

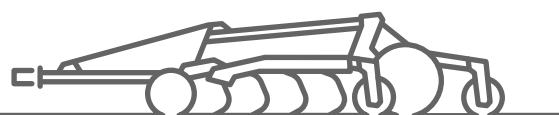


Translation of the original operating instructions

Disc harrow-cultivator combination

Ceus 3000-TX

Ceus 4000-TX



SmartLearning



AMAZONE

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

Maschinen-Nr.

Fahrzeug-Ident-Nr.

Produkt

zul. technisches Maschinengewicht kg



Modelljahr




Baujahr
année de fabrication
year of construction
Год изготовления





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About this operating manual

1

CMS-T-00000081-H.1

1.1 Copyright

CMS-T-00012308-A.1

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

1.2 Diagrams

CMS-T-005676-F.1

1.2.1 Warnings and signal words

CMS-T-00002415-A.1

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



DANGER

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



WARNING

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



CAUTION

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

1.2.2 Further instructions

CMS-T-00002416-A.1



IMPORTANT

- Indicates a risk for damage to the implement.



ENVIRONMENTAL INFORMATION

- Indicates a risk for environmental damage.



NOTE

Indicates application tips and instructions for optimal use.

1.2.3 Instructions

CMS-T-00000473-D.1

1.2.3.1 Numbered instructions

CMS-T-005217-B.1

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

Example:

1. Instruction 1
2. Instruction 2

1.2.3.2 Instructions and responses

CMS-T-005678-B.1

Reactions to instructions are marked with an arrow.

Example:

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

1.2.3.3 Alternative instructions

CMS-T-00000110-B.1

Alternative instructions are introduced with the word "or".

Example:

1. Instruction 1

or

Alternative instruction

2. Instruction 2

1.2.3.4 Instructions with only one action

CMS-T-005211-C.1

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

Example:

► Instruction

1.2.3.5 Instructions without sequence

CMS-T-005214-C.1

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

Example:


► Instruction

► Instruction

► Instruction

1.2.3.6 Workshop work

CMS-T-00013932-B.1



WORKSHOP WORK

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

1.2.4 Lists

CMS-T-000024-A.1

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

Example:

- Point 1
- Point 2

1.2.5 Item numbers in figures

CMS-T-000023-B.1

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

1.2.6 Direction information

CMS-T-00012309-A.1

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

1.3 Other applicable documents

CMS-T-00000616-B.1

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

1.4 Digital operating manual

CMS-T-00002024-B.1

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

1.5 Your opinion is important

CMS-T-000059-C.1

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

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Safety and responsibility

2

CMS-T-00002298-N.1

2.1 Basic safety instructions

CMS-T-00002301-N.1

2.1.1 Meaning of the operating manual

CMS-T-00006180-A.1

Observe the operating manual

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

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

2.1.2 Safe operating organisation

CMS-T-00002302-D.1

2.1.2.1 Personnel qualification

CMS-T-00002306-B.1

2.1.2.1.1 Requirements for persons working with the implement

CMS-T-00002310-B.1

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

the implement must meet the following minimum requirements:

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

2.1.2.1.2 Qualification levels

CMS-T-00002311-A.1

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

- Farmer
- Agricultural helper

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

2.1.2.1.3 Farmer

CMS-T-00002312-A.1

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

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

Farmers can be e.g.:

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

Activity example:

- Safety training for agricultural helpers

2.1.2.1.4 Agricultural helpers

CMS-T-00002313-A.1

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

Agricultural helpers can be e.g.:

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

Activity examples:

- Driving the machine
- Adjusting the working depth

2.1.2.2 Workplaces and passengers

CMS-T-00002307-B.1

Passengers

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

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

2.1.2.3 Danger for children

CMS-T-00002308-A.1

Danger for children

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

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

2.1.2.4 Operational safety

CMS-T-00002309-D.1

2.1.2.4.1 Perfect technical condition

CMS-T-00002314-D.1

Only use properly prepared machines

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

- ▶ Prepare the machine according to this operating manual.

Danger due to damage to the machine

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

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

Observe the technical limit values

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

- ▶ Comply with the technical limit values.

2.1.2.4.2 Personal protective equipment

CMS-T-00002316-B.1

Personal protective equipment

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

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

Wear suitable clothing

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

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

2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

Keep warning symbols legible

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

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

2.1.3 Knowing and preventing dangers

CMS-T-00002303-E.1

2.1.3.1 Safety hazards on the implement

CMS-T-00002318-E.1

Liquids under pressure

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

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

2.1.3.2 Danger areas

CMS-T-00002319-C.1

Dangers areas on the machine

The following basic dangers are encountered in the danger areas:

The implement and its work tools move during operation.

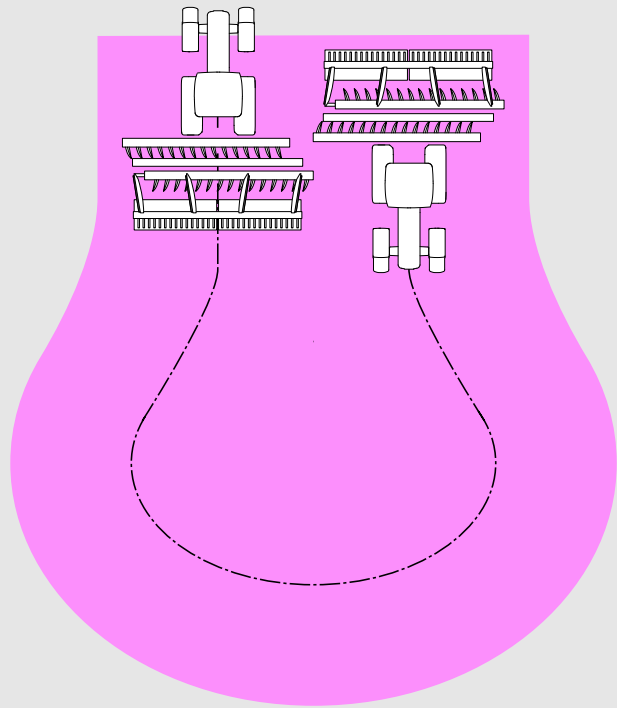
Hydraulically raised machine parts can descend unnoticed and slowly.

The tractor and implement can roll away unintentionally.

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

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

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



CMS-I-001131

2.1.4 Safe operation and handling of the machine

CMS-T-00002304-I.1

2.1.4.1 Coupling implements

CMS-T-00002320-D.1

Coupling the implement on the tractor

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

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

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

2.1.4.2 Driving safety

CMS-T-00002321-E.1

Risk when driving on roads and fields

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

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

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

- ▶ Lock the tractor lower links for road travel.

Preparing the machine for road travel

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

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

Parking the implement

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

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

Unsupervised parking

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

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

2.1.5 Safe maintenance and modification

CMS-T-00002305-F.1

2.1.5.1 Changes on the implement

CMS-T-00002322-B.1

Only authorised design changes

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

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

2.1.5.2 Work on the machine

CMS-T-00002323-E.1

Only work on the machine when it is at a standstill

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

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

Maintenance work

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

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

Raised implement parts

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

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

Danger due to welding work

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

- ▶ Allow only qualified specialist workshops with suitably approved personnel to perform welding work on safety-related components.
- ▶ Only allow qualified personnel to perform welding work on all other components.
- ▶ *If you have doubts as to whether a component can be welded, ask a qualified specialist workshop.*
- ▶ *Before welding on the implement, uncouple the implement from the tractor.*

2.1.5.3 Operating materials

CMS-T-00002324-C.1

Unsuitable operating materials

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

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

2.1.5.4 Special equipment and spare parts

CMS-T-00002325-B.1

Special equipment, accessories, and spare parts

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

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

2.2 Safety routines

CMS-T-00002300-C.1

Securing the tractor and implement

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

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

Securing the machine

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

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

Make sure that the protective equipment is functional

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

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

Climbing on and off

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

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

Intended use

3

CMS-T-00006697-A.1

- The implement is intended solely for professional use for soil tillage on agricultural crop lands according to Good Agricultural Practices.
- The implement is an agricultural machine to be mounted on the lower links of a tractor that meets the technical requirements.
- The implement is suitable and intended for shallow stubble cultivation, non-inversion primary soil tillage, seedbed preparation, and for incorporating catch crops and organic crop residues.
- The implement can be used on fields with a soil strength of up to 3.0 MPa.
- When driving on public roads, the implement, depending on the provisions of the applicable road traffic regulations, can be mounted and transported at the rear of a tractor that meets the technical requirements.
- The implement may be used and maintained only by persons who meet 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.

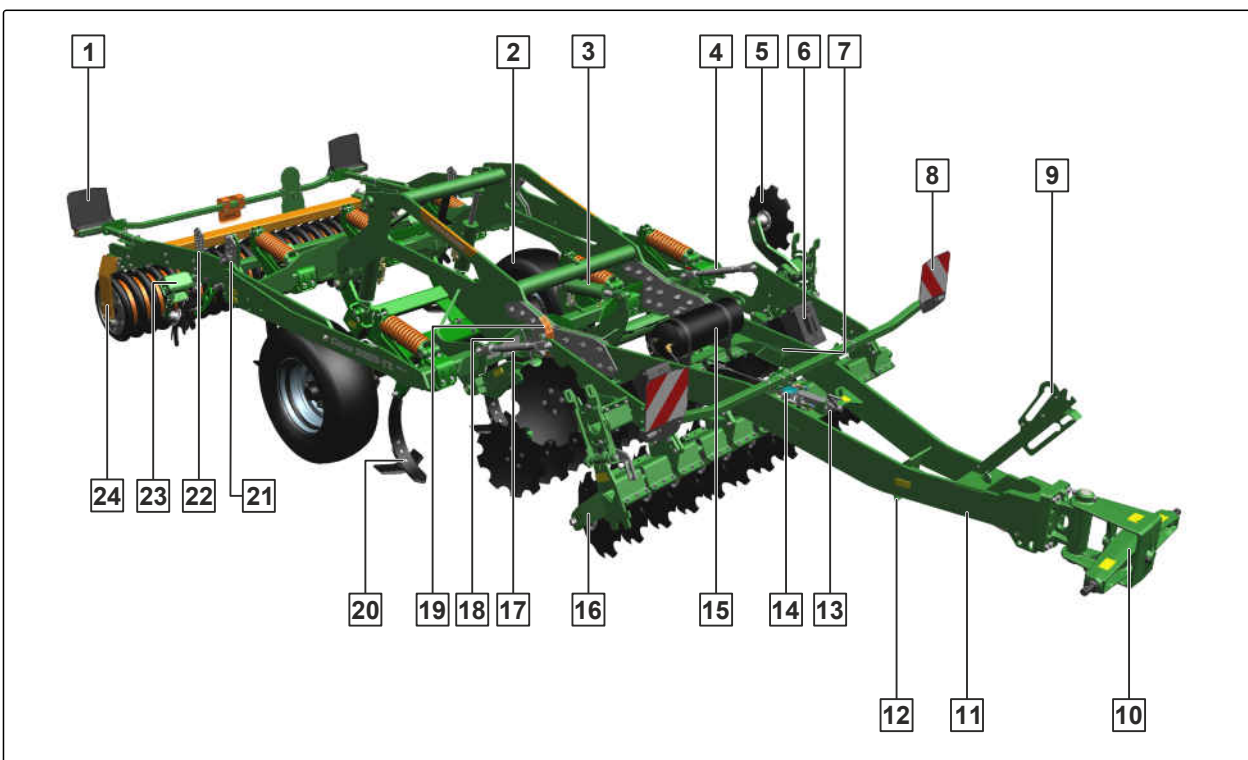
Product description

4

CMS-T-00006700-K.1

4.1 Implement overview

CMS-I-00006979-D.1



CMS-I-00004891

- | | |
|---|--|
| 1 Rear lighting and identification for road travel | 2 Swivelling running gear |
| 3 Working depth adjustment of the discs | 4 Threaded spindle for aligning the disc gangs relative to each other |
| 5 Side disc | 6 Wheel chock |
| 7 Threaded cartridge | 8 Front lighting and identification for road travel |
| 9 Hose cabinet | 10 Lower link hitch |
| 11 Drawbar | 12 Jack |
| 13 Parking brake | 14 Brake valve for dual-circuit pneumatic brake system |
| 15 Compressed air tank | 16 Disc gang |
| 17 Additional rating plate | 18 Rating plate on the implement |

- | | |
|---|---|
| 19 Working depth indicator for the discs | 20 Tine with coulter |
| 21 Working depth adjustment of the tines | 22 Working depth adjustment of the levelling |
| 23 Levelling | 24 Roller |

4.2 Function of the implement

CMS-T-00006709-A.1

The disc gangs till and mix the soil.

The tines loosen up the soil.

The levelling unit levels the soil.

The roller reconsolidates the soil.

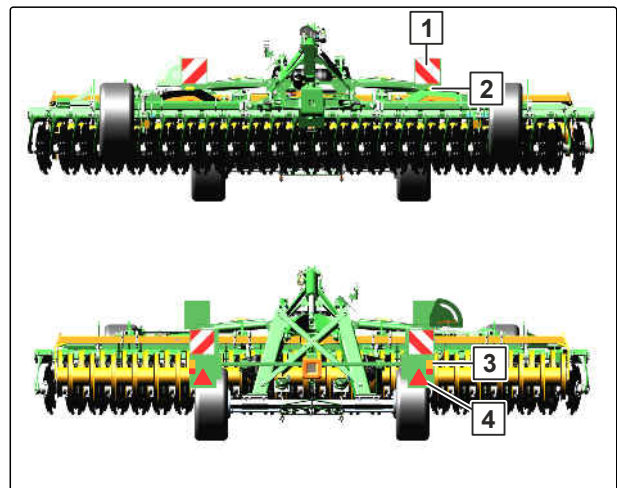
The trailing element crumbles the soil and deposits cut-off plant residues on the soil surface.

4.3 Lighting and identification for road travel

CMS-T-00009969-A.1

4.3.1 Rear lighting and identification

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



CMS-I-00003575

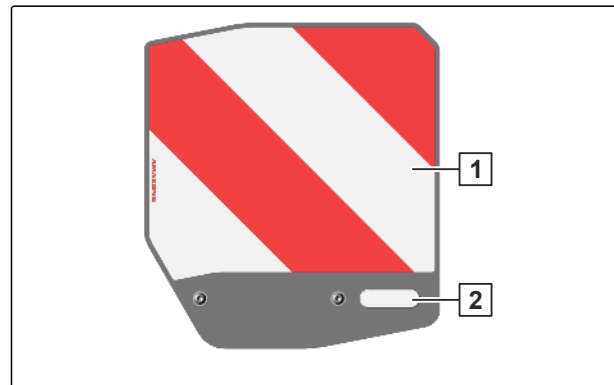


NOTE

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

4.3.2 Front lighting and identification

- 1 Warning signs
- 2 Reflector, white



CMS-T-00009971-A.1

CMS-I-00004522



NOTE

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

4.4 Special equipment

CMS-T-00006702-B.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.

The following equipment is considered special equipment:

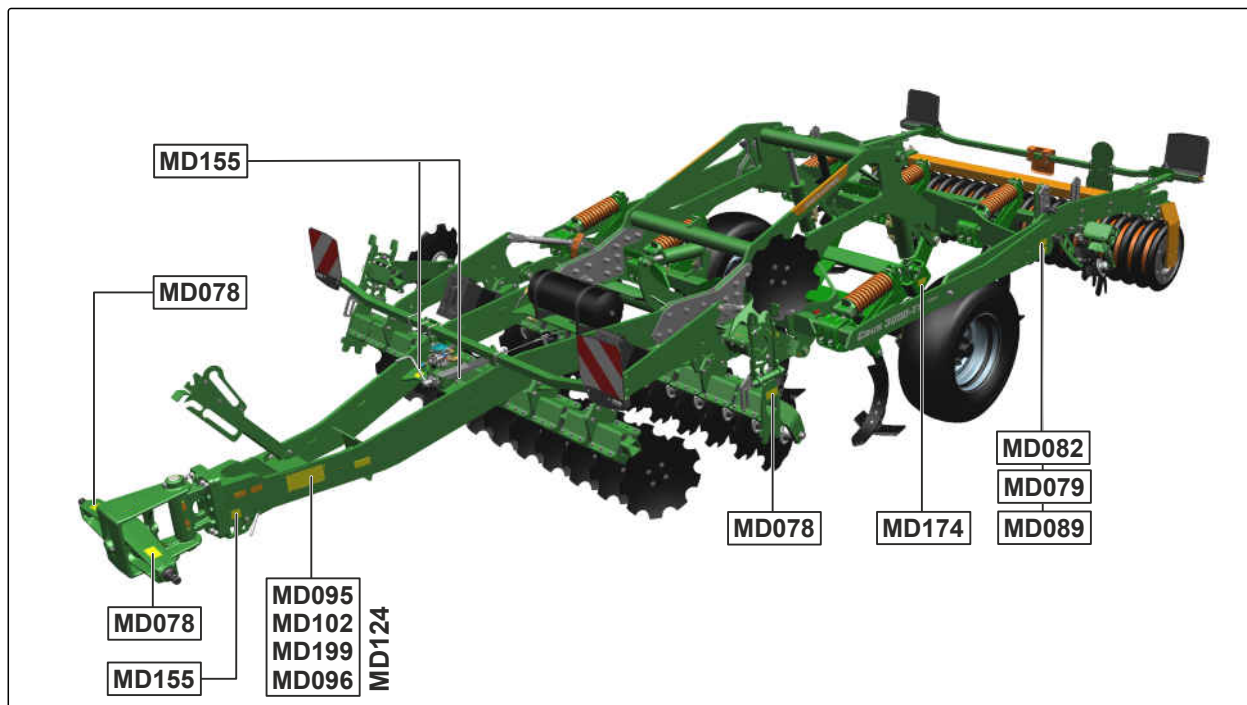
- Lighting and identification for road travel
- Pneumatic brake system
- Safety chain
- Double harrow
- Harrow system
- Preparation for working without the roller

4.5 Warning symbols

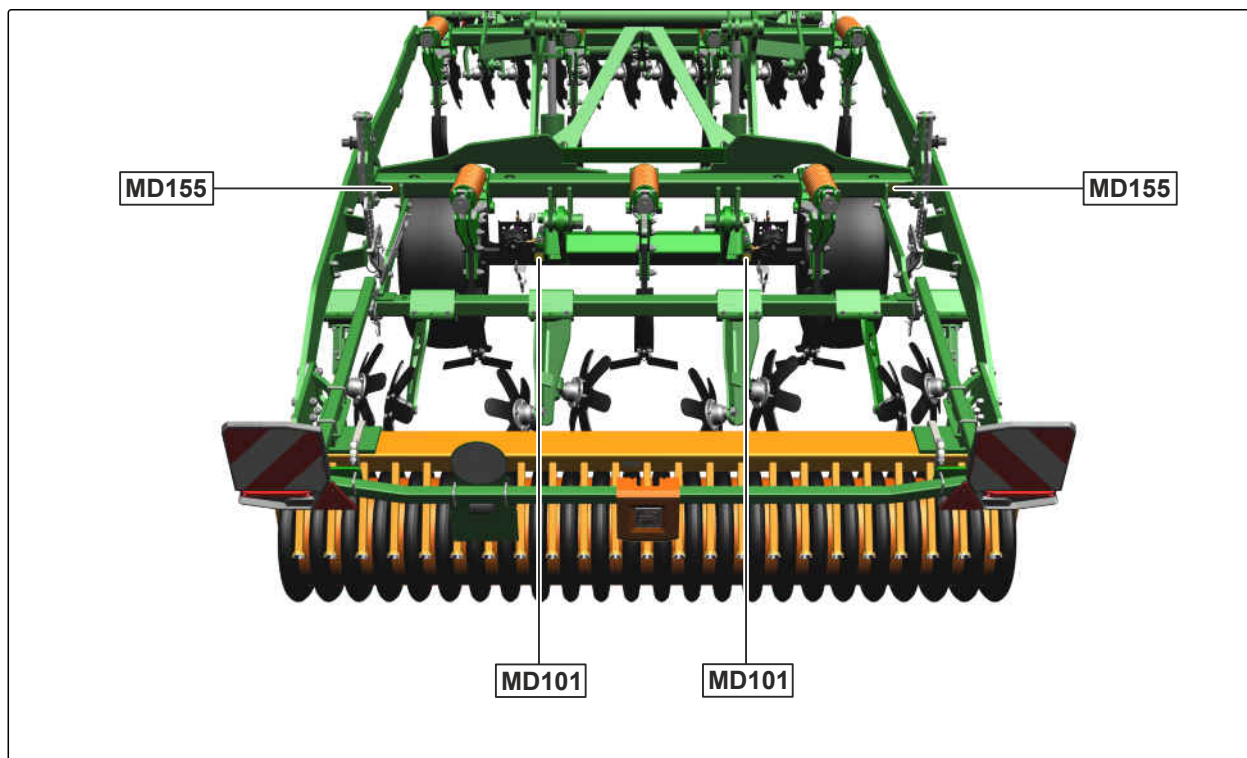
CMS-T-00006703-B.1

4.5.1 Positions of the warning symbols

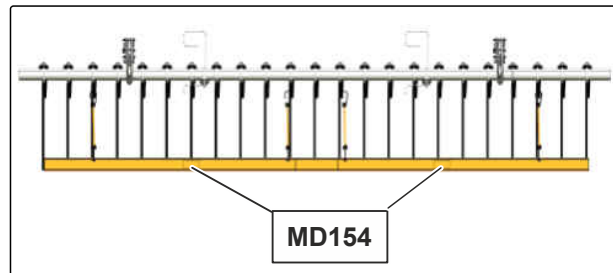
CMS-T-00006958-B.1



CMS-I-00004890



CMS-I-00004888



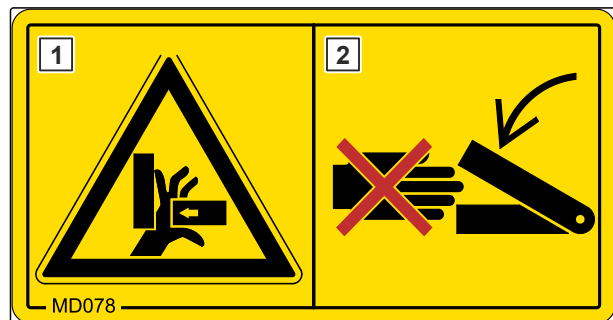
CMS-I-00007680

4.5.2 Layout of the warning symbols

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

A warning symbol consists of two fields:

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



CMS-T-000141-D.1

CMS-I-00000416

4.5.3 Description of the warning symbols

MD 078

Risk of crushing fingers or hands

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



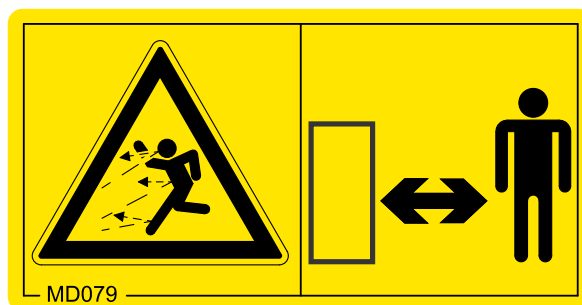
CMS-T-00006710-B.1

CMS-I-000074

MD 079

Danger due to ejected material

- ▶ *As long as engine of the tractor or machine is running,*
stay away from the danger area.
- ▶ Make sure that there is nobody standing in the danger area.



