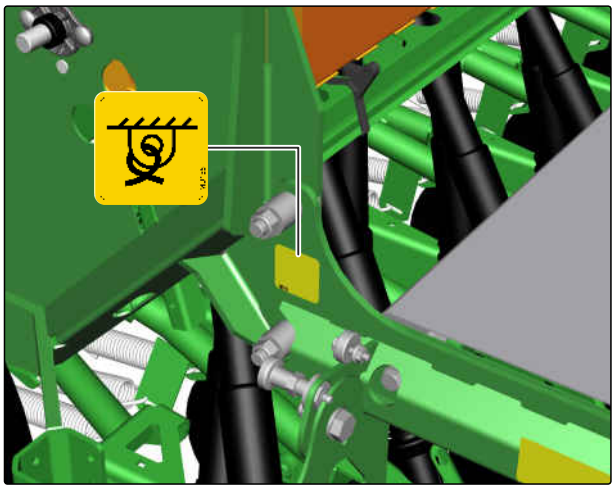
11.1 Lashing the implement

CMS-T-00017784-A.1

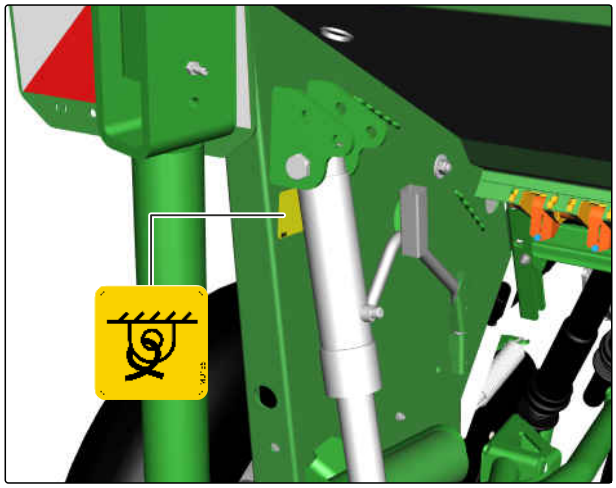
The implement has lashing points for securing the load.



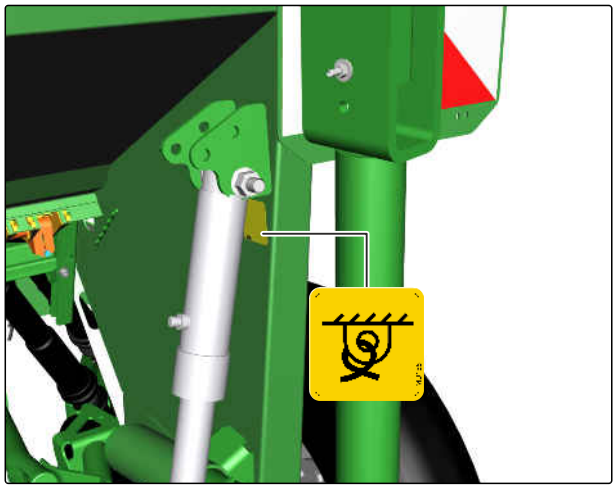
CMS-I-00012212



CMS-I-00012211



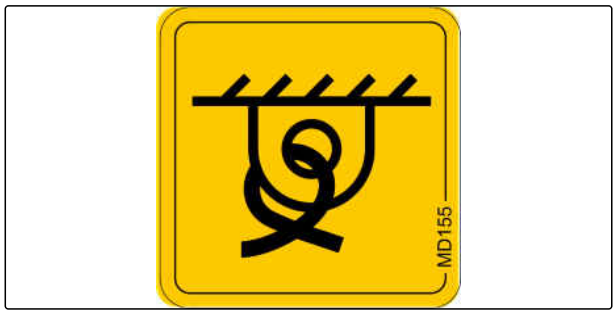
CMS-I-00012210



CMS-I-00012209

1. Only attach the lifting gear at the marked positions.

2. Secure the implement in accordance with the regulations to the transport vehicle.

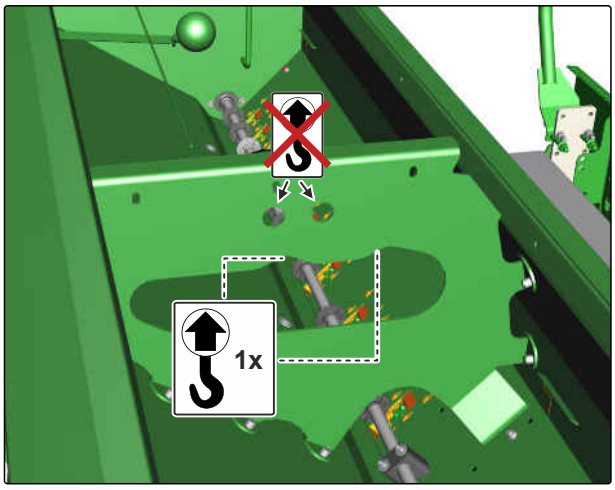


CMS-I-00000450

11.2 Loading the implement with a crane

CMS-T-00017783-A.1

The implement has two lashing points for slings for lifting.