CMS-I-000076

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.

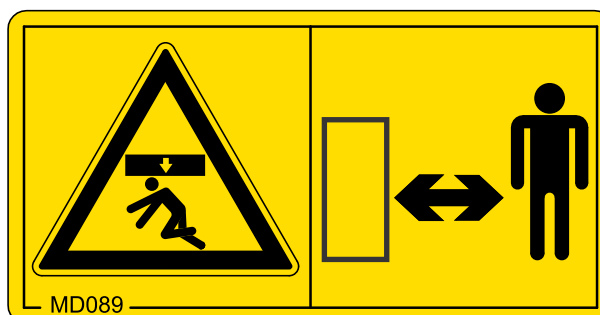


CMS-I-000081

MD089

Risk of crushing from the machine parts unintentionally lowering

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



CMS-I-00003027

MD095

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

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



CMS-I-000138

MD 096

Risk of infection from escaping hydraulic fluid under high pressure

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

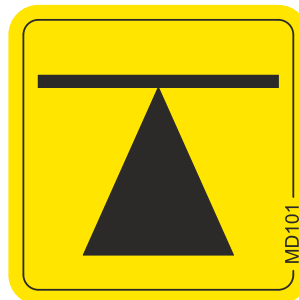


CMS-I-000216

MD 101

Risk of accidents due to improperly attached lifting equipment

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



CMS-I-00002252

MD 102

Risk due to unintentional starting and rolling away of the machine

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

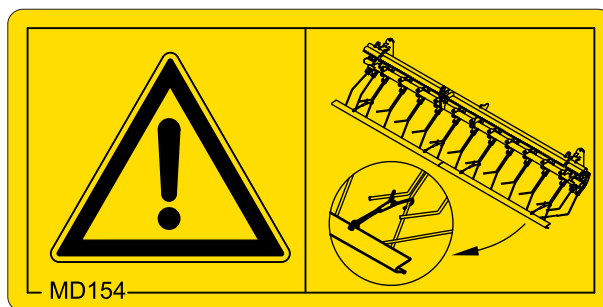


CMS-I-00002253

MD 154

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

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

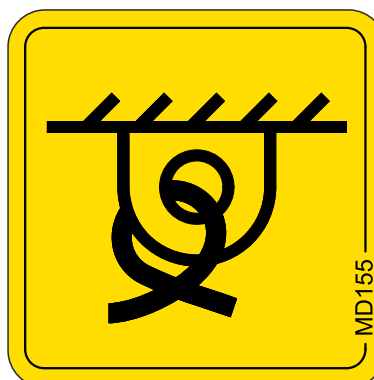


CMS-I-00003657

MD 155

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

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

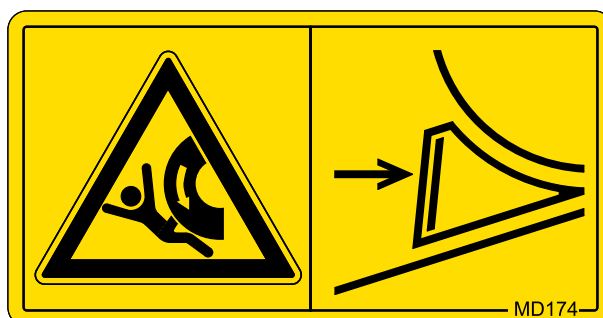


CMS-I-00000450

MD 174

Risk of rolling over due to unsecured implement

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



CMS-I-00000458

MD 199

Risk of accident if the hydraulic system pressure is too high

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



CMS-I-00000486

4.6 Rating plates

CMS-T-00004498-H.1

4.6.1 Rating plate on the implement

CMS-T-00004505-G.1

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



CMS-I-00004294

4.6.2 Additional rating plate

CMS-T-00005949-B.1

- 1** Note for type approval
- 2** Note for type approval
- 3** Vehicle identification number
- 4** Permissible technical total weight
- 5** Permissible technical trailer load for a drawbar trailer vehicle with pneumatic brake
- A0** Permissible technical drawbar load
- A1** Permissible technical axle load for axle 1
- A2** Permissible technical axle load for axle 2

AMAZONEN-WERKE H. DREYER SE & Co. KG					
1		2			
3		4			
	T-1	T-2	T-3		kg
B-2	—	—	—	A-0:	kg
B-4	5	—	—	A-1:	kg

CMS-I-00005056

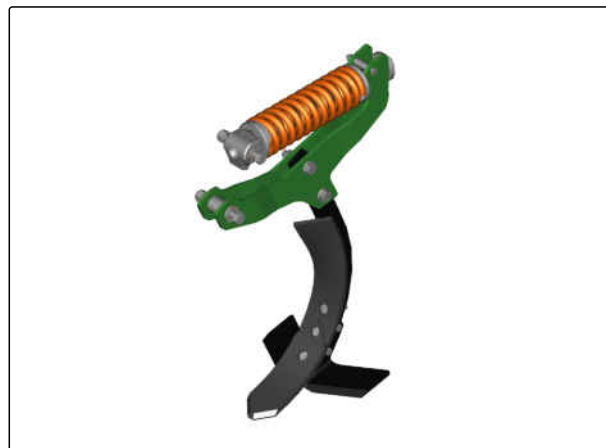
4.7 Soil tillage tools

CMS-T-00008815-D.1

4.7.1 Tines with compression spring overload safety

CMS-T-00004482-A.1

The compression spring allows the tines to deflect in overload situations.



CMS-I-00003022

4.7.2 Coulters

CMS-T-00004455-G.1

4.7.2.1 Work patterns of the coulter

CMS-T-00008768-C.1

Coulter	Work pattern
C-Mix-3 coulters 40 mm C-Mix-3 HD coulters 40 mm	
C-Mix-3 coulters tip 80 mm C-Mix-3 HD coulters tip 80 mm	
C-Mix-3 coulters tip 100 mm	
C-Mix-3 wing	
C-Mix-3 duck foot coulters tip C-Mix-3 HD duck foot coulters tip	

4.7.2.2 C-Mix-3 coulter

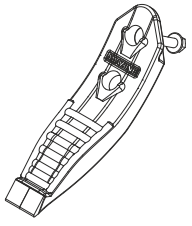
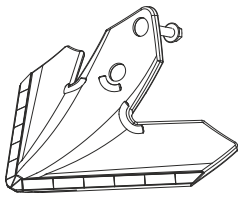
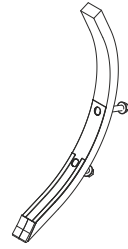
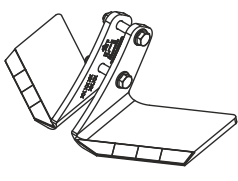
CMS-T-00008834-C.1

	C-Mix-3 coulters tip 80 mm	C-Mix-3 coulters tip 100 mm	C-Mix-3 coulters 40 mm	C-Mix-3 duck foot coulters tip	C-Mix-3 wing
Coulter width	8 cm	10 cm	4 cm	320 mm	35 cm or 43 cm
Working depth	12-30 cm	10-20 cm	20-30 cm	3-10 cm	-

	C-Mix-3 coulter tip 80 mm	C-Mix-3 coulter tip 100 mm	C-Mix-3 coulter 40 mm	C-Mix-3 duck foot coulter tip	C-Mix-3 wing
Can be combined with:					
C-Mix-3 deflector plate 80 mm	X	X		X	X
C-Mix-3 deflector plate 100 mm		X		X	X

4.7.2.3 C-Mix-3 HD coulters

CMS-T-00008832-C.1

	C-Mix-3 HD coulter tip 80 mm	C-Mix-3 HD duck foot coulter tip	C-Mix-3 HD coulter 40 mm	C-Mix-3 HD wing
Figure				
Coulter width	8 cm	32 cm	40 mm	350 mm or 430 mm
Working depth	12-30 cm	3-10 cm	20-30 cm	-
Can be combined with:				
C-Mix-3 deflector plate 80 mm	X	X		X
C-Mix-3 deflector plate 100 mm		X		X

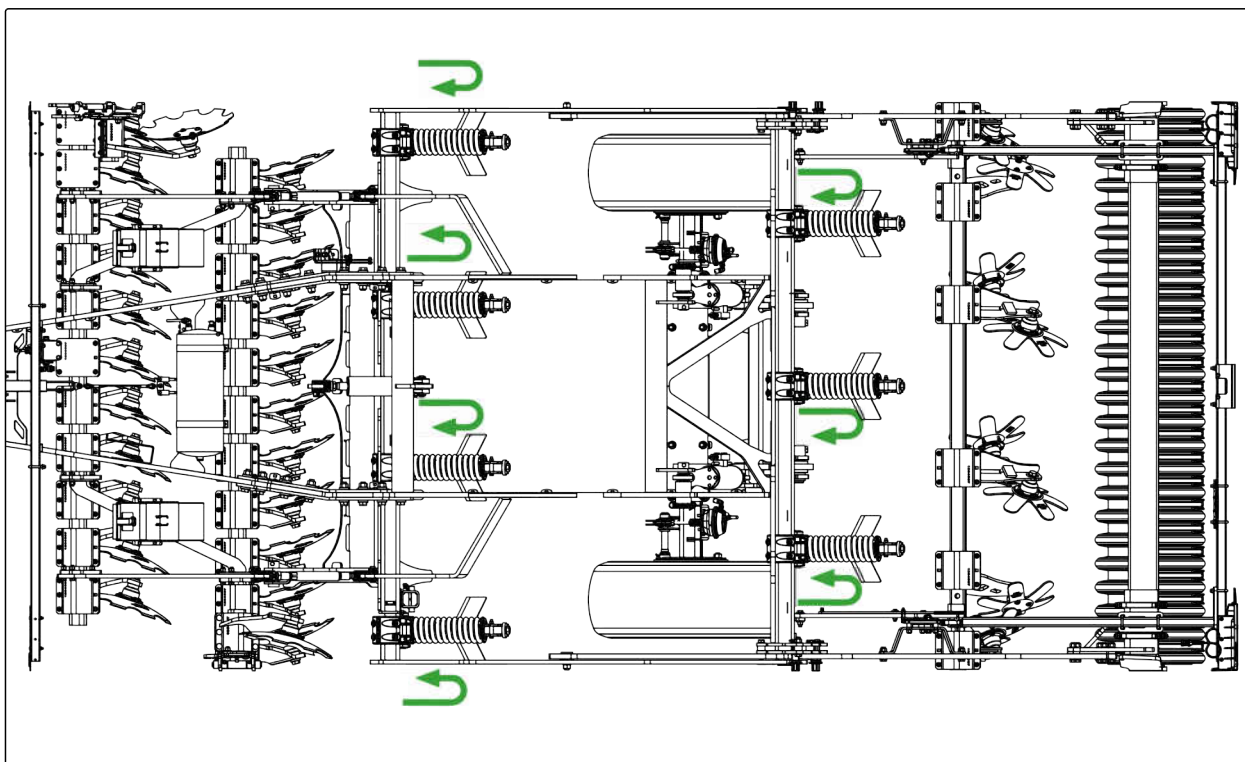
4.7.2.4 Deflector guide arrangement

CMS-T-00008818-B.1

4.7.2.4.1 Deflector plate arrangement Ceus 3000-TX

CMS-T-00008819-B.1

The deflector guide arrangement is variable. The figure shows the recommended, factory-mounted deflector guide arrangement. The arrows show the throw direction produced by the deflector plates.

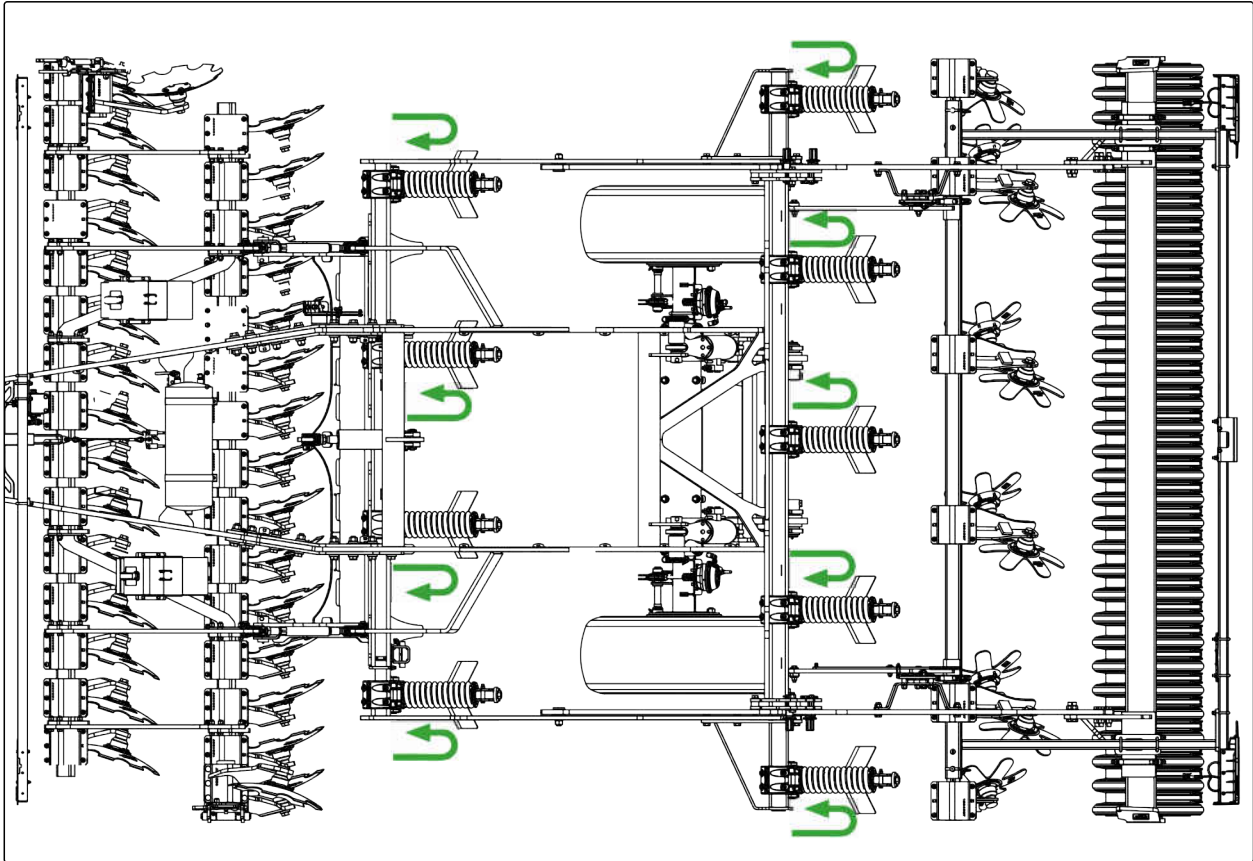


CMS-I-00006075

4.7.2.4.2 Deflector plate arrangement Ceus 4000-TX

CMS-T-00008821-B.1

The deflector guide arrangement is variable. The figure shows the recommended, factory-mounted deflector guide arrangement. The arrows show the throw direction produced by the deflector plates.



CMS-I-00006076

4.8 Threaded cartridge

CMS-T-00001776-E.1

The threaded cartridge contains the following items:

- Documents
- Aids



CMS-I-00002306

4.9 Setting lever for the trailing elements

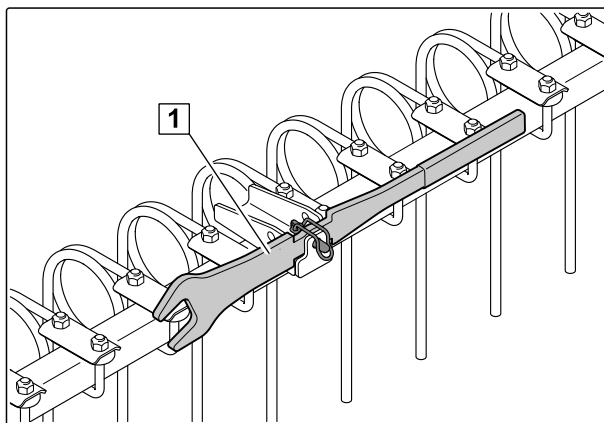
CMS-T-00012588-A.1

With the setting lever, the tilt of the harrow systems, the double harrow, the spring blade system and the spring clearer system can be conveniently adjusted.

4 | Product description

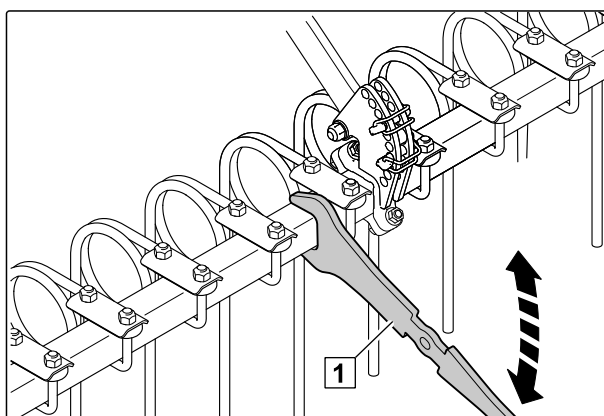
Setting lever for the trailing elements

- 1** Setting lever in parking position



CMS-I-00002241

- 1** Setting lever in set position



CMS-I-00007912

Technical data

5

CMS-T-00006737-D.1

5.1 Dimensions

CMS-T-00006741-C.1

Ceus	3000-TX	4000-TX
Transport width	3 m	4 m
Transport height	2 m	
Total length	8.5 m	
Working width	3 m	4 m

5.2 Soil tillage tools

CMS-T-00006777-C.1

5.2.1 Discs

CMS-T-00006738-C.1

Ceus	3000-TX	4000-TX
Quantity	24	32
Thickness	5 mm	
Diameter	51 cm	
Spacing	25 cm	
Working depth	5-14 cm	
Wear limit	36 cm	

5.2.2 Tine

CMS-T-00006778-C.1

Ceus	3000-TX	4000-TX
Quantity	7	9
Line distance	42.8 cm	44.4 cm
Number of tine rows	2	
Overload safety	C-Mix spring with a tripping force of 600 kg	
Working depth	8-30 cm	

5.3 Permitted mounting categories

CMS-T-00004236-A.1

Lower link mounting	Category 3, Category 4N and Category K700
---------------------	---

5.4 Permissible payload

CMS-T-00011015-B.1

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

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

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

5.5 Optimal working speed

CMS-T-00004756-C.1

8-15 km/h

5.6 Performance characteristics of the tractor

CMS-T-00006743-C.1

Type	Engine rating
Ceus 3000-TX	Starting at 110 kW/150 hp
Ceus 4000-TX	Starting at 150 kW/200 hp

Electrical system	
Battery voltage	12 V
Lighting socket	7-pin

Hydraulic system	
Maximum operating pressure	210 bar
Tractor pump output	At least 15 l/min at 150 bar
Implement hydraulic oil	HLP68 DIN51524 The hydraulic oil is suitable for the combined hydraulic oil circuits of all standard tractor manufacturers.
Control units	Depending on the implement equipment See section "Coupling the hydraulic hose lines".

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

5.7 Noise development data



CMS-T-00002296-C.1

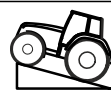
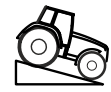
The workplace-related emission sound pressure level is lower than 70 dB(A), measured in operating condition at the ear of the tractor driver with the cab closed.

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

5.8 Drivable slope inclination

CMS-T-00002297-E.1

Across the slope		
On left in direction of travel	15 %	
On right in direction of travel	15 %	

Up the slope and down the slope		
Up the slope	15 %	
Down the slope	15 %	

Preparing the machine

6

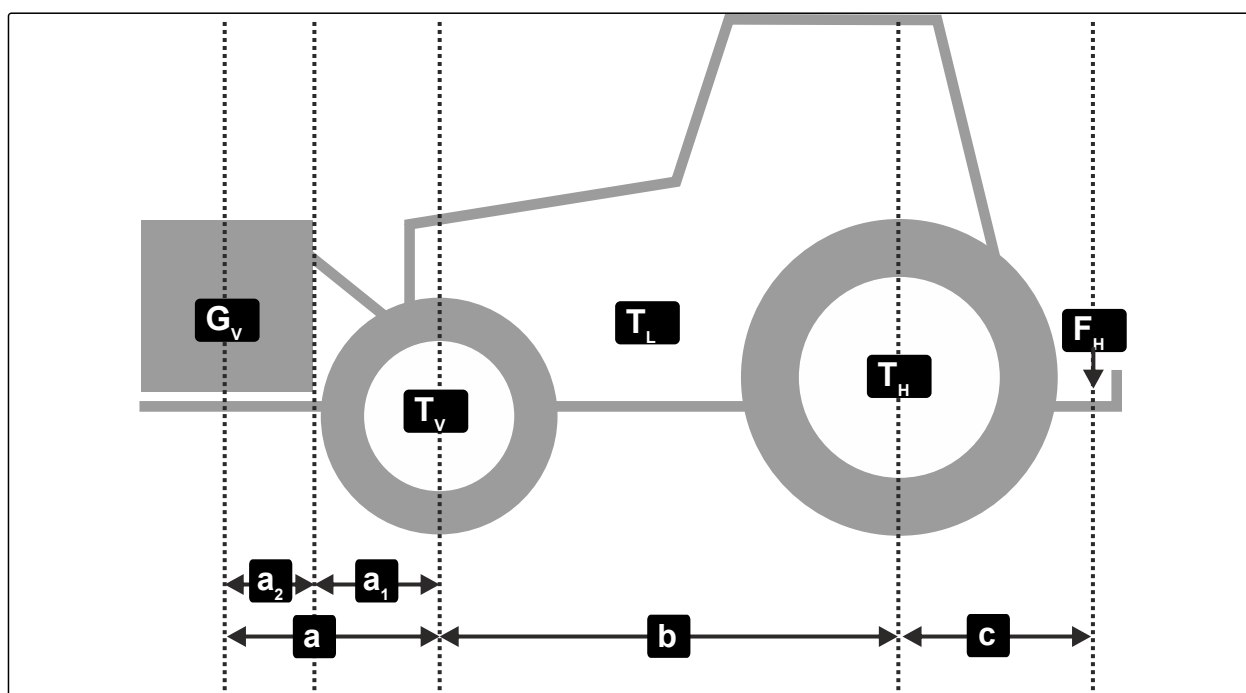
CMS-T-00006746-G.1

6.1 Checking the tractor suitability

CMS-T-00012279-A.1

6.1.1 Calculating the required tractor characteristics

CMS-T-00004868-E.1



CMS-I-00000580

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

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

1. Calculate the minimum front ballasting.

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

$$G_{\min} = \underline{\hspace{10em}}$$

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

CMS-I-00003504

2. Calculate the actual front axle load.

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

$$T_{Vtat} = \underline{\hspace{10em}}$$

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

CMS-I-00005422

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

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

$$G_{tat} =$$

$$G_{tat} =$$

CMS-I-00006344

4. Calculate the actual rear axle load.

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

$$T_{Htat} =$$

$$T_{Htat} =$$

CMS-I-00000514

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



IMPORTANT

Danger of accident due to implement damage caused by excessive loads

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

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

6.1.2 Comparing the permissible DC value with actual DC value

CMS-T-00004867-B.1

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

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

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

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

$$D_c = \text{ }$$

CMS-I-00003582

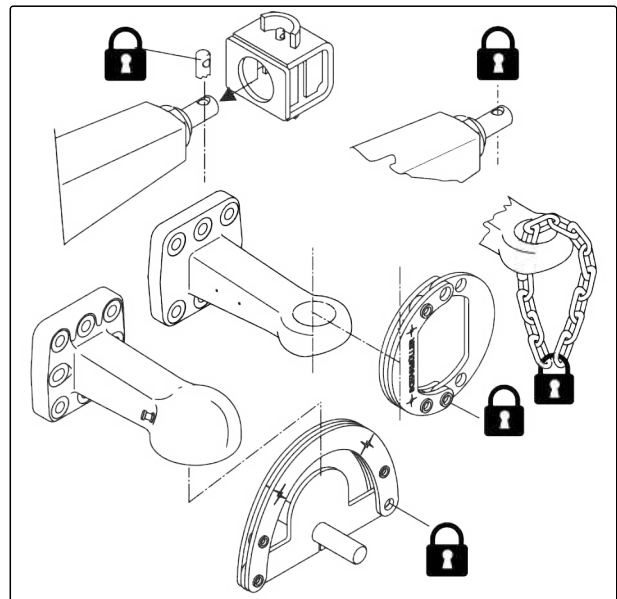
6.2 Coupling the implement

CMS-T-00006747-F.1

6.2.1 Removing the safety device against unauthorised use

CMS-T-00005089-B.1

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



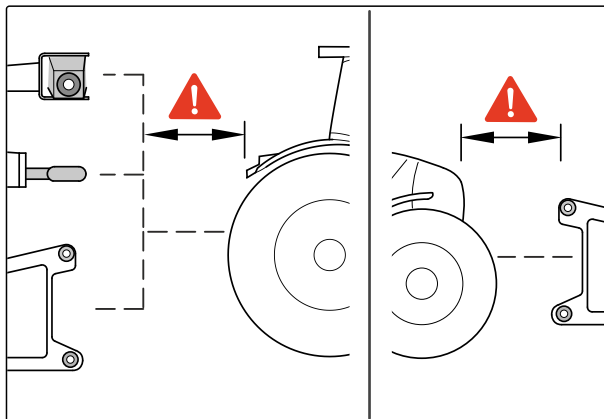
CMS-I-00003534

6.2.2 Driving the tractor towards the implement

CMS-T-00005794-D.1

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

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



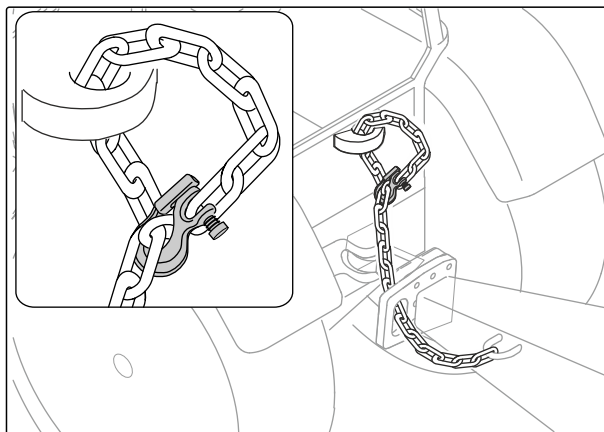
CMS-I-00004045

6.2.3 Fastening the safety chain

CMS-T-00004293-D.1

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

- Fasten the safety chain on the tractor as prescribed.



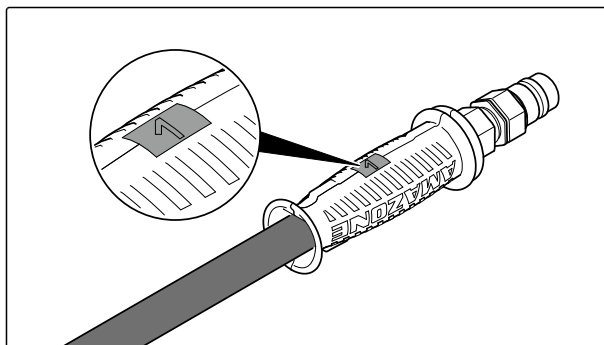
CMS-I-00007814

6.2.4 Coupling the hydraulic hose lines




CMS-T-00006765-B.1









All hydraulic hoses are equipped with handles. The handles have colour labels with a code number or a code letter. The labels are assigned to the respective hydraulic functions of the pressure line of a tractor control unit. Stickers are applied on the implement for the labels, 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	Hydraulic function	Symbol
Latching	Permanent hydraulic oil circulation	
Momentary	Hydraulic oil flow until action is executed	
Floating	Free hydraulic oil flow in the tractor control unit	

Designation		Function			Tractor control unit	
Yellow			Running gear	moving into working position	Double-acting	
				moving into headlands position or transport position		
Green			Working depth of the concave discs	Increase	Double-acting	
				Reduce		



WARNING

Risk of injury or even death

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

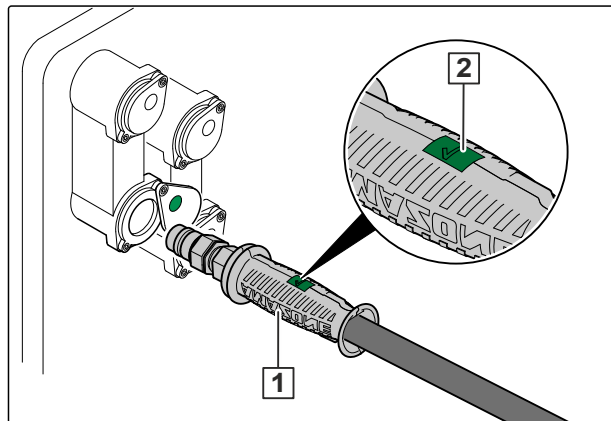
- ▶ When coupling the hydraulic hose lines, observe the coloured markings on the hydraulic plugs.

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

6 | Preparing the machine

Coupling the implement

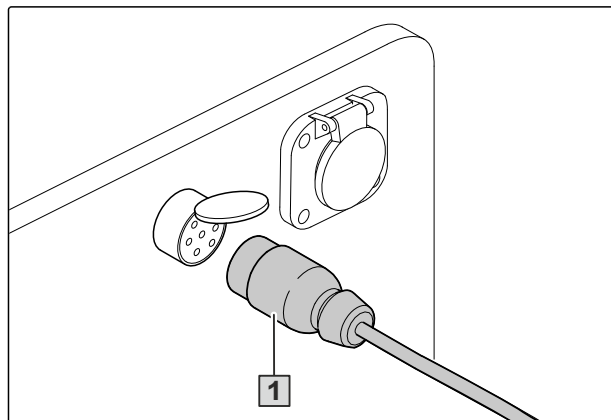
3. Couple the hydraulic hose lines **1** to the hydraulic sockets of the tractor according to the marking **2**.
- ➔ The hydraulic plugs lock perceptibly.
4. Route the hydraulic hose lines with sufficient freedom of movement and without chafing points.



CMS-I-00001045

6.2.5 Coupling the power supply

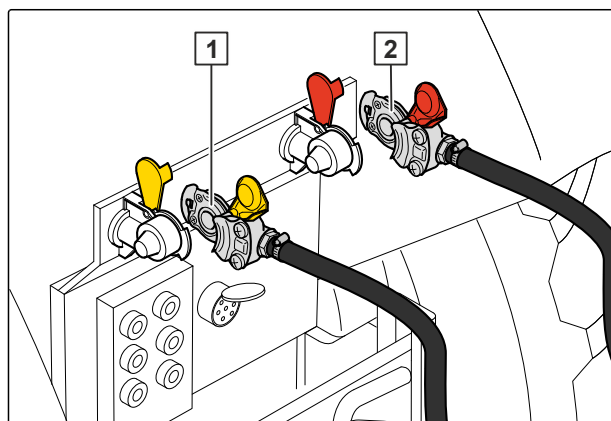
1. Insert the plug **1** for the power supply.
2. Route the power supply cable with sufficient freedom of movement and without chafing or pinching points.
3. Check the lighting on the implement for proper function.



CMS-I-00001048

6.2.6 Coupling the dual-circuit pneumatic brake system

1. Open the cover of the coupling heads on the tractor.
2. Clean off any dirt from the sealing rings on the coupling heads.
3. Uncouple the yellow coupling head of the brake line **1** from the empty coupling.
4. Couple the yellow coupling head with the coupling marked in yellow on the tractor.
5. Uncouple the red coupling head of the brake line **2** from the empty coupling.



CMS-I-00003559

6. Couple the red coupling head with the coupling marked in red on the tractor.
7. Route the brake lines with sufficient freedom of movement and without chafing or pinching points.

6.2.7 Connecting the coupling device

CMS-T-00012275-A.1

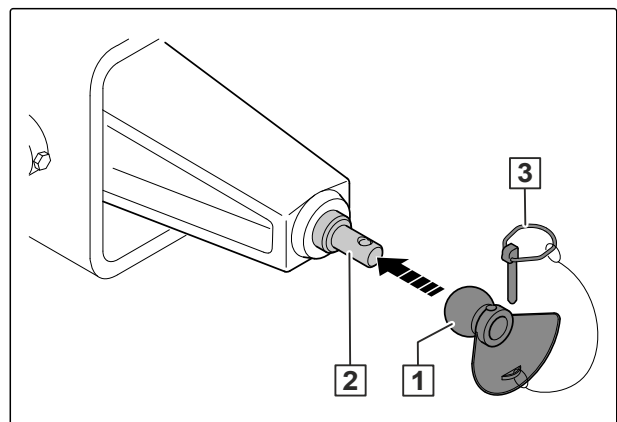
6.2.7.1 Coupling on the lower link hitch

CMS-T-00004301-F.1

6.2.7.1.1 Attaching the backstop profiles for the lower links

CMS-T-00010330-A.1

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

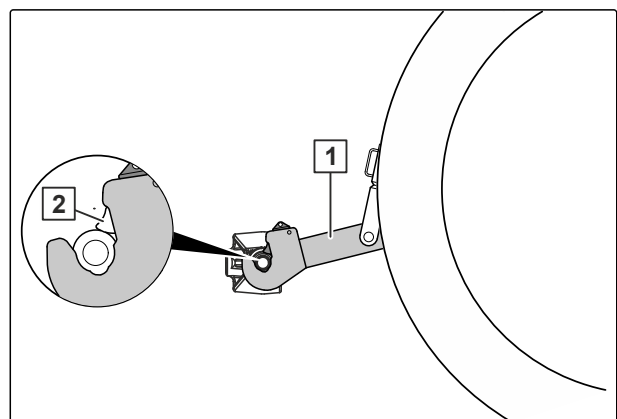


CMS-I-00007047

6.2.7.1.2 Coupling the tractor's lower link

CMS-T-00004294-F.1

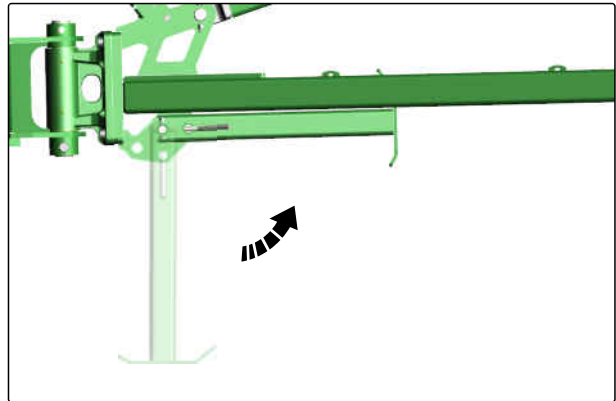
1. Set the tractor lower links **1** to the same height.
2. Drive the tractor towards the implement.
3. Couple the tractor lower links from the tractor seat.
4. Check whether the lower link catch hooks **2** are correctly locked.
5. Lock the tractor lower links laterally.



CMS-I-00003346

6.2.7.1.3 Swivelling up the jack

1. To unload the jack, slightly raise the implement using the lower link.
2. Pull out the linch pin from the pin.
3. Pull out the pin.
4. Swivel up the jack.
5. Insert the pin.
6. Secure the pin with a linch pin.

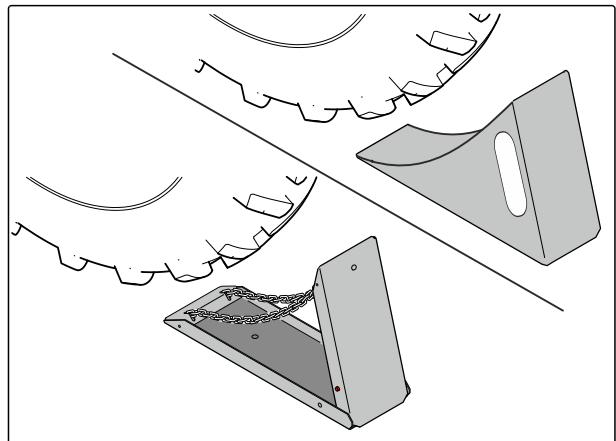


CMS-T-00004295-C.1

CMS-I-00003350

6.2.8 Removing the wheel chocks

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

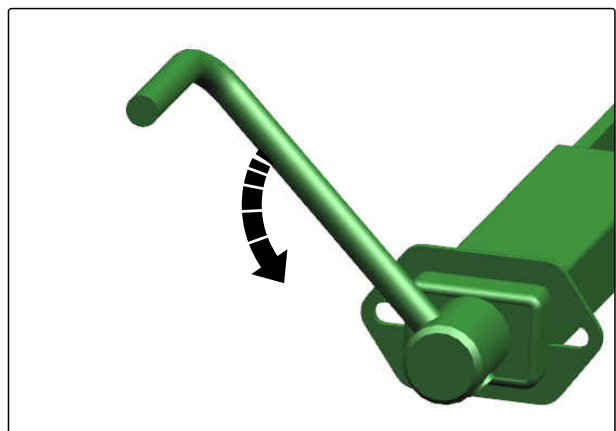


CMS-T-00004296-D.1

CMS-I-00007790

6.2.9 Releasing the parking brake

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



CMS-T-00012108-A.1

CMS-I-00007808

6.3 Preparing the implement for operation

CMS-T-00006751-E.1

6.3.1 Preparing the implement for working without or with the roller

CMS-T-00006815-A.1

6.3.1.1 Removing the roller

CMS-T-00006816-A.1

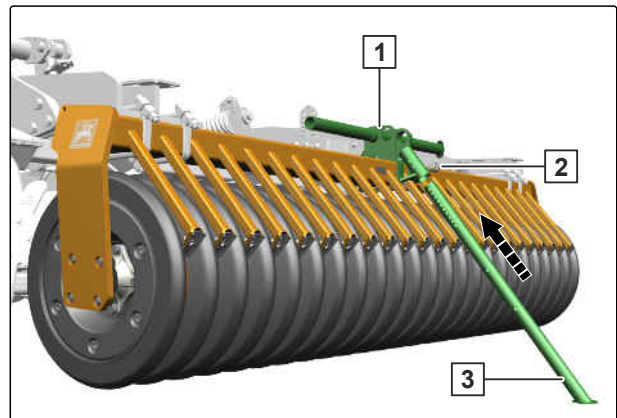
The implement can be used with or without the roller. When working without the roller, the depth of the implement is controlled via the lower link hitch and the running gear. Single rollers are parked with a roller holder.



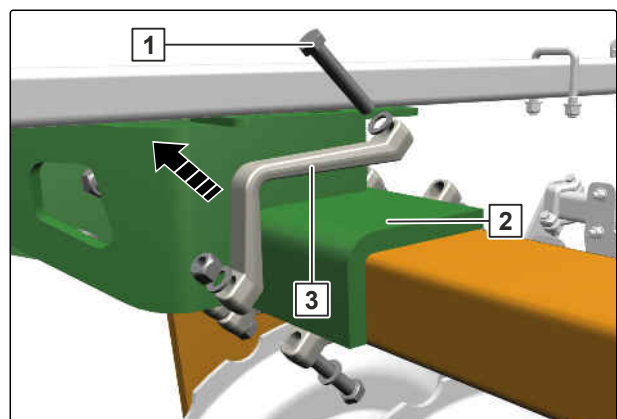
REQUIREMENTS

- ☑ The implement is coupled
- ☑ The implement is aligned horizontally
- ☑ The tine array is set to the shallowest working depth

1. Lower the running gear into transport position using the "yellow 2" tractor control unit.
2. *If the roller holder is not in the parking position on the roller for single rollers:*
Screw on the mount **1** for the roller holder onto the roller.
3. Insert the parking legs **3** of the roller holder into the mount.
4. Secure the parking legs with the linch pins **2**.
5. Raise the running gear into working position using the "yellow 1" tractor control unit, until the parking legs of the roller holder are standing on the ground.
6. Unscrew the bolted connections **1** on the roller mounts **2**.
7. Remove the clamping brackets **3** and bolted connections.
8. Lower the running gear into transport position using the "yellow 2" tractor control unit.
9. Drive the implement away from the roller.



CMS-I-00004834



CMS-I-00004821

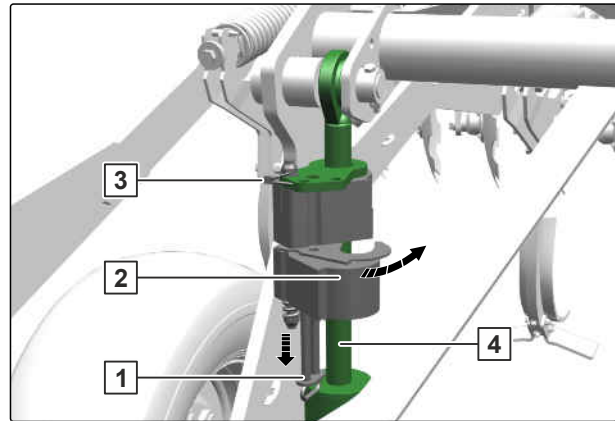


IMPORTANT

Damage due to spacer elements not being used or not used properly

The implement can be damaged if the spacer elements are not swivelled in or out or are not swivelled in or out properly after dismantling the roller or before mounting the roller.

- ▶ Always swivel the spacer elements in or out on both running gear hydraulic cylinders.
- ▶ Always swivel the spacer elements in after dismantling the roller, and always swivel them out before mounting the roller.
- ▶ After swivelling in the spacer elements, make sure that the recesses of the spacer elements are always fully resting on the piston rods.



CMS-I-00004838

10. Pull the linch pin **3** out of the front pin of the double pin **1**.
11. Pull down the double pin and swivel in as many spacer elements **2** on the piston rod **4** of the running gear hydraulic cylinder as required for the desired working depth.
12. Push the double pin all the way up again.
13. Secure the double pin on the front pin again with the linch pin.
14. Repeat steps 10 to 13 on the second running gear hydraulic cylinder.

6.3.1.2 Mounting the roller

CMS-T-00006817-A.1

The implement can be used with or without the roller. When working with the roller, the depth of the implement is controlled via the lower link hitch and the roller. Single rollers are parked with a roller holder.