CMS-I-00012208

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.

NOTE

Depending on the implement equipment, the lashing points for the slings can vary.

1. Fasten the specified number of slings corresponding to the equipment.

2. Slowly lift the implement.

Disposing of the implement 12

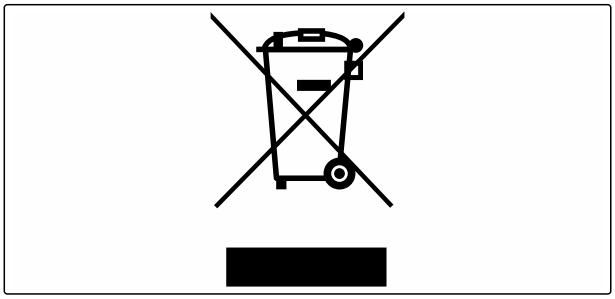
CMS-T-00010906-B.1

ENVIRONMENTAL INFORMATION

Environmental damage due to improper disposal

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

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



CMS-I-00007999

2. Return batteries to the distributor

   or

   Dispose of batteries at a collection point.

3. Put recyclable materials in the recycling.

4. Treat operating materials like hazardous waste.

WORKSHOP WORK

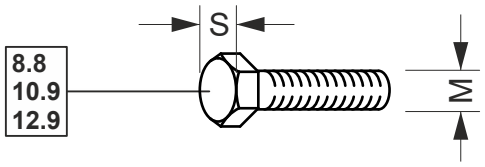
5. Dispose of the coolant.

Appendix 13

CMS-T-00014244-A.1

13.1 Bolt tightening torques

CMS-T-00000373-E.1



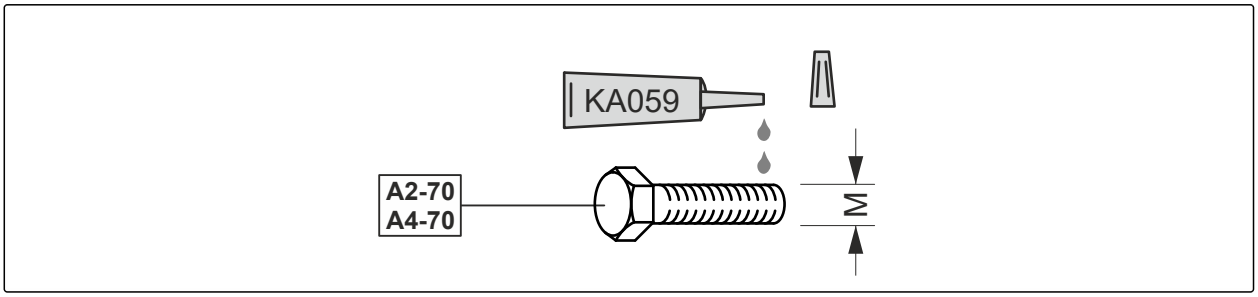
CMS-I-000260

NOTE

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

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

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



CMS-I-00000065

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

13.2 Other applicable documents

CMS-T-00014245-A.1

- Tractor operating manual
- Soil tillage implement operating manual
- AmaLog software operating manual

Directories 14

14.1 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.

14.2 Index

A

Additional licence plate 35

Address
Technical editing 4

adjusting hydraulically
Coulter pressure or placement depth 82

adjusting manually
Central coulter pressure and placement depth 81

adjusting on the outer coulters
Coulter pressure and placement depth 83

Adjusting the pitch
Roller harrow tines 88

adjustment
Bottom flap 63
Fill level sensor 78
Placement depth on the RoTeC coulter 84
Seed drill wheel mark eradicator 102
Sliding shutter 63
Spring-suspended tractor wheel mark eradicator 102
Track disc pitch 92
Working depth of the roller harrow tines 89

Aids 35

B

Band seeding shoe
Description 38

Bean metering wheels
installing 58

Bolt tightening torques 144

Bottom flap
adjustment 63

C

Cabinet for connection lines
Position 22

calibration
Fertiliser metering unit 74
Metering unit 65
Seed metering unit 70

C-Drill hopper
cleaning 131
filling 80

Central coulter pressure and placement depth
adjusting manually 81

checking
Cutting discs 130
Placement depth 112
RoTeC+ furrow former 129
RoTeC depth control discs 128
RoTeC depth control wheels 128

cleaning
C-Drill hopper 131
Implement 126
Seed hopper 130

Contact data
Technical editing 4

Control computer
Coupling the line 52
Uncoupling the ladder 124

Coulter pressure and placement depth
adjusting on the outer coulters 83

Coulter pressure or placement depth
adjusting hydraulically 82

Cutting discs
checking 130
replacing 130

D

Description
Band seeding shoe 38
Hopper 35
Seed drill wheel mark eradicator 42

determining graphically
Tramline spacing 92

determining using the table
Tramline spacing 94

Digital operating manual 4

Documents 35

Drivable slope inclination 46

E

emptying
Hopper 121
Seed housing 121

Exact following harrow
Description 40
moving into transport position 106
moving into working position 109