REQUIREMENTS

- ☑ The implement is coupled
- ☑ The implement is aligned horizontally
- ☑ The tine array is set to the shallowest working depth

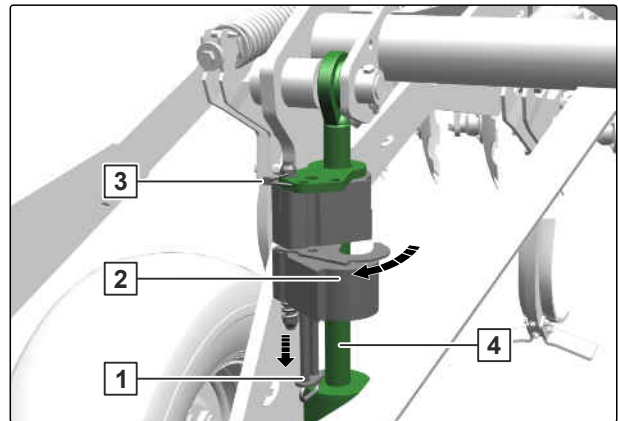


IMPORTANT

Damage due to spacer elements not being used or not used properly

The implement can be damaged if the spacer elements are not swivelled in or out or are not swivelled in or out properly after dismantling the roller or before mounting the roller.

- ▶ Always swivel the spacer elements in or out on both running gear hydraulic cylinders.
- ▶ Always swivel the spacer elements in after dismantling the roller, and always swivel them out before mounting the roller.
- ▶ After swivelling in the spacer elements, make sure that the recesses of the spacer elements are always fully resting on the piston rods.



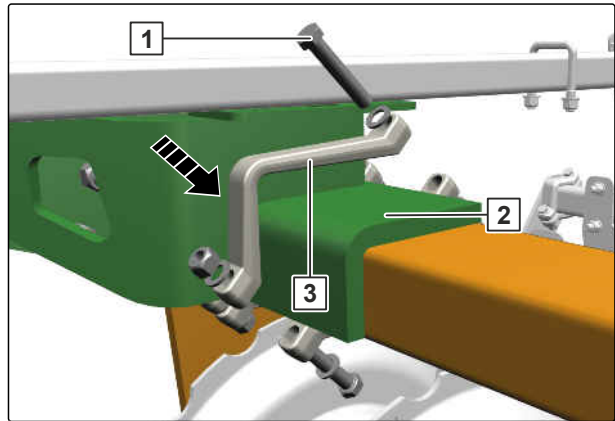
CMS-I-00004837

1. Lower the running gear into transport position using the "yellow 2" tractor control unit.
2. Pull the linch pin **3** out of the front pin of the double pin **1**.
3. Pull down the double pin and swivel away the spacer elements **2** from the piston rod **4** of the running gear hydraulic cylinder until all of the spacer elements are swivelled out.
4. Push the double pin all the way up again.
5. Secure the double pin on the front pin again with the linch pin.
6. Repeat steps 2 to 5 on the second running gear hydraulic cylinder.

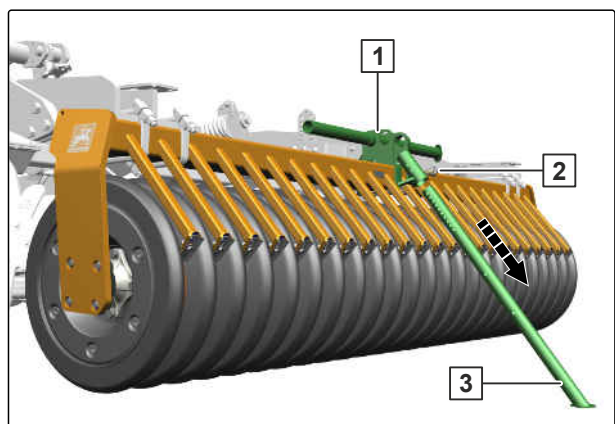
6 | Preparing the machine

Preparing the implement for operation

7. With the help of a guide, drive with the implement in reverse over the parked roller.
8. Raise the running gear into working position using the "yellow 1" tractor control unit, until the roller mounts are resting on the roller.
9. Fasten the roller on the roller mounts **2** with clamping brackets **3** and bolted connections **1**.
10. Lower the running gear into transport position using the "yellow 2" tractor control unit.
11. *If the roller is a single roller with mounted roller holder:*
Remove the linch pins **2** on the parking legs **3** of the roller holder.
12. Pull the parking legs out of the mount **1**.
13. Put the parking legs in parking position in the top holes of the mount.
14. Secure the parking legs with linch pins.



CMS-I-00004822



CMS-I-00004835

6.3.2 Unlocking the tractor control units

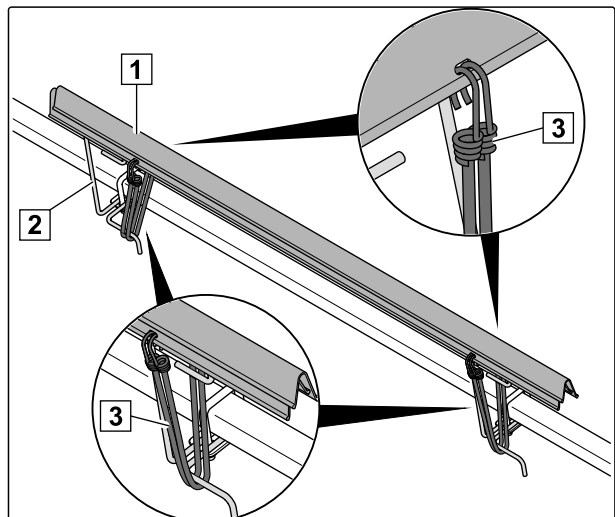
CMS-T-00006819-C.1

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

6.3.3 Removing the road safety bars

CMS-T-00000091-D.1

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

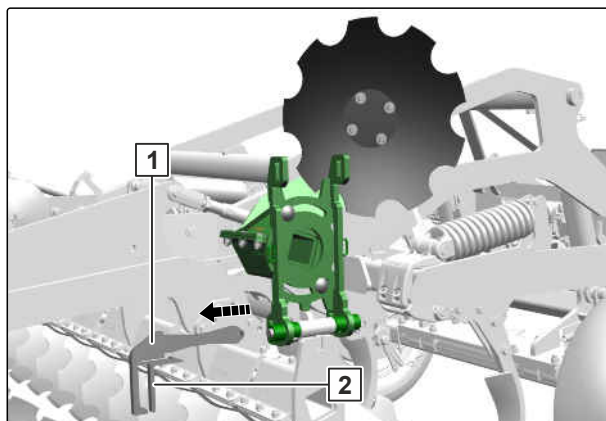


CMS-I-00000518

6.3.4 Preparing the side discs for operation

CMS-T-00006865-A.1

1. Release the locking hook **1** by pressing on the handle **2** and pull it out.



CMS-I-00004815

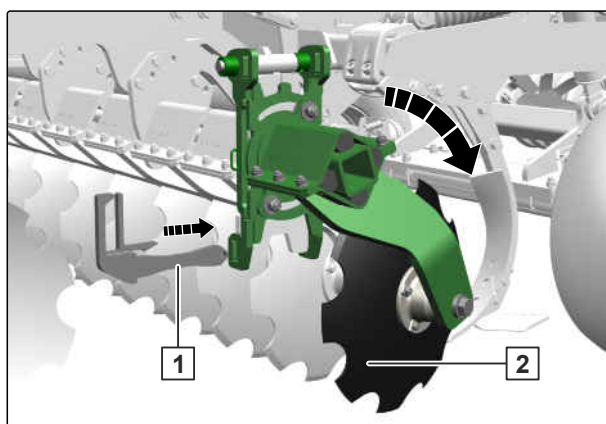


WARNING

Risk of crushing

- Swivel the side discs carefully to the desired position.

2. Swivel down the side disc **2**.
3. Secure the side disc with the locking hook **1**.
4. Prepare the side disc on the other side of the disc gang for operation in the same way.



CMS-I-00004816

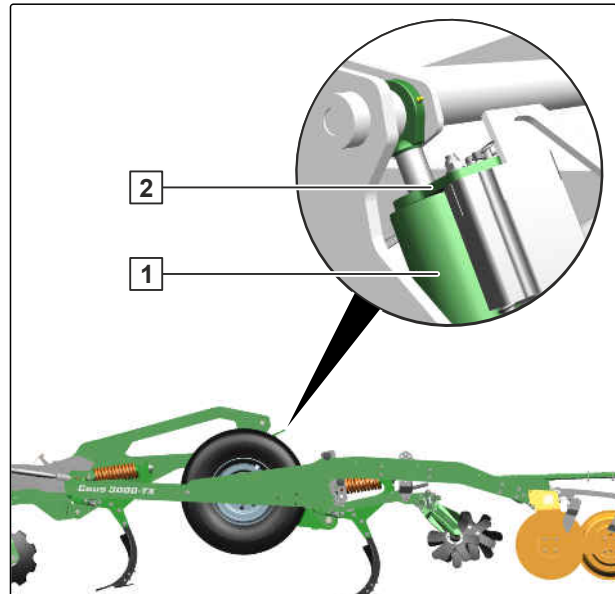
6.3.5 Raising the running gear into working position

CMS-T-00006818-B.1

6.3.5.1 Raising the running gear into working position with the roller

CMS-T-00006820-B.1

- Raise the running gear into working position using the "yellow 1" tractor control unit, until the cylinder tube **1** is resting on the stop plate **2** on the hydraulic cylinders.

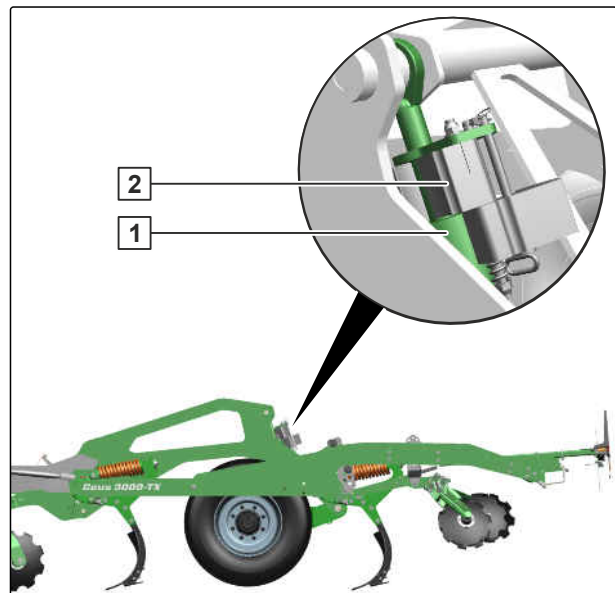


CMS-I-00004824

6.3.5.2 Raising the running gear into working position without the roller

CMS-T-00006821-B.1

- Raise the running gear into working position using the "yellow 1" tractor control unit, until the cylinder tube **1** is resting on the lowest of the swivelled-in spacer elements **2** on the hydraulic cylinders.



CMS-I-00004831

6.3.6 Adjusting the working depth of the discs

CMS-T-00006888-B.1

Selection of the working depth of the discs depends on different factors, e.g.:

- Soil type: light to heavy, dry to wet
- Forward speed

- Setting
- Condition of the seedbed

The arrow **1** on the scale **2** shows the set working depth.



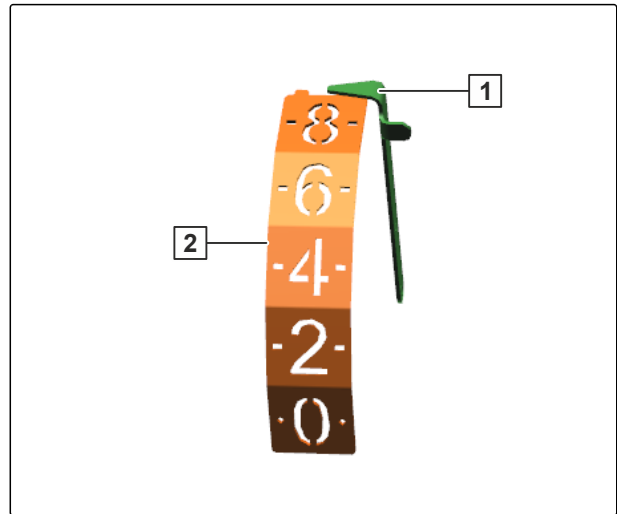
NOTE

The scale value only serves for orientation. The scale value does not represent the working depth in centimetres.

- To reduce the working depth of the discs, actuate the "green 3" tractor control unit

or

To increase the working depth of the discs, actuate the "green 4" tractor control unit.



CMS-I-00002447

6.3.7 Adjusting the working depth of the side discs

CMS-T-00006268-C.1

The working depth of the side discs is adjusted to prevent the formation of soil ridges during operation.

1. Raise the implement.
2. Remove the bolt **1**.

The bearing journal and the hub of the side disc **2** serve as handles.

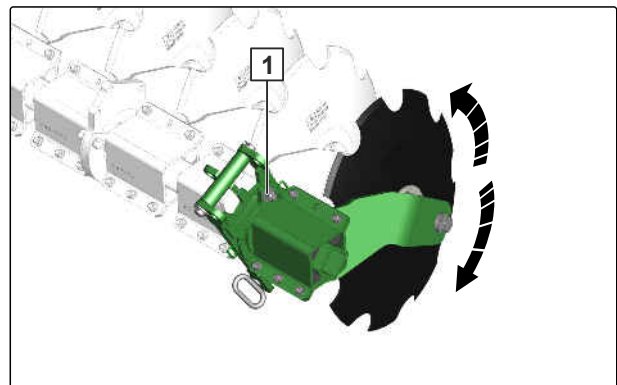
3. Move the side disc up or down.



NOTE

The specified working width is only achieved when all of the discs are set to the same working depth.

4. Tighten the bolts.



CMS-I-00004463

6.3.8 Adjusting the throughput of the disc gangs

CMS-T-00006961-C.1

The disc gangs can be set to high throughput **A** or low throughput **B**:

- If the disc gangs are set to high throughput, the tines can work at a depth of 14.5 cm with the disc gangs fully lifted, without the discs penetrating the soil. If the tines work at a depth of 30 cm, the discs are working at a depth of 15 cm.
- If the disc gangs are set to low throughput, the tines can work at a depth of 22.5 cm with the disc gangs fully lifted, without the discs penetrating the soil. If the tines work at a depth of 30 cm, the discs are working at a depth of 7,5 cm.

High throughput is pre-set at the factory, and must be selected under the following conditions:

- High amount of organic matter
- High amounts of crop residues
- If the discs are used at the maximum working depth

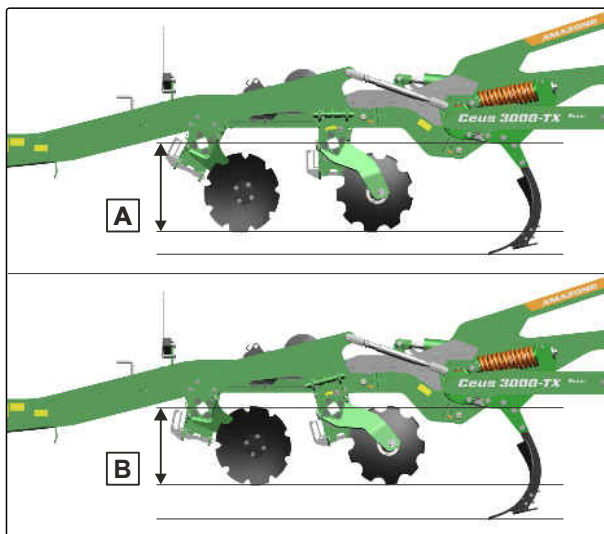
Low throughput must be selected under the following conditions:

- If the pulling force requirement should be reduced at the maximum working depth
- Under wet conditions and high working depth of the tine array
- When the tines should work deep, but not with the discs

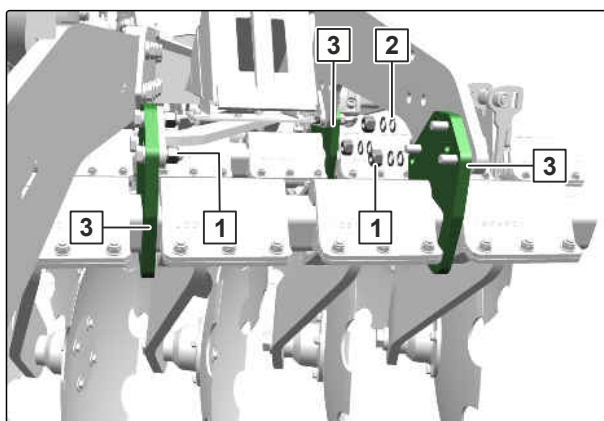
1. *To change the disc gangs from high throughput to low throughput:*

Lower the running gear into transport position.

2. Set the working depth of the disc gangs to the smallest value using the "green 3" tractor control unit.
3. Secure each disc gang with suitable lifting gear and slings against lowering.
4. Unscrew the nuts **1** on all of the bearing plates **3** of the disc gangs and remove them along with the wedge lock washers **2**.

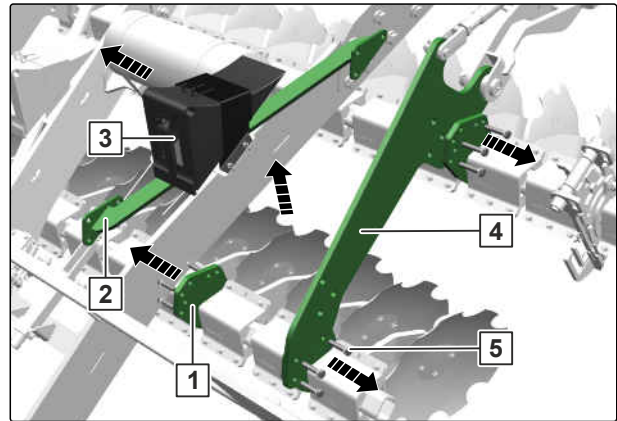


CMS-I-00004871



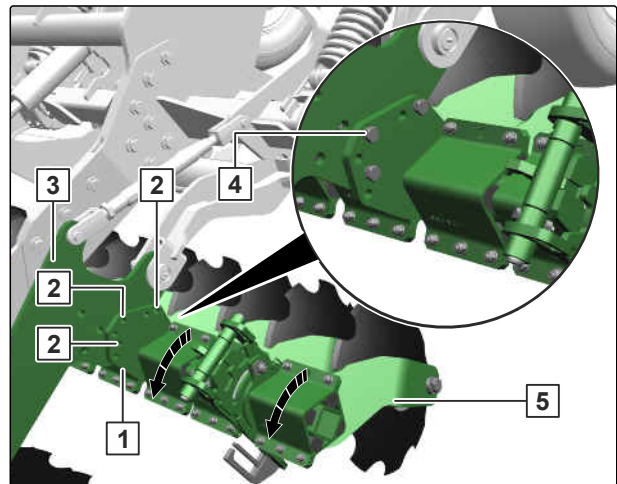
CMS-I-00004879

5. Pull the bolts **5** along with the wedge lock washers out of the bearing plates **1** and disc gang carriers **4**.
6. Remove the diagonal braces **2** along with the wedges **3**.



CMS-I-00004883

7. Turn the disc gangs **5** around the longitudinal axis until the previously free holes **2** of the bearings plates **1** are aligned with the holes of the disc gang carriers **3**.
8. Insert the bolts **4** along with the wedge lock washers through the holes on all of the bearing plates and disc gang carriers.
9. Put on the diagonal braces along with the wedges.
10. Put the nuts along with the wedge lock washers onto all of the bolts.



CMS-I-00004887

11. Tighten all of the nuts.
12. *To change the disc gangs from low throughput to high throughput:*
Perform all of the work steps in the same way. At step 7, however, turn the disc gangs in the other direction around the longitudinal axis.

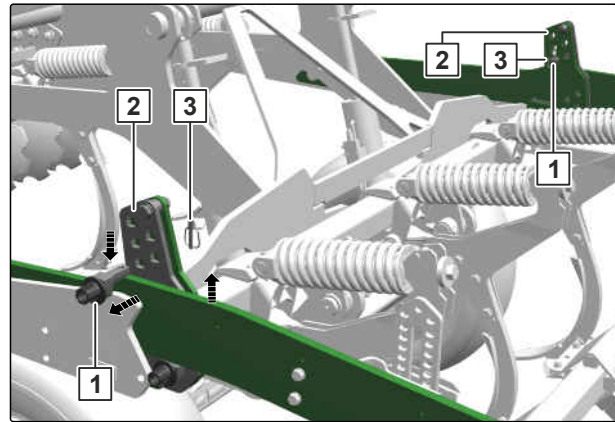
6.3.9 Adjusting the working depth of the coulters

CMS-T-00006916-B.1

6.3.9.1 Increasing the working depth of the coulters

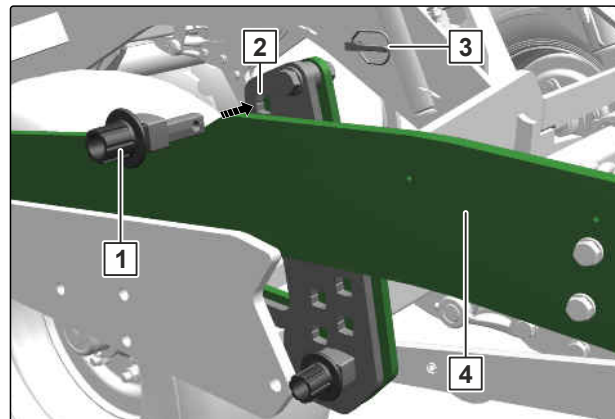
CMS-T-00006908-B.1

1. Lower the running gear into transport position.
2. Pull out the linch pin **3** of the top eccentric pin **1** on both sides of the working depth adjustment.
3. Pull the top eccentric pin out of the hole pattern **2**.
4. Raise the running gear into working position until the coulters have reached the desired lower position.



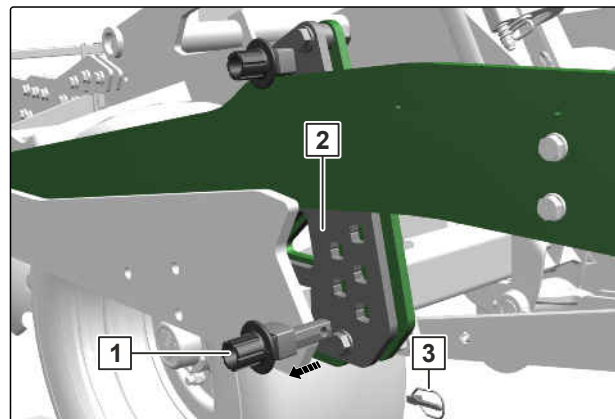
CMS-I-00004846

5. Insert the top eccentric pins **1** through the hole **2** just above the rear rocker arm **4** on both sides. In doing so, turn the eccentric pin so that it rests against the rear rocker arm without play after being inserted.
6. Secure the top eccentric pin with the linch pin **3** on both sides.



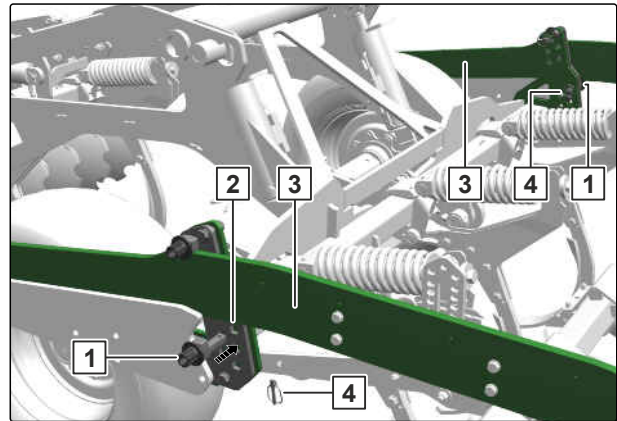
CMS-I-00004847

7. Pull out the linch pin **3** of the bottom eccentric pin **1** on both sides.
8. Pull the bottom eccentric pin out of the hole pattern **2**.



CMS-I-00004848

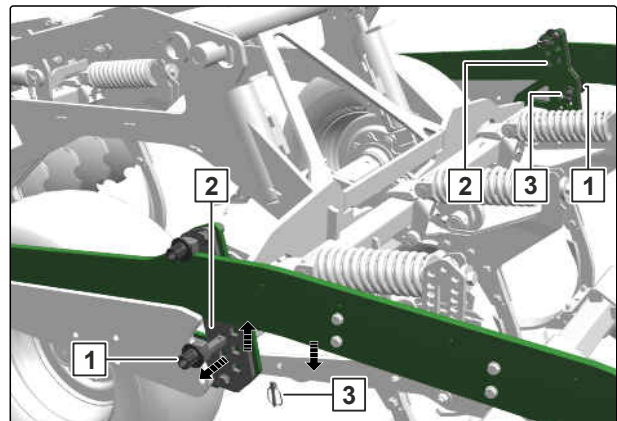
9. Reinsert the bottom eccentric pins **1** each in the hole **2** just below the rear rocker arm **3**. In doing so, turn the eccentric pin so that it rests against the rear rocker arm without play after being inserted.
10. Secure the bottom eccentric bolt with a linch pin **4**.
11. Using the lower links, align the implement such that the frame is parallel to the ground lengthwise.



CMS-I-00004851

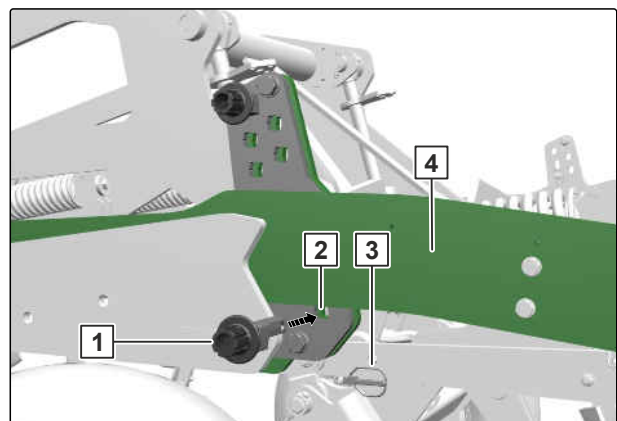
6.3.9.2 Reducing the working depth of the coulters

1. Raise the running gear into working position.
2. Pull out the linch pin **3** of the bottom eccentric pin **1** on both sides of the working depth adjustment.
3. Pull the bottom eccentric pin out of the hole pattern **2**.
4. Lower the running gear into transport position, until the coulters have reached the desired higher position.
5. Insert the bottom eccentric pin **1** through the hole **2** just below the rear rocker arm **4** on both sides. In doing so, turn the eccentric pin so that it rests against the rear rocker arm without play after being inserted.
6. Secure the bottom eccentric pin with the linch pin **3** on both sides.



CMS-T-00006915-B.1

CMS-I-00004852

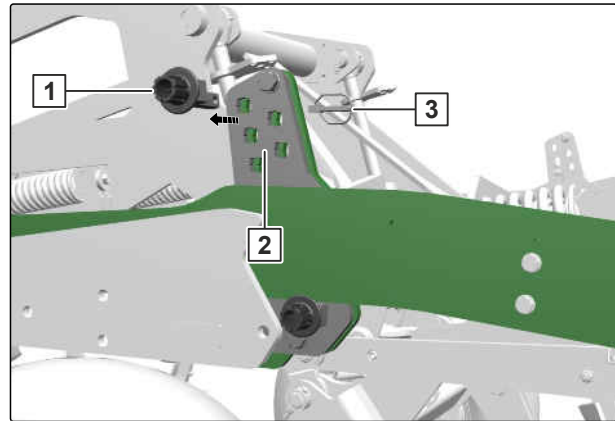


CMS-I-00004855

6 | Preparing the machine

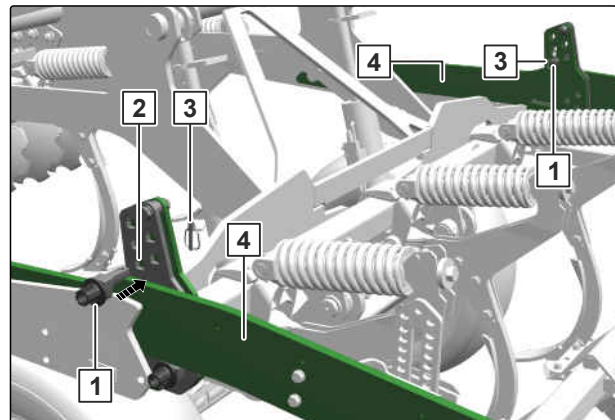
Preparing the implement for operation

7. Pull out the linch pin **3** of the top eccentric pin **1** on both sides.
8. Pull the top eccentric pin out of the hole pattern **2**.



CMS-I-00004860

9. Reinsert the top eccentric pins **1** each in the hole **2** just above the rear rocker arm **4**. In doing so, turn the eccentric pin so that it rests against the rear rocker arm without play after being inserted.
10. Secure the top eccentric bolt with a linch pin **3**.
11. Raise the running gear into working position.
12. Using the lower links, align the implement such that the frame is parallel to the ground lengthwise.

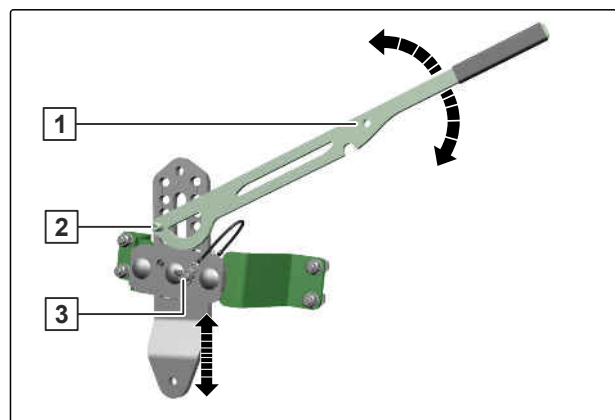


CMS-I-00004862

6.3.10 Manual adjustment of the levelling working depth

CMS-T-00004167-D.1

1. Slightly raise the implement.
2. Move the setting lever **1** from parking position.
3. Position the setting lever in the group of holes with the pin **2**.
4. Slightly lift the levelling with the setting lever and pull the pin **3** out of the group of holes.
5. *To change the working depth,* swivel the setting lever up or down.
6. Insert the pin **3** in the group of holes.
7. Take out the setting lever.
8. Repeat the procedure on the other side.



CMS-I-00003060

9. *When the desired working depth has not been reached yet,*
repeat the procedure.
10. Fasten the setting lever in the parking position.

6.3.11 Preparing the edge levelling discs for operation

CMS-T-00006831-B.1

6.3.11.1 Adjusting the edge levelling discs

CMS-T-00004545-D.1

The working depth and penetration angle of the edge levelling discs are adjusted to prevent the formation of soil ridges during operation.

1. Raise the implement.

2. Loosen the bolts **1**.

The bearing journal and the hub of the edge levelling disc **3** serve as handles.

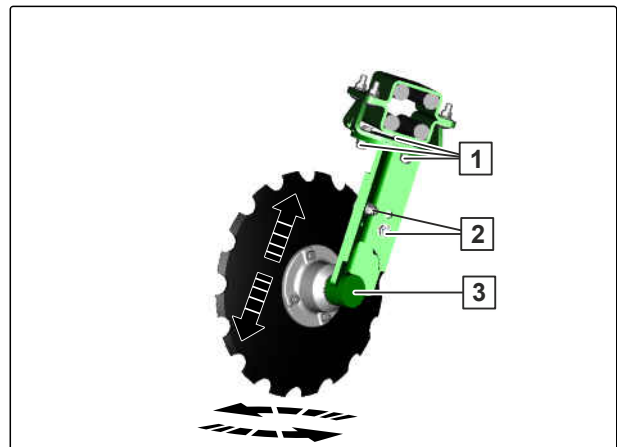
3. Turn the edge levelling disc to the desired position.

4. Tighten the bolts **1**.

5. Loosen the bolts **2**.

6. Move the edge levelling disc up or down.

7. Tighten the bolts **2**.

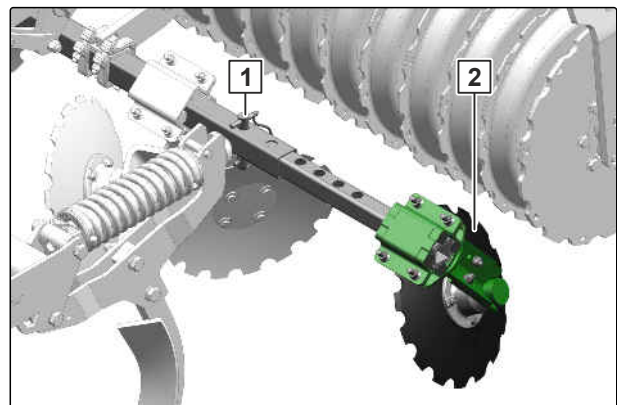


CMS-I-00003276

6.3.11.2 Moving the edge levelling discs manually

CMS-T-00006610-C.1

1. Pull out the pin **1**.
2. Slide the edge levelling disc **2** to the desired position.
3. Secure the edge levelling disc with a pin.
4. Secure the pin with a linch pin.



CMS-I-00004690

6.3.12 Adjusting the scraper to the roller

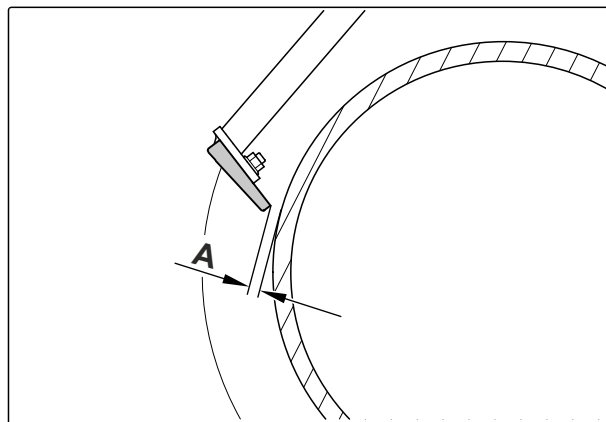
CMS-T-00000076-F.1

The scrapers on the roller are set at the factory. The scrapers can be adapted to the working conditions.

NOTE

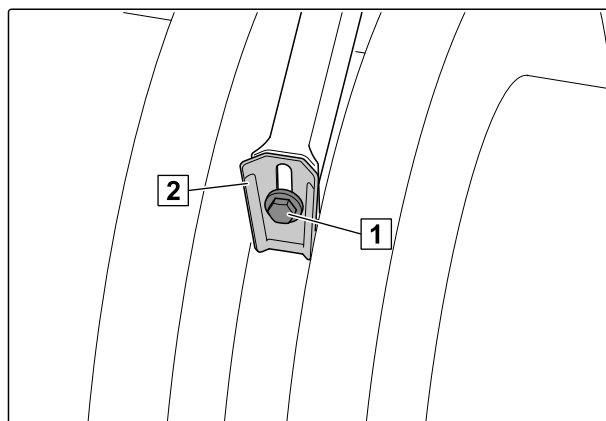
Permitted distances **A** between the roller element and scraper:

- Wedge ring roller: $12 \text{ mm} \pm 2 \text{ mm}$
- Wedge ring roller with matrix tyre profile: $13 \text{ mm} \pm 2 \text{ mm}$
- Tooth packer roller: at least 1 mm



CMS-I-00002071

1. Loosen the bolt **1** on the scraper **2**.
2. Move the scraper in the elongated slot.
3. Tighten the bolt **1**.
4. Check the distances when the implement is lowered.



CMS-I-00000521

6.3.13 Adjusting the trailing elements

CMS-T-00012141-A.1

6.3.13.1 Adjusting the harrow system 12-125 HI

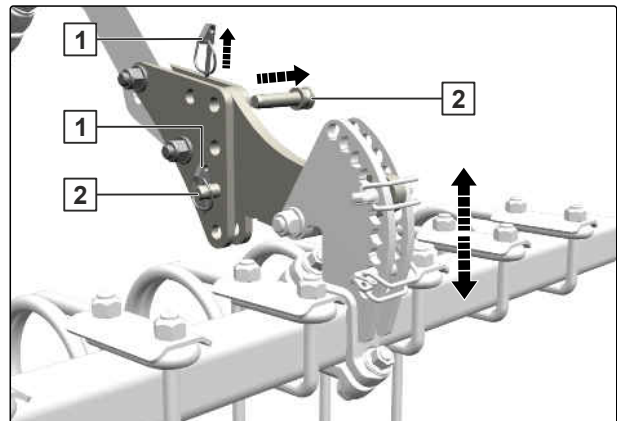
CMS-T-00012142-A.1

6.3.13.1.1 Adjusting the height of the harrow system 12-125 HI

CMS-T-00012144-A.1

Four height settings can be pegged with the two pins on the adjustment units.

1. Secure the harrow with suitable lifting gear and slings against lowering.
2. Pull out the linch pins **1** from the two pins **2**.
3. Pull out the two pins.
4. Remove the pins on the second adjustment unit in the same way.
5. Lift or lower the harrow to the desired height.
6. Secure the setting with the pins.
7. Secure the pins with the linch pins.



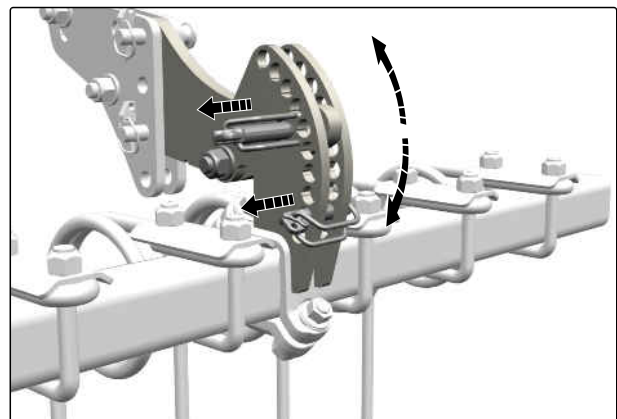
CMS-I-00007854

6.3.13.1.2 Adjusting the tilt of the harrow system 12-125 HI

1. Pull out the both linch pins on both adjustment units.

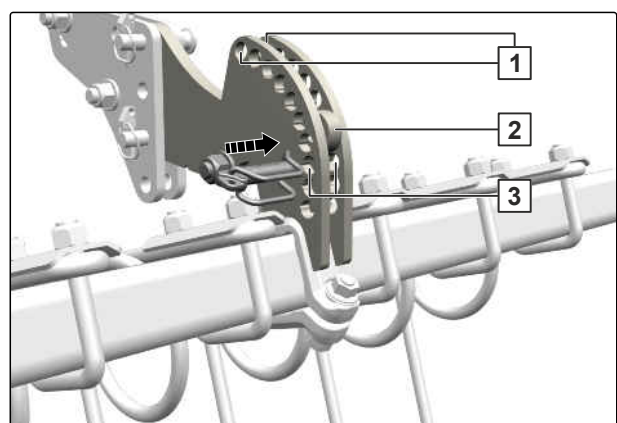
The next step can also be performed with the setting lever.

2. Turn the harrow to the desired position.



CMS-I-00007852

3. Insert a linch pin through each of the holes **3** directly below the bracket **2**.
4. Park the second linch pin in each of the topmost holes **1**.



CMS-I-00007853

6.3.13.2 Adjusting harrow system 12-125 HI KWM/DW

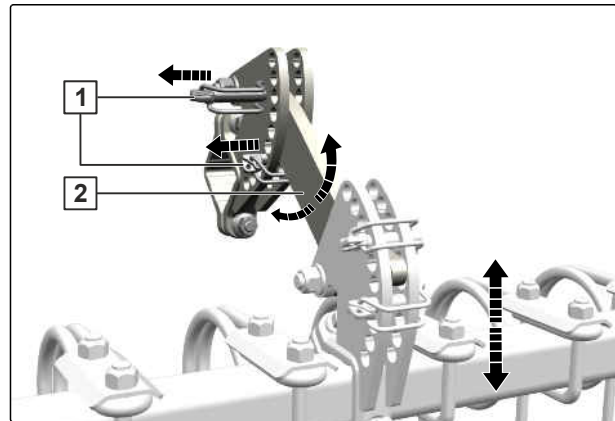
CMS-T-00012148-A.1

6.3.13.2.1 Adjusting the height of harrow system 12-125 HI KWM/DW

CMS-T-00012150-A.1

Six height settings can be pegged with the two linch pins on the adjustment units.

1. Pull out the both linch pins **1** on both adjustment units.
2. Lift or lower the harrow to the desired height.
3. Insert a linch pin through each of the holes directly above the bracket **2**.



CMS-I-00007870

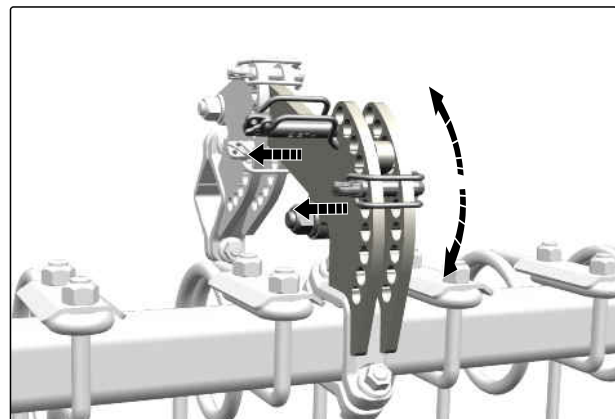
6.3.13.2.2 Adjusting the tilt of harrow system 12-125 HI KWM/DW

CMS-T-00012149-A.1

1. Pull out the both linch pins on both adjustment units.

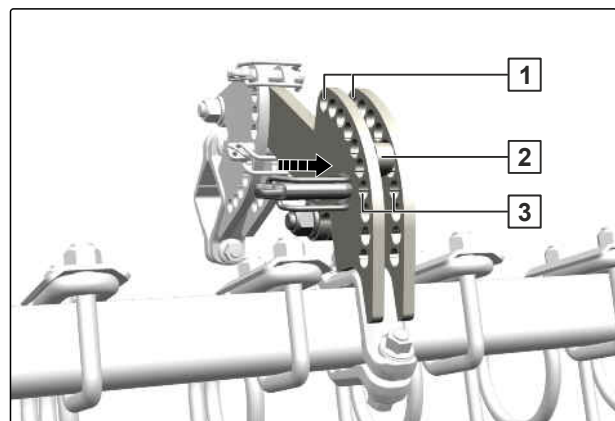
The next step can also be performed with the setting lever.

2. Turn the harrow to the desired position.



CMS-I-00007866

3. Insert a linch pin through each of the holes **3** directly below the bracket **2**.
4. Park the second linch pin in each of the topmost holes **1**.



CMS-I-00007869

6.3.13.3 Adjusting the harrow system 12-250 HI

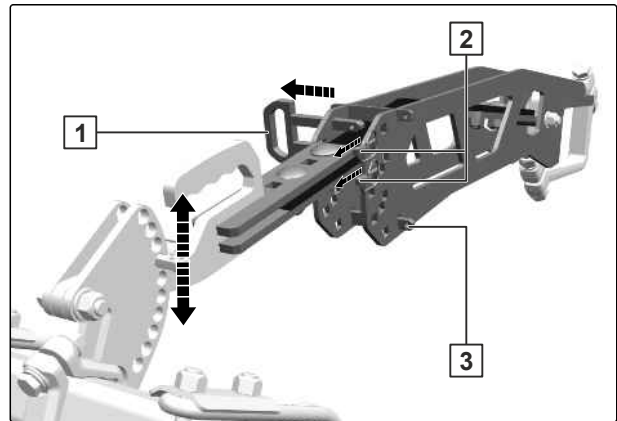
CMS-T-00012163-A.1

6.3.13.3.1 Adjusting the height of the harrow system 12-250 HI

CMS-T-00012166-A.1

Five height settings can be pegged with the double pin on the adjustment units.

1. On both adjustment units, pull the two linch pins **2** out of the double pin **1** and insert them in the parking positions **3**.
2. Pull out the double pin.
3. Lift or lower the harrow to the desired height.
4. Secure the setting with the double pins.
5. Pull the linch pins out of the parking position and secure the double pin with the linch pins.