Exact following harrow pressure
adjusting hydraulically 86
adjusting manually 87

Exact following harrow tines
adjusting by removing the bolts 85
adjusting with a ratchet wrench 86

F

Fertiliser metering unit
calibration 74

filling
C-Drill hopper 80
Seed hopper 79

Fill level indicator
Description 36

Fill level sensor
adjustment 78
Description 36

Fine seed metering wheel brushes
installing 65

Forward speed 45

Front axle load
calculation 47

Front ballasting
calculation 47

Front lighting 34

Function of the implement
Description 23

G

Gear oil 46

H

Hopper
Description 35
emptying 121

Hydraulic hose lines
checking 134
coupling 50
uncoupling 124

I

Identification
Additional licence plate 35
Front 34
Rear 34

Implement
lashing 140
loading with a crane 142
lowering 111
turning 112

Intended use 21

ISOBUS
Coupling the line 52
Uncoupling the ladder 124

L

lashing
Implement 140

Lighting and identification
Additional licence plate 35
Front 34
Rear 34

Loading board
Position 22

Loading board steps
operating 54

loading with a crane
Implement 142

Loads
calculation 47

Lower link pin
checking 134

M

Metering unit
calibration 65
Description 37
Setting values 54

moving into transport position
Track marker 105

Moving the wheel mark eradicator into parking position 121

O

One-sided switching
operating 98

operating
One-sided switching 98

Optimal working speed 45

Other applicable documents 145

P

Parking the machine
Moving the wheel mark eradicator into parking position 121

Payload
calculation 44

Permissible transport speed 45

Placement depth
adjustment on the RoTeC coulter 84
checking 112

Power supply
coupling 52
uncoupling 125

Protective equipment
Calibration troughs 25
Chain guard 25

R

Rating plate
Description 33
Position 22

Rear axle load
calculation 47

Rear lighting 34

replacing
Cutting discs 130
RoTeC+ furrow former 129
RoTeC depth control discs 128
RoTeC depth control wheels 128

Road safety bars
attaching on the exact following harrow 107
Description 42
removing 108

Roller contact pressure
adjustment 89

Roller harrow
Description 40
lift-out 90

Roller harrow tines
Adjusting the pitch 88
Adjust the working depth 89

RoTeC+ furrow former
checking 129
replacing 129

RoTeC coulter
Adjusting the placement depth 84
Description 38
Furrow former 129

RoTeC depth control discs
checking 128
replacing 128

RoTeC depth control wheels
checking 128
replacing 128

Running gear
Position 22

S

securing
Track marker 106

Seed drill wheel mark eradicator
adjustment 102
Description 42

Seed harrow
moving into transport position 106
moving into working position 109

Seed hopper
cleaning 130
filling 79
Position 22

Seed housing
emptying 121

Seeding coulter
Position 22

Seed metering unit
calibration 70

Seed metering wheel combinations for normal seed or fine seed
adjustment 56

Setting values
selecting 54

Sliding shutter
adjustment 63

Special equipment
Description 24

Spring-suspended tractor wheel mark eradicator
adjustment 102

T

Technical data
Coulters 44
Dimensions 43
Drivable slope inclination 46
Forward speed 45
Gear oil 46
Hopper volume 43
Noise development data 45
Performance characteristics of the tractor 45
Permissible payload 44
Permitted mounting categories 44

Threaded cartridge
Description 35

Three-point mounting frame
coupling 53
uncoupling 123

Top link pin
checking 134

Total weight
calculation 47

Track marker
Adjusting the track marker intensity 102
Adjusting the track marker length 101
Description 41
Determining the track marker length 101
moving into transport position 105
Position 22
securing 106
unfolding 111
unlocking 110

Tractor
Calculating the required tractor characteristics 47

Trailing harrow tines
adjusting by removing the bolts 85

Trailing tine harrow
Description 39
Position 22

Trailing tine harrow pressure
adjusting manually 87

Tramline marker
Adjusting the track disc pitch 92
Description 41
folding on the exact following harrow 106

Tramline marker on the exact following harrow
unfolding 110

Tramline spacing
determining graphically 92
determining using the table 94

Transport speed 45

Tyre load capacity
calculation 47

U

unfolding
Track marker 111

unlocking
Track marker 110

V

Vario gearbox
Position 22

W

Warning symbols
Description 29
Layout 29
Position 26

Wheel mark eradicator
Adjusting the track width 104
Adjust the working depth 103

Working depth
of the roller harrow tines, adjusting 89

Working speed 45

Workshop work 3

WS drag coulter
Description 37

AMAZONEN-WERKE
H. DREYER SE & Co. KG
Postfach 51
49202 Hasbergen-Gaste
Germany

+49 (0) 5405 501-0
amazone@amazone.de
www.amazone.de