CMS-I-00007880

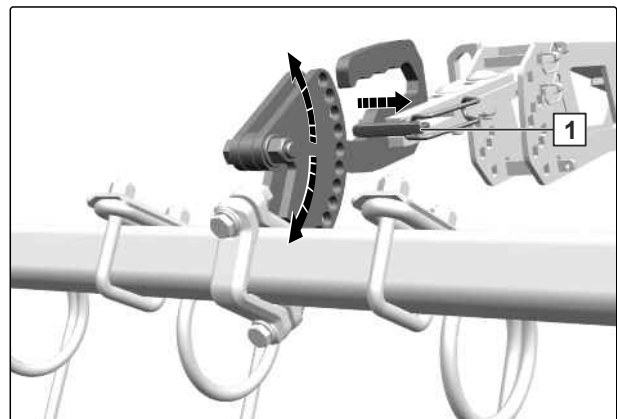
6.3.13.3.2 Adjusting the tilt of the harrow system 12-250 HI

CMS-T-00012164-A.1

1. Pull out the the linch pins **1** on both adjustment units.

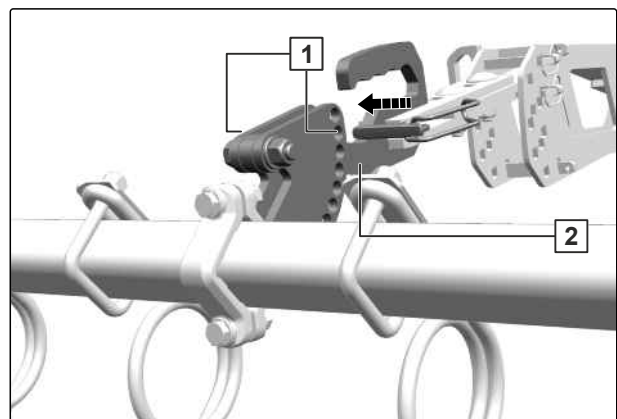
The next step can also be performed with the setting lever.

2. Turn the harrow to the desired position.



CMS-I-00007871

3. Insert a linch pin through each of the holes **1** directly above the bracket **2**.



CMS-I-00007874

6.3.13.4 Adjusting the double harrow CXS

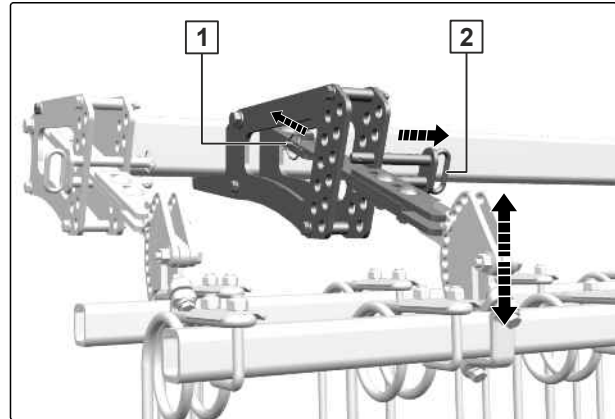
CMS-T-00012167-A.1

6.3.13.4.1 Adjusting the height of the double harrow CXS

CMS-T-00012169-A.1

Nine height settings can be pegged with the double pin on the adjustment units.

1. Pull the linch pin **1** out of the double pin **2** on both adjustment units of a double harrow bar.
2. Pull out the double pin.
3. Lift or lower the harrow bar to the desired height.
4. Secure the setting with the double pins.
5. Secure the double pin with the linch pins.
6. Adjust the height of the second double harrow bar in the same way.



CMS-I-00007887

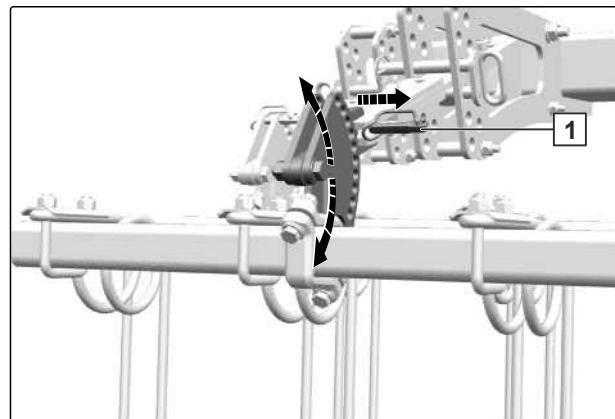
6.3.13.4.2 Adjusting the tilt of the double harrow CXS

CMS-T-00012168-A.1

1. Pull out the linch pin **1** on both adjustment units of a harrow bar.

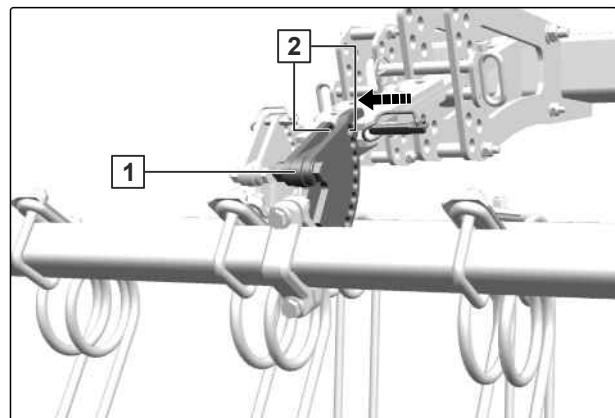
The next step can also be performed with the setting lever.

2. Turn the harrow beam to the desired position.



CMS-I-00007882

3. Insert a linch pin through each of the holes **2** directly above the bracket **1**.
4. Adjust the tilt of the second double harrow bar in the same way.



CMS-I-00007884

6.3.13.5 Adjusting the spring blade system 142 or spring clearer system 167

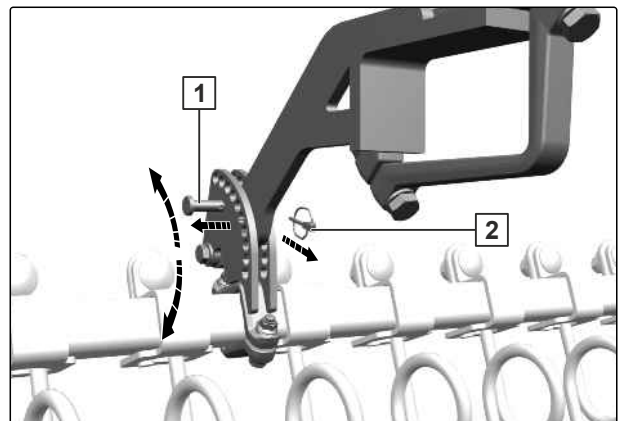
CMS-T-00012170-A.1

1. Pull the linch pin **2** out of the pin **1** on both adjustment units of a spring blade bar or spring clearer bar.

2. Pull out the pin.

The next step can also be performed with the setting lever.

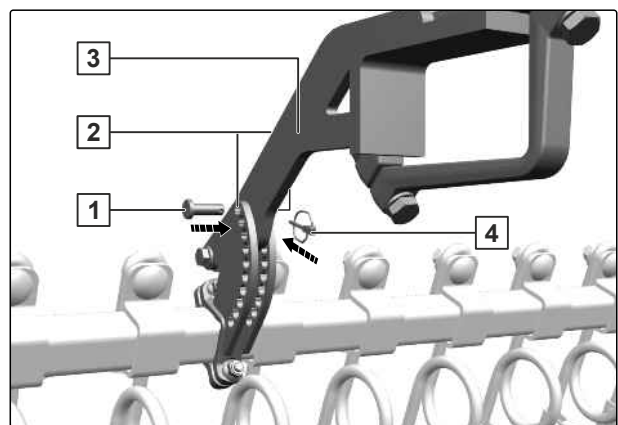
3. Turn the spring blade bar or spring clearer bar to the desired position.



CMS-I-00007888

4. Insert a pin **1** through each of the holes **2** and one of the holes in the bracket **3**.

5. Secure the pins with the linch pins **4**.



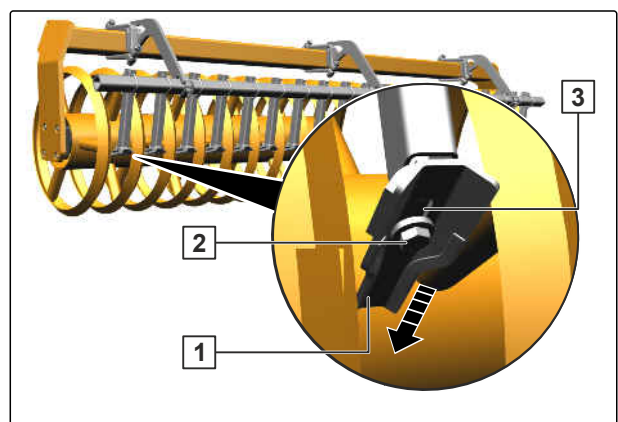
CMS-I-00007889

6.3.13.6 Adjusting the scraper on the clearer system WW 142 HI

CMS-T-00012171-A.1

In case of wear, the scrapers on clearer system WW 142 HI can be moved closer towards the angle profile roller.

1. Loosen the bolt **2** on the scraper **1**.
2. Move the scraper in the elongated slot **3** towards the roller.
3. Tighten the bolt.



CMS-I-00007890

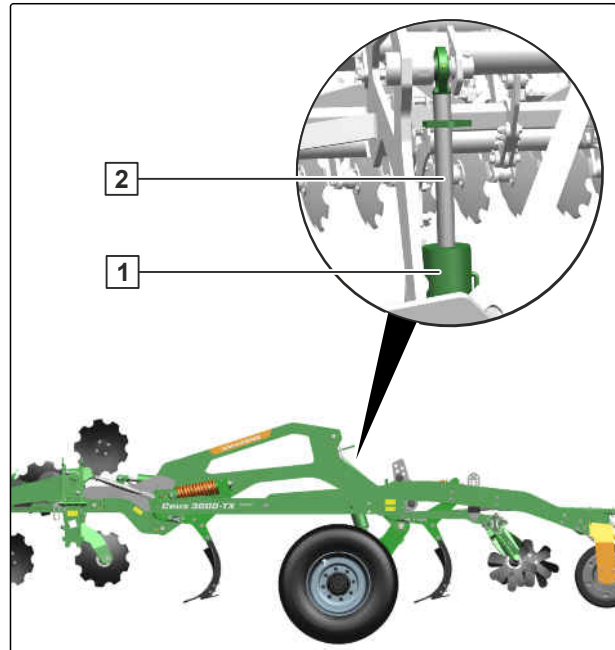
6.4 Preparing the machine for road travel

CMS-T-00006750-D.1

6.4.1 Lowering the running gear into transport position

CMS-T-00006813-A.1

- Lower the running gear into transport position using the "yellow 2" tractor control unit, until the piston rods **2** of the hydraulic cylinders **1** are completely extended.

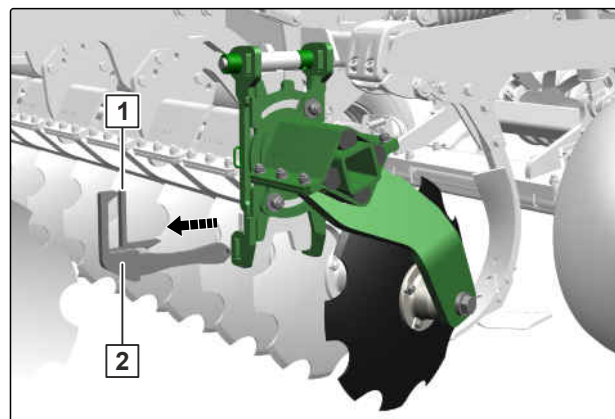


CMS-I-00004832

6.4.2 Preparing the side discs for road travel

CMS-T-00006866-A.1

1. Release the locking hook **2** by pressing on the handle **1** and pull it out.



CMS-I-00004820

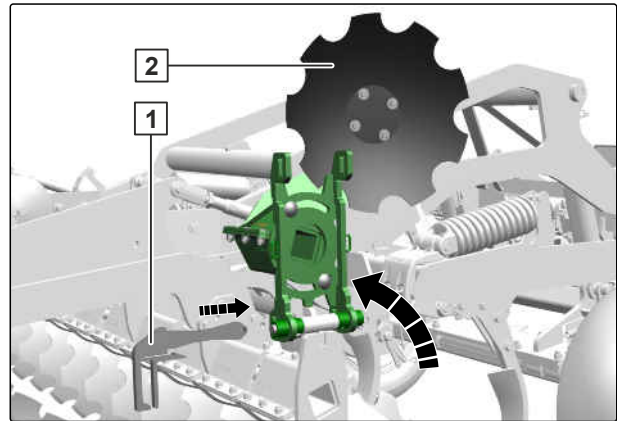


WARNING

Risk of crushing

- Swivel the side discs carefully to the desired position.

2. Swivel up the side disc **2**.
3. Secure the side disc with the locking hook **1**.
4. Prepare the side disc on the other side of the disc gang for road travel in the same way.



CMS-I-00004819

6.4.3 Moving the harrow into transport position

CMS-T-00012320-A.1

6.4.3.1 Moving harrow system 12-125 HI into transport position

CMS-T-00012324-A.1

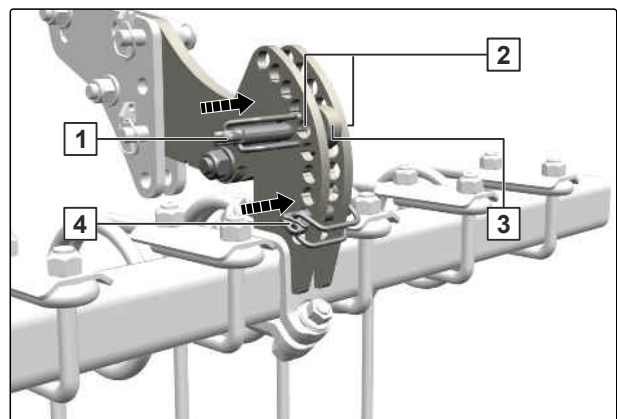
On folding implements, the harrow tines together with the road safety bars may not exceed the transport width of 3 m.

1. Pull out the both linch pins on both adjustment units.

The next step can also be performed with the setting lever.

2. *If the harrow tines exceed the transport width when the implement is folded:*
Turn the harrow bar to a flatter tilt.

3. Insert a linch pin **1** through each of the holes **2** and the hole in the bracket **3**.
4. Park each of the second linch pins **4** below the bracket.



CMS-I-00007934

6.4.3.2 Moving harrow system 12-125 HI KWM/DW into transport position

CMS-T-00012322-A.1

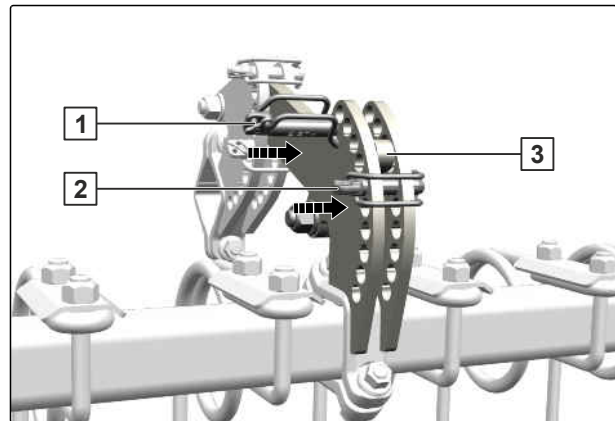
On folding implements, the harrow tines together with the road safety bars may not exceed the transport width of 3 m.

1. Pull out the both lynch pins on both adjustment units.

The next step can also be performed with the setting lever.

2. *If the harrow tines exceed the transport width when the implement is folded:*
Turn the harrow bar to a flatter tilt.

3. Insert the lynch pins **1** and **2** through each of the holes directly above and below the bracket **3**.



CMS-I-00007936

6.4.3.3 Moving harrow system 12-250 HI into transport position

CMS-T-00012326-A.1

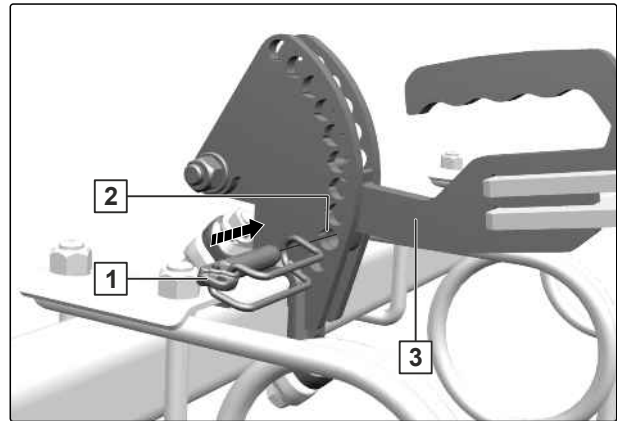
On folding implements, the harrow tines together with the road safety bars may not exceed the transport width of 3 m.

1. Pull out the the lynch pins on both adjustment units.

The next step can also be performed with the setting lever.

2. *If the harrow tines exceed the transport width when the implement is folded:*
Turn the harrow bar to a flatter tilt.

3. Insert a linch pin **1** through each of the holes **2** and the hole at the bottom of the bracket **3**.



CMS-I-00007907

6.4.3.4 Moving the double harrow CXS into transport position

CMS-T-00012328-A.1

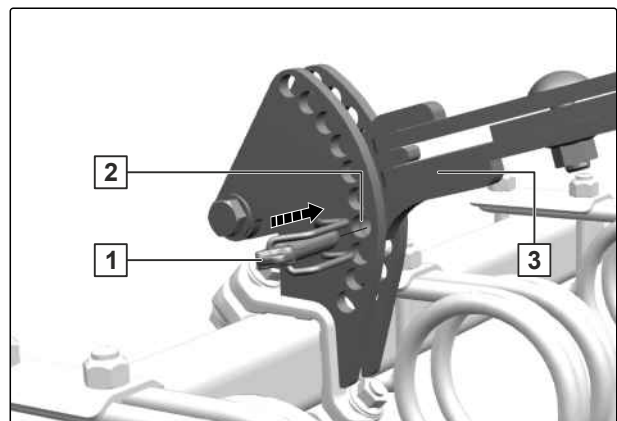
On folding implements, the harrow tines together with the road safety bars may not exceed the transport width of 3 m.

1. Pull out the linch pin on both adjustment units of a double harrow bar.

The next step can also be performed with the setting lever.

2. *If the harrow tines exceed the transport width when the implement is folded:*
Turn the harrow bar to a flatter tilt.

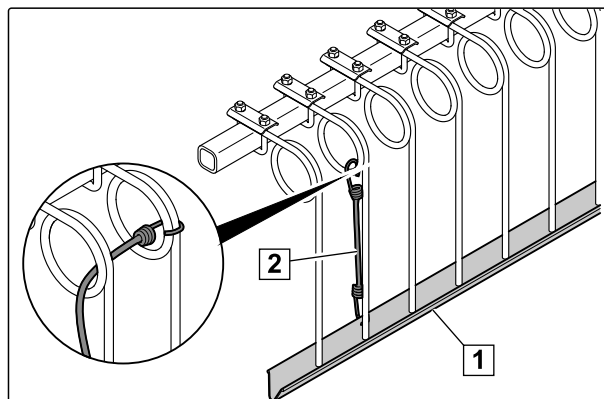
3. Insert a linch pin **1** through each of the holes **2** and the hole at the bottom of the bracket **3**.
4. Move the second double harrow bar into transport position in the same way.



CMS-I-00007908

6.4.4 Putting on the road safety bars

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-00000517

6.4.5 Aligning the implement horizontally

A spirit level is attached to the implement frame. The spirit level shows the alignment of the implement in the direction of travel.

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

CMS-T-00006812-A.1

6.4.6 Locking the tractor control units

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

CMS-T-00006337-D.1

Using the implement

7

CMS-T-00006814-B.1

7.1 Using the implement

CMS-T-00006826-A.1



REQUIREMENTS

- ☑ The implement is set up and adjusted for operation
- ☑ The running gear is raised into working position

1. Using the lower links, align the implement such that the frame is parallel to the ground lengthwise.
2. Drive off with the tractor.

7.2 Turning on the headlands

CMS-T-00006893-B.1



IMPORTANT

Damage to the soil tillage implements

If the implement is not lifted when turning, it can result in damage to the soil tillage implements.

- ▶ Only turn the implement on the running gear.

1. Before turning on the headlands, lower the running gear into transport position using the "yellow 2" tractor control unit.
2. *When the direction of the implement matches the direction of travel,* raise the running gear into working position using the "yellow 1" tractor control unit.
3. Resume work.

Eliminating faults

8

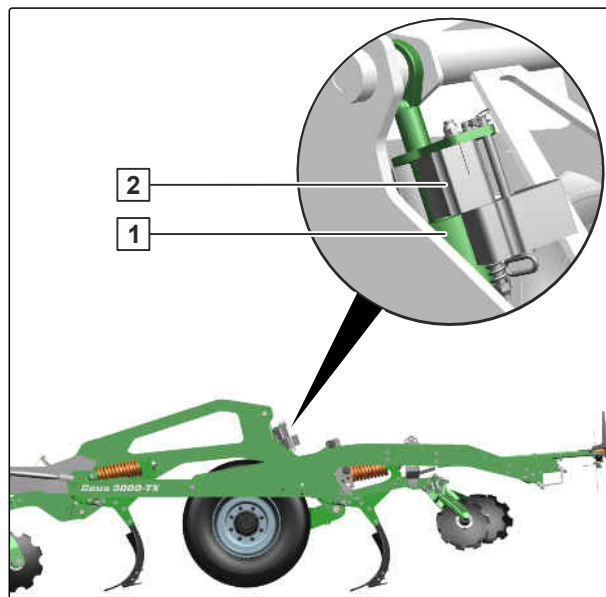
CMS-T-00006925-A.1

Errors	Cause	Solutions
The working depth is uneven across the entire implement width	The disc gangs are not properly aligned	► Align the disc gangs relative to each other.
	The coulters are worn	► Replace worn coulters.
	Running gear is not in the correct working position	► Raise the running gear into working position.
The disc gangs or tine rows are clogged with plant residues	Too much plant residues on the field	► Raise the implement regularly. ► Remove plant residues from the implement. ► Lower the implement.
	The working depth of the tines, discs or levelling unit is too deep	► Reduce the working depth.
	Insufficient throughput between the discs	► Increase the throughput between the discs.
The work pattern behind the roller is uneven	The levelling unit is not correctly set	► Correct the working depth of the levelling unit. ► Adjust the edge levelling discs. ► Move the edge levelling discs.
Soil piles up in front of the roller	The roller is working too deep	► Reduce the working depth of the discs and tines.
	Too much load on the roller	see page 73

Soil piles up in front of the roller

CMS-T-00006944-A.1

1. *To unload the roller,*
Slightly lower the running gear onto the ground using the "yellow 2" tractor control unit.
2. Secure the setting of the running gear hydraulic cylinder **1** with spacer elements **2**.



CMS-I-00004831

Parking the machine

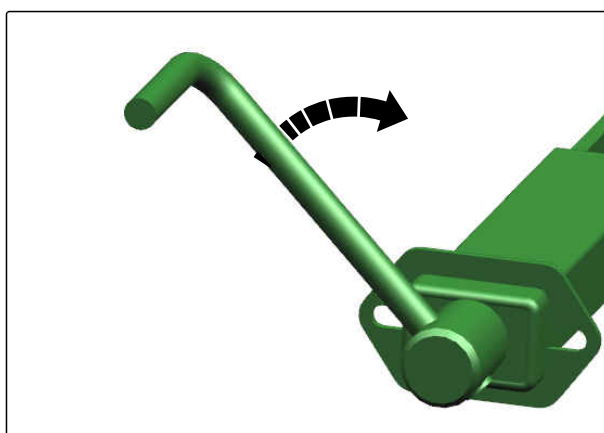
9

CMS-T-00006894-F.1

9.1 Applying the parking brake

CMS-T-00012112-A.1

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

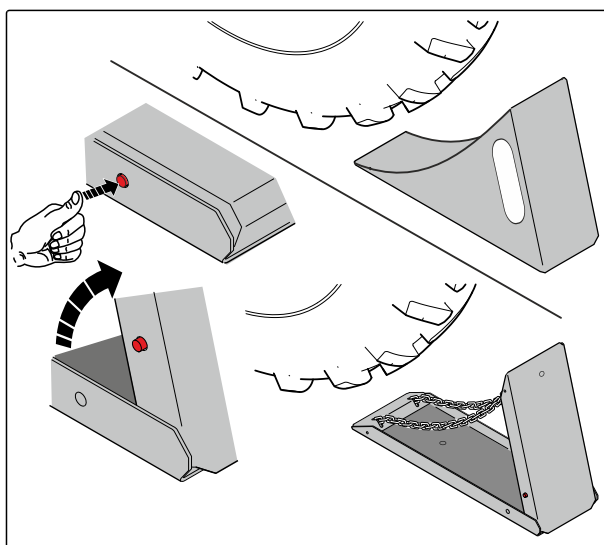


CMS-I-00007857

9.2 Placing the wheel chocks

CMS-T-00004316-C.1

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



CMS-I-00007809

9.3 Disconnecting the coupling device

CMS-T-00012277-A.1

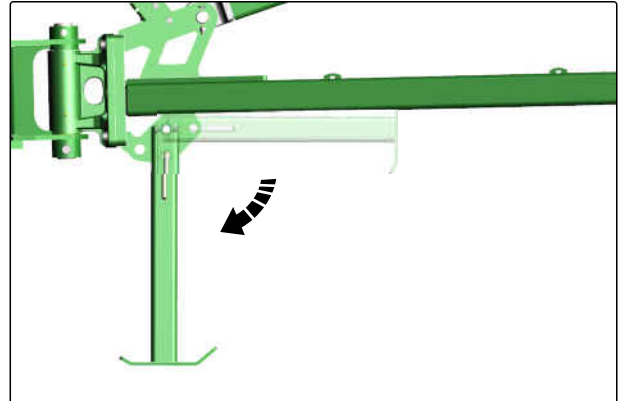
9.3.1 Uncoupling the lower link hitch

CMS-T-00004572-F.1

9.3.1.1 Swivelling down the jack

CMS-T-00004573-D.1

1. Lift the implement using the lower link.
2. Pull out the lynch pin from the pin.
3. Pull out the pin.
4. Swivel down the jack.
5. Insert the pin.
6. Secure the pin with a lynch pin.

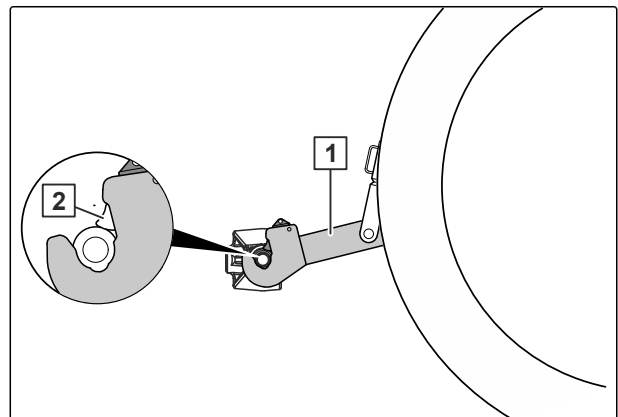


CMS-I-00003351

9.3.1.2 Uncoupling the tractor's lower link

CMS-T-00004574-F.1

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



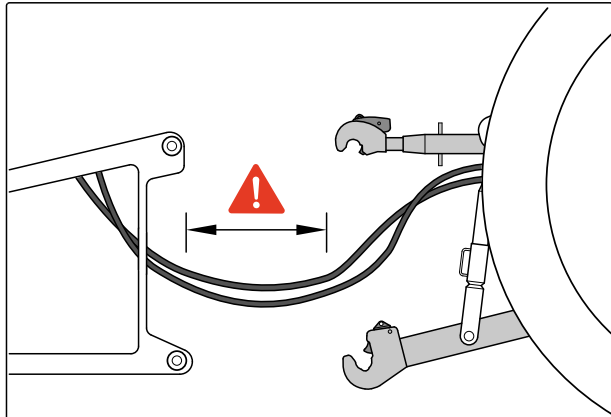
CMS-I-00003346

9.4 Driving the tractor away from the implement

CMS-T-00012195-A.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.

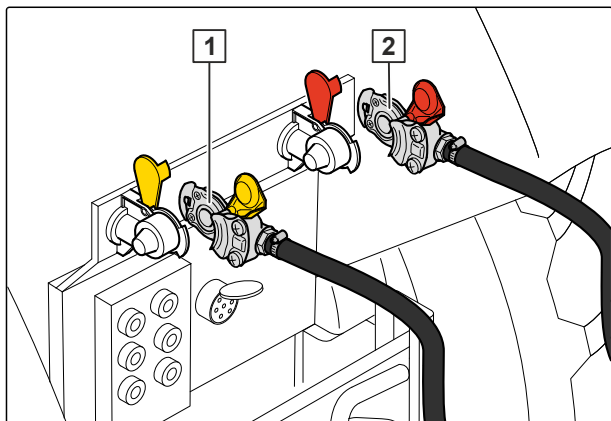


CMS-I-00004044

9.5 Uncoupling the dual-circuit pneumatic brake system

CMS-T-00004570-D.1

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

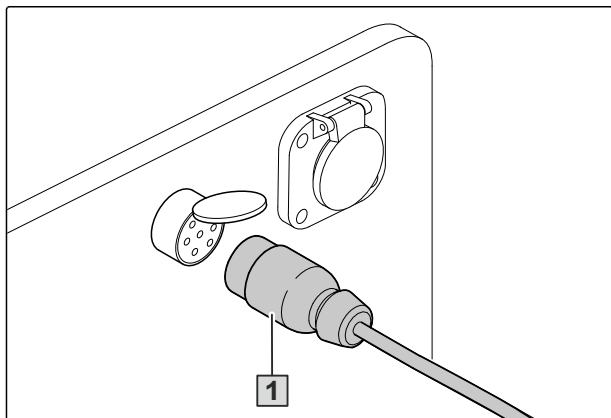


CMS-I-00003559

9.6 Uncoupling the power supply

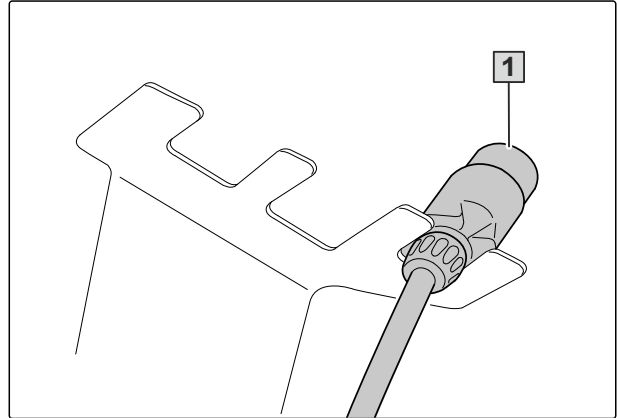
CMS-T-00001402-H.1

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



CMS-I-00001048

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

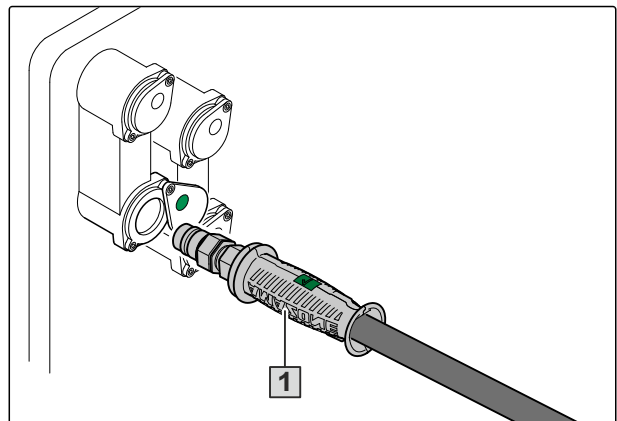


CMS-I-00001248

9.7 Disconnecting the hydraulic hose lines

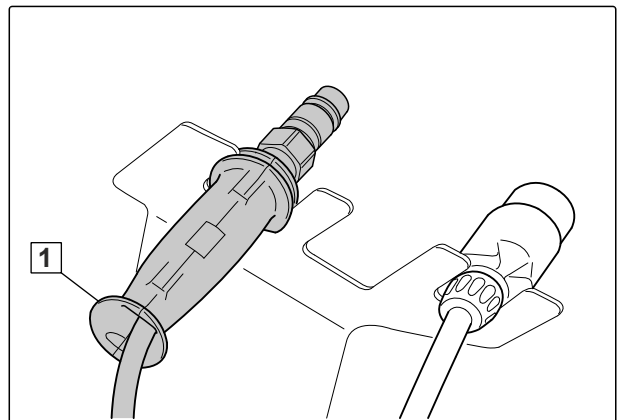
CMS-T-00000277-F.1

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

CMS-T-00004315-C.1

-

CMS-I-00007814

CMS-T-00005090-B.1

-
- This diagram illustrates the exploded view of the front door lock assembly. Key components shown include the lock body, the handle, the handle plate, and the handle plate with locking pins. The diagram also shows the handle plate with locking pins and the handle plate with locking pins. The diagram is labeled with 'A' and 'B' to indicate the assembly sequence.

CMS-I-00003534

Repairing the implement

10

CMS-T-00006923-G.1

10.1 Maintaining the implement

CMS-T-00006922-G.1

10.1.1 Maintenance schedule

After initial operation		
Checking the disc carrier connection	see page 81	
Checking the levelling connection	see page 85	
Checking the rollers	see page 85	
Checking the hydraulic hose lines	see page 86	
as required		
Replacing the discs	see page 80	
Aligning the disc gangs relative to each other	see page 82	WORKSHOP WORK
Replacing tines with compression spring overload safety	see page 83	
Replacing C-Mix-3 coulters	see page 84	
daily		
Checking the compressed air tank	see page 89	
Every 12 months		
Checking the disc carrier rubber O-rings	see page 81	
Every 50 operating hours		
Checking the lower link hitch	see page 91	
Every 10 operating hours / daily		
Checking the lower link pins	see page 86	

Every 50 operating hours / weekly		
Checking the tine fastening with compression spring overload safety	see page 83	
Checking the hydraulic hose lines	see page 86	
Checking the wheels	see page 87	

Every 200 operating hours / Every 3 months		
Checking the rollers	see page 85	
Checking the brake pads	see page 88	
Checking the pneumatic brake system	see page 88	
Cleaning the compressed air line filter	see page 89	
Checking the axle bolts	see page 90	

Every 1000 operating hours / Every 12 months		
Checking the hub bearing	see page 87	WORKSHOP WORK

10.1.2 Replacing the discs

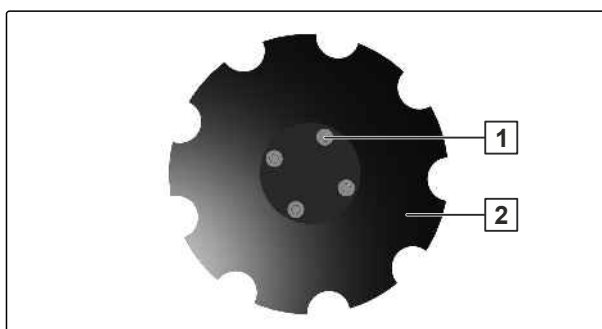
CMS-T-00002327-I.1

INTERVAL

- as required

Original disc diameter	Wear limit
46 cm	36 cm
48 cm	40 cm
51 cm	36 cm
61 cm	43 cm
66 cm	46 cm

1. Slightly raise the implement.



CMS-I-00002450

2. Loosen the 4 bolts **1** for the disc fastening.
3. Remove the washer **2**.
4. Fasten the new disc with the 4 bolts.

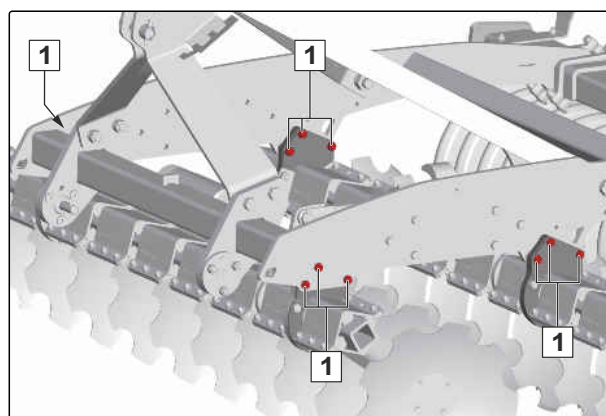
10.1.3 Checking the disc carrier connection

CMS-T-00002328-E.1



INTERVAL

- After initial operation
- Check the bolts for tightness.



CMS-I-00000531

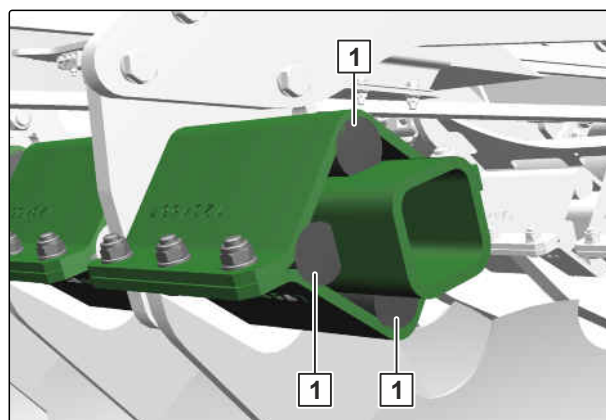
10.1.4 Checking the disc carrier rubber O-rings

CMS-T-00006927-B.1



INTERVAL

- Every 12 months
1. Perform a visual check of the disc carrier rubber O-rings **1**.
 2. *If the disc carrier rubber O-rings are damaged, have the disc carrier rubber O-rings replaced by a specialist workshop.*



CMS-I-00004870

10.1.5 Aligning the disc gangs relative to each other

CMS-T-00013988-A.1



WORKSHOP WORK

- as required

The disc gangs are aligned relative to each other using adjustment spindles.

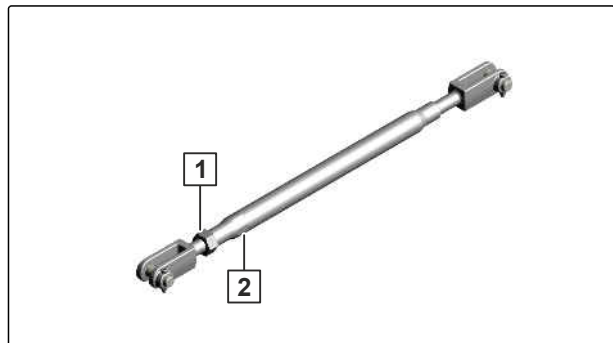
The alignment of the disc gangs is suitable for the following:

- Optimising the working depth of the disc gangs relative to each other
- Correcting lateral pull of the implement
- Preventing uneven wear of the discs

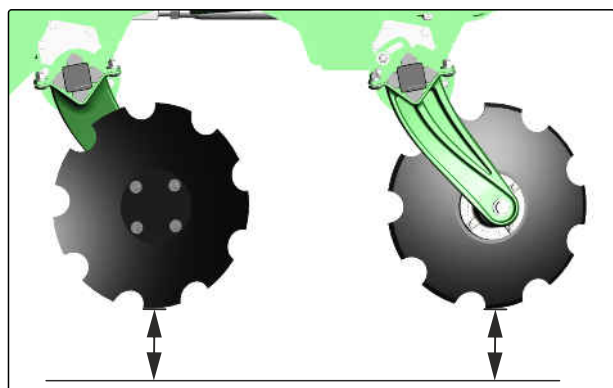
1. Align the implement horizontally.
2. Set the working depth of the disc gangs to the smallest value.

➔ The discs are not standing on the ground.

3. Loosen the lock nuts **1** on all of the adjustment spindles.
4. Align the disc gangs using the hexagonal profile **2** on the adjustment spindle.
5. Check that all of the disc carriers are aligned evenly.
6. Tighten the lock nuts.



CMS-I-00003204



CMS-I-00003385

10.1.6 Checking the tine fastening with compression spring overload safety

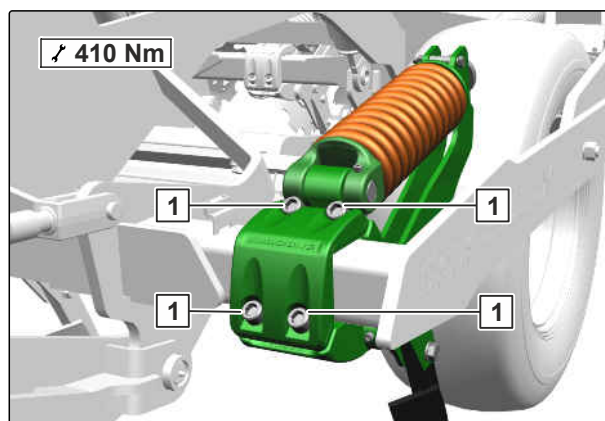
CMS-T-00004207-B.1



INTERVAL

- Every 50 operating hours
or
weekly

- Check the bolted connections **1** for tight fit.



CMS-I-00004863

10.1.7 Replacing tines with compression spring overload safety

CMS-T-00004187-B.1



INTERVAL

- as required

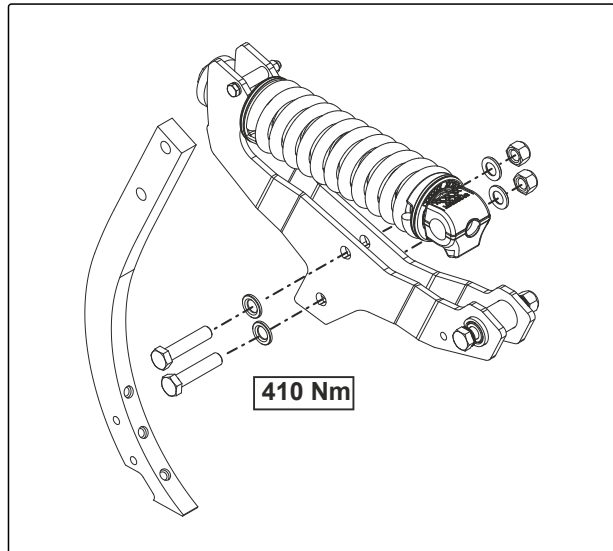


WARNING

Risk of crushing due to lowering of the implement

- Raise the implement only slightly.

- ▶ Remove the bolts on the tine.
- ▶ Insert the new tine.
- ▶ Install the bolts on the tine.



CMS-I-00003072

10.1.8 Replacing C-Mix-3 coulters

CMS-T-00004184-C.1



INTERVAL

- as required



WARNING

Risk of crushing due to lowering of the implement

- ▶ Raise the implement only slightly.

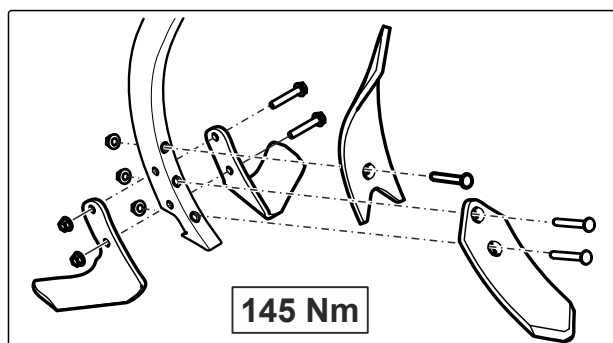


CAUTION

Risk of injury from sharp edges on the coulters and the bolt heads

- ▶ Wear gloves.
- ▶ Pay attention to sharp edges.
- ▶ Do not allow carriage bolts to rotate.

1. Remove the bolts.
2. Replace the coulters.
3. Install the bolts.
4. Tighten the bolts.
5. Retighten the bolts after 5 operating hours.



CMS-I-00003077

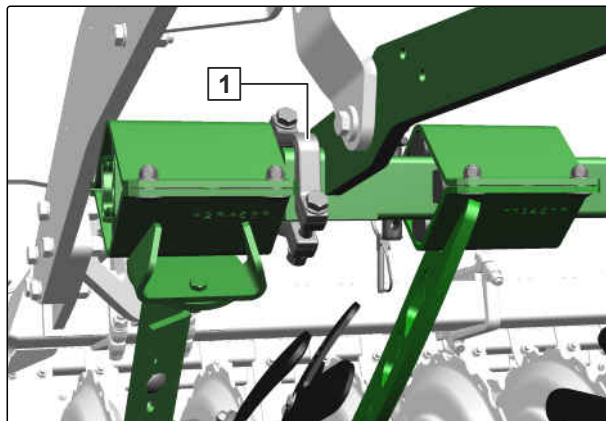
10.1.9 Checking the levelling connection

CMS-T-00006960-B.1



INTERVAL

- After initial operation
- Check the bolts **1** for tightness.



CMS-I-00004872

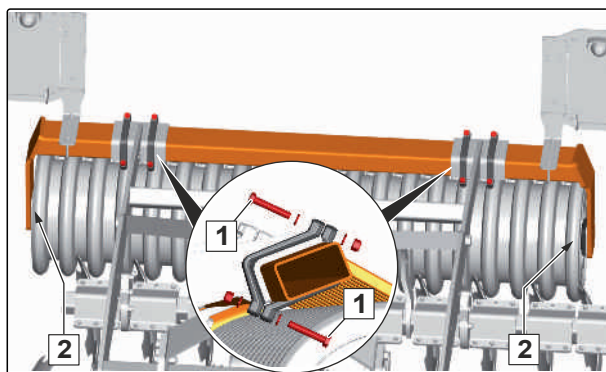
10.1.10 Checking the rollers

CMS-T-00002329-D.1



INTERVAL

- After initial operation
 - Every 200 operating hours
or
Every 3 months
- Check the bolts **1** for tightness.
- *If the bolts need to be replaced,*
pay attention to the alignment of the bolts.
- Check the roller bearing **2** for ease of movement.



CMS-I-00000099

10.1.11 Checking the lower link pins

CMS-T-00004233-C.1



INTERVAL

- Every 10 operating hours
- or
- daily

Criteria for visual inspection of the lower link pins:

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

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

10.1.12 Checking the hydraulic hose lines

CMS-T-00002331-F.1



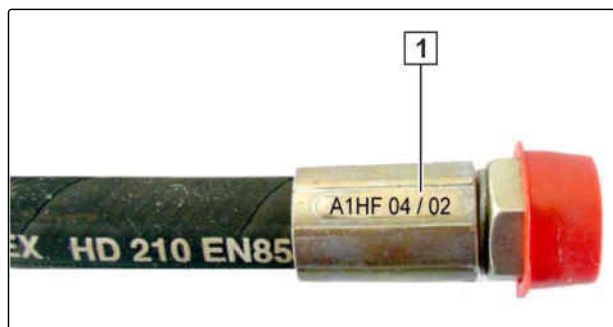
INTERVAL

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

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

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

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



CMS-I-00000532



WORKSHOP WORK

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

10.1.13 Checking the wheels

CMS-T-00009668-C.1



INTERVAL

- Every 50 operating hours
or
weekly

Tyres	Tightening torque	
Running gear wheel / support wheel	M18 x 1.5	270 Nm (-0/+20)
	M20 x 1.5	350 Nm (-0/+30)
	M22 x 1.5	450 Nm (-0/+60)

1. Check the tyre pressure according to the specifications on the stickers.
2. Check the bolted connections.

10.1.14 Checking the hub bearing

CMS-T-00013989-A.1



WORKSHOP WORK

- Every 1000 operating hours
or
Every 12 months

- Have the hub bearing checked and adjusted.

10.1.15 Checking the brake pads

CMS-T-00004984-D.1

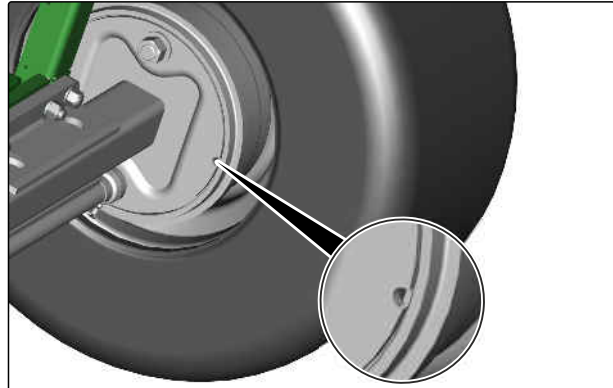


INTERVAL

- Every 200 operating hours
or
Every 3 months

Test criteria:

- Wear limit: 2 mm
 - Damage
 - Coarse dirt
1. Check the brake pads through the inspection holes.



CMS-I-00003599



WORKSHOP WORK

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

10.1.16 Checking the pneumatic brake system

CMS-T-00004985-F.1



INTERVAL

- Every 200 operating hours
or
Every 3 months

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



WORKSHOP WORK

2. Replace damaged components.

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

3. Check the specified test criteria.

10.1.17 Checking the compressed air tank

CMS-T-00004589-D.1

INTERVAL

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

WORKSHOP WORK

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

10.1.18 Cleaning the compressed air line filter

CMS-T-00004590-D.1

INTERVAL

- Every 200 operating hours
or
Every 3 months

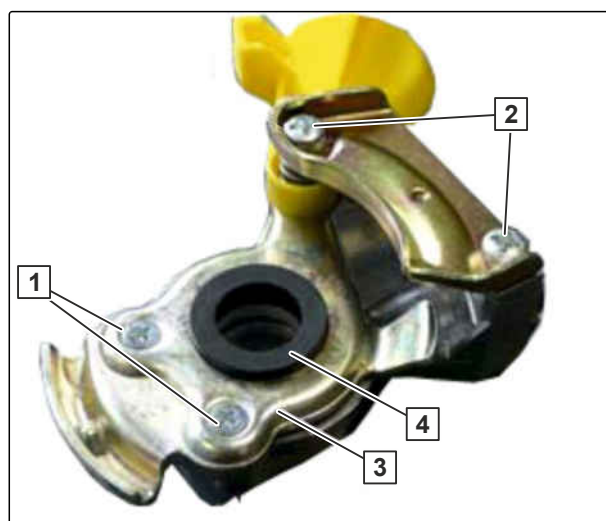
NOTE

The coupling head contains a tensioned spring.

Bolt tightening torques:

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

1. Unscrew the bolts **1**.
2. Loosen the bolts **2** by a few turns.
3. Lift the housing plate **3** and turn it to the side over the rubber seal **4**.



CMS-I-00003574

4. Remove the rubber seal.
5. Replace damaged parts.
6. Clean the sealing surfaces, seal ring and compressed air line filter.
7. Grease the sealing surfaces, seal ring and compressed air line filter.



CMS-I-00003573

8. Check the position of the seal ring.
9. Reassemble in the reverse sequence.



CMS-I-00003572

10.1.19 Checking the axle bolts

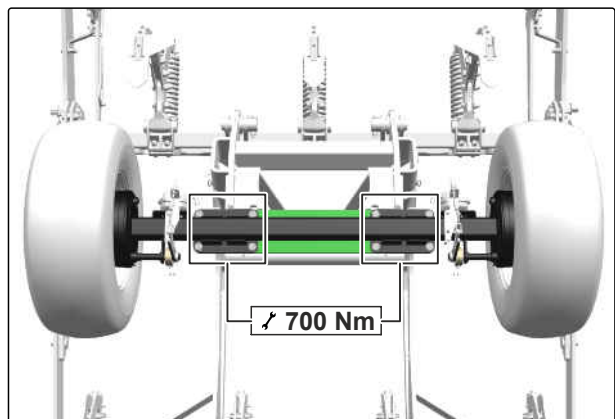
CMS-T-00006956-A.1



INTERVAL

- Every 200 operating hours
or
Every 3 months

- Check the bolts for tight fit.



CMS-I-00004869

10.1.20 Checking the lower link hitch

CMS-T-00004973-F.1



INTERVAL

- Every 50 operating hours

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

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



WORKSHOP WORK

3. Replace the lower link hitch if damaged.

10.2 Lubricating the implement

CMS-T-00006928-B.1



IMPORTANT

Implement damage due to improper lubrication

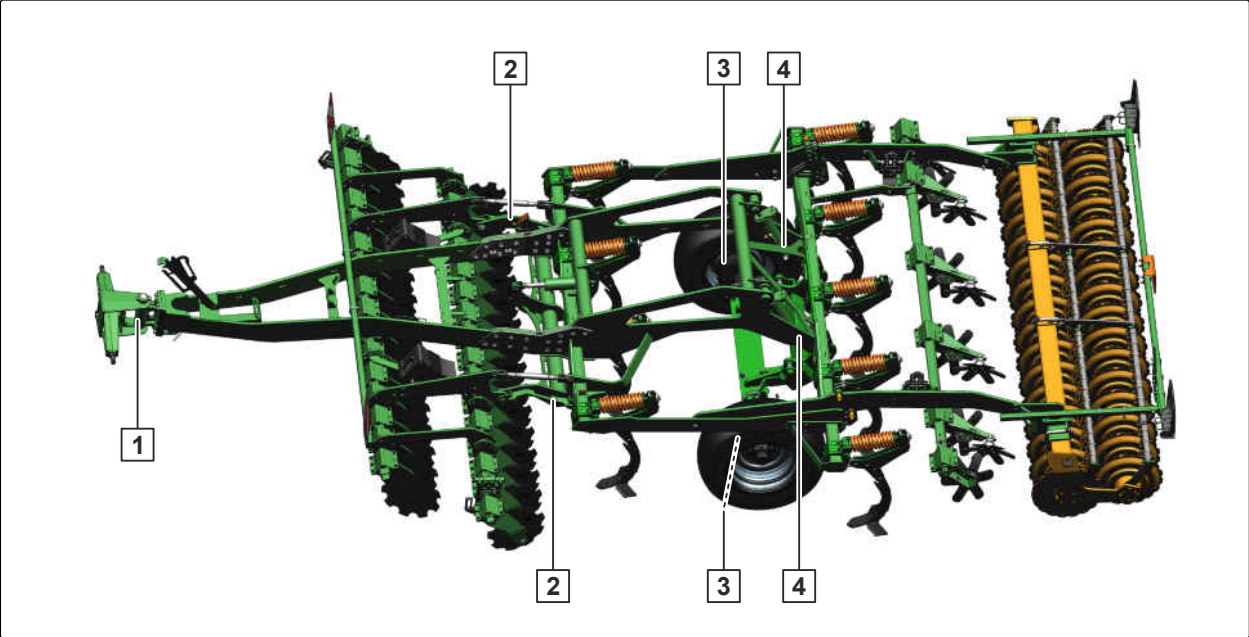
- ▶ Grease the implement at the marked lubrication points according to the lubrication schedule.
- ▶ *To ensure that dirt is not pressed into the lubrication points,* thoroughly clean the grease nipples and the grease gun.
- ▶ Only grease the implement with the lubricants listed in the technical data.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



CMS-I-00002270

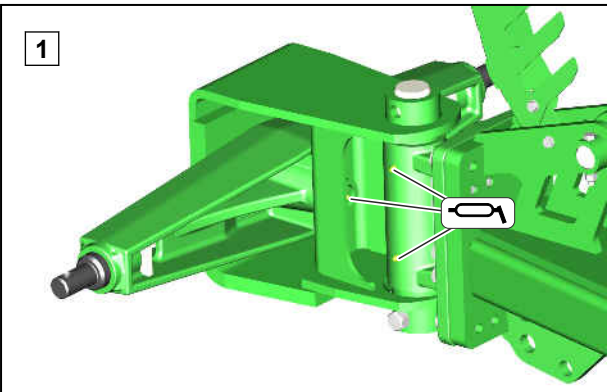
10.2.1 Overview of lubrication points

CMS-T-00006929-B.1

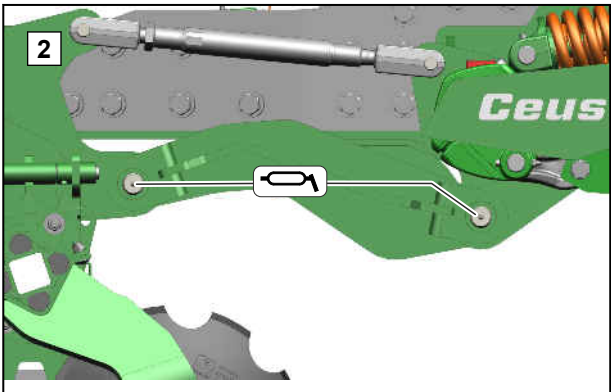


CMS-I-00004864

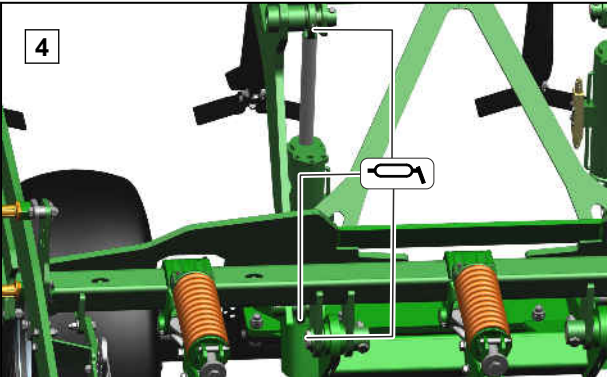
Every 50 operating hours



CMS-I-00003563

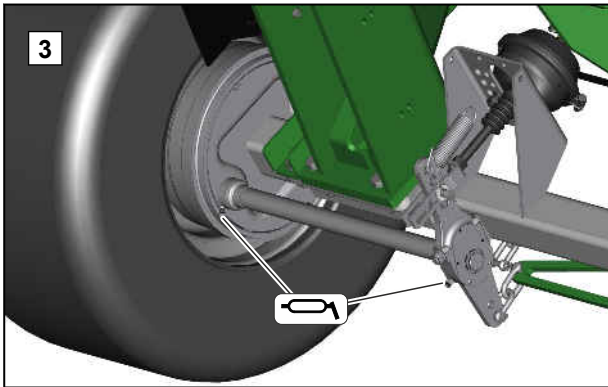


CMS-I-00004865



CMS-I-00004866

Every 200 operating hours



CMS-I-00004519

10.2.2 Lubricating the wheel hubs

CMS-T-00004970-B.1



INTERVAL

- Every 500 operating hours

1. Remove the wheel hub cap from the wheel hub.
2. Fill up the wheel hub cap with grease.
3. Put the wheel hub cap on the wheel hub.

10.3 Cleaning the implement

CMS-T-00000593-F.1



IMPORTANT

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

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



CMS-I-00002692

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

Manoeuvring the implement with dual-circuit pneumatic brake system

11

CMS-T-00006898-D.1

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



WARNING

Risk of accident due to unbraked implement

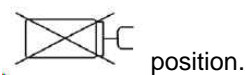
- *To manoeuvre the implement:*
Couple the implement to a suitable tractor using the coupling device.
- Manoeuvre the implement only at walking speed.

There are two versions of brake valves.

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

or

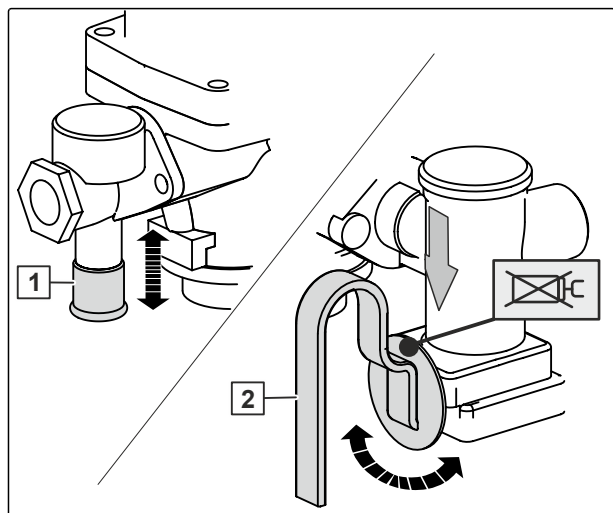
Turn the hand lever **2** of the brake valve to the



position.

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

2. Manoeuvre the implement.



CMS-I-00007826

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

or

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

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



NOTE

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

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

Loading the implement

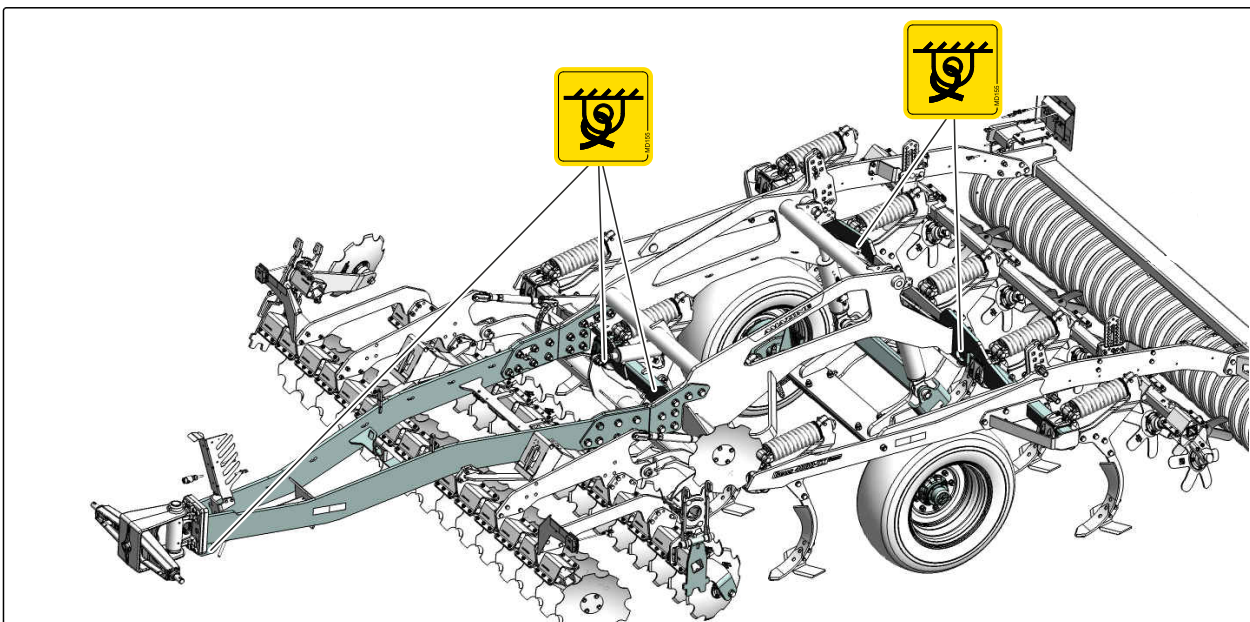
12

CMS-T-00012597-B.1

12.1 Lashing the implement

CMS-T-00006901-B.1

The implement has 5 lashing points for lashing straps.



CMS-I-00008056



WARNING

Risk of accidents due to improperly attached lashing straps

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

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

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

Disposing of the implement

13

CMS-T-00010906-B.1

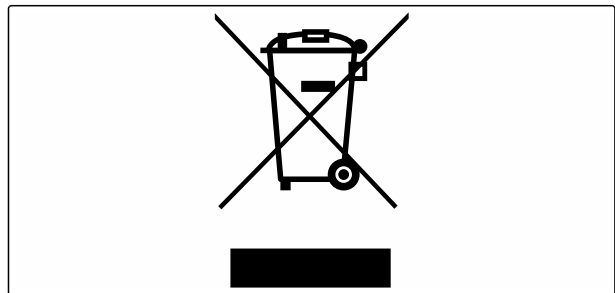


ENVIRONMENTAL INFORMATION

Environmental damage due to improper disposal

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

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



CMS-I-00007999

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



WORKSHOP WORK

5. Dispose of the coolant.

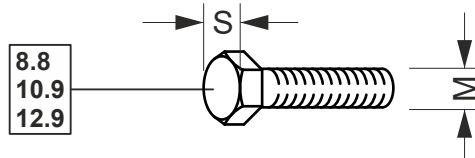
Appendix

14

CMS-T-00006906-C.1

14.1 Bolt tightening torques

CMS-T-00000373-E.1



CMS-I-000260

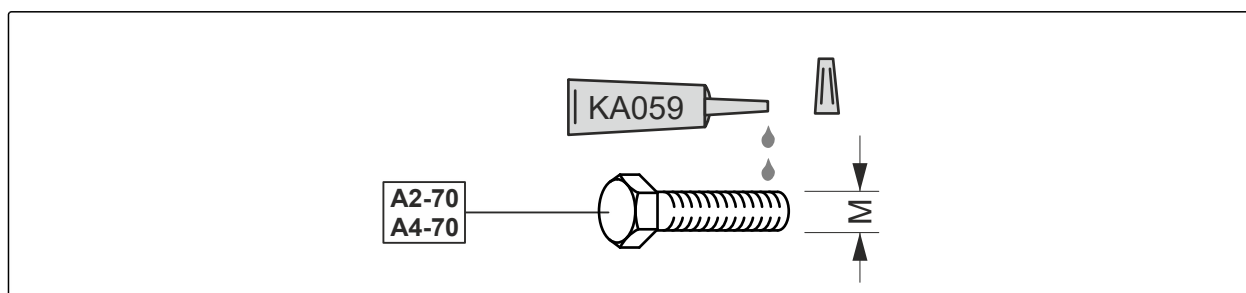


NOTE

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

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

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



CMS-I-00000065

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

14.2 Other applicable documents

CMS-T-00006907-A.1

- Tractor operating manual

Directories

15

15.1 Glossary

CMS-T-00000513-B.1

M

Machine

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

O

Operating materials

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

T

Tractor

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

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