



# Original operating manual

Mounted compact disk harrow

Catros 2503

Catros 3503

Catros 3003

Catros 4003



SmartLearning



**AMAZONE**

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

Machine no.

Vehicle ID no.

Product

Permissible technical implement weight lb

Made in Germany 

Please enter the identification data of the implement here. The identification data is provided on the rating plate.



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# About this operating manual

# 1

CMS-T-00000081-J.1

## 1.1 Copyright

CMS-T-00012308-A.1

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

## 1.2 Presentations used

CMS-T-005676-G.1

### 1.2.1 Warnings and signal words

CMS-T-00002415-A.1

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



#### **DANGER**

- Indicates imminent danger with high risk of severe physical injury, such as loss of limb or death.



#### **WARNING**

- Indicates a possible danger with moderate risk of severe or fatal physical injury.



#### **CAUTION**

- Indicates a danger with low risk of minor or moderate physical injury.

### 1.2.2 Additional instructions

CMS-T-00002416-A.1



#### IMPORTANT

- Indicates a risk of implement damage.



#### ENVIRONMENTAL INFORMATION

- Indicates a risk of environmental damage.



#### NOTE

Indicates application tips and instructions for optimal use.

### 1.2.3 Instructions

CMS-T-00000473-E.1

#### 1.2.3.1 Numbered instructions

CMS-T-005217-B.1

Actions that must be performed in a specific sequence are presented as numbered instructions. The specified sequence of the actions must be complied with.

Example:

1. Instruction 1
2. Instruction 2

#### 1.2.3.2 Instructions and responses

CMS-T-005678-B.1

Responses to instructions are indicated by an arrow.

Example:

1. Instruction 1
- ➡ Response 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 are presented with an arrow.

Example:

► Instruction

#### 1.2.3.5 Instructions without a specific 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 task

CMS-T-00013932-B.1



##### WORKSHOP TASK

- Indicates maintenance tasks that must be carried out in a specialist workshop that is adequately equipped in terms of agricultural engineering, environmental engineering, and technical safety, by qualified personnel with the appropriate training.

#### 1.2.4 Listings

CMS-T-000024-A.1

Listings without a mandatory sequence are shown as a list with bullet points.

Example:

- Point 1
- Point 2

### **1.2.5 Item numbers in illustrations**

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 direction information applies in the direction of travel.

## **1.3 Other applicable documents**

CMS-T-00000616-B.1

A list of other applicable documents is provided in the Appendix.

## **1.4 Digital operating manual**

CMS-T-00002024-B.1

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

## **1.5 Your opinion is important**

CMS-T-000059-D.1

Dear reader, our operating documents are updated regularly. Your suggestions for improvement help us provide documents that are more user-friendly. Please send us your suggestions by post, fax or email.

AMAZONEN-WERKE H. Dreyer SE & Co. KG  
Technische Redaktion  
Postfach 51  
D-49202 Hasbergen  
  
Fax: +49 (0) 5405 501-234  
E-Mail: [tr.feedback@amazone.de](mailto:tr.feedback@amazone.de)

CMS-I-00000638



# Safety and responsibility

# 2

CMS-T-00002298-Q.1

## 2.1 Basic safety instructions

CMS-T-00002301-Q.1

### 2.1.1 Meaning of the operating manual

CMS-T-00006180-A.1

#### Comply with the operating manual

The operating manual is an important document and it is part of the implement. It is intended for the user and contains safety-related information. Only the procedures specified in the operating manual are safe. Failure to comply with the operating manual can result in severe injury or death.

- ▶ The safety section must be completely read and the instructions must be complied with before first use of the implement.
- ▶ In addition, read the relevant sections of the operating manual before starting work.
- ▶ 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 organization

CMS-T-00002302-D.1

#### 2.1.2.1 Qualifications of personnel

CMS-T-00002306-B.1

##### 2.1.2.1.1 Requirements imposed on the people who work 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 must be physically and mentally capable of checking the implement.
- The person must be capable of safely performing the tasks with the implement as specified in this operating manual.
- The person must understand the implement's mode of operation as it relates to their tasks and must be able to recognize and avoid the dangers associated with the work.
- The person must have understood the operating manual and can implement the information that is provided in the operating manual.
- The person must know how to drive vehicles safely.
- For road travel, the person must know the relevant road traffic regulations and must have the prescribed driver's license.

#### **2.1.2.1.2 Qualification levels**

CMS-T-00002311-A.1

**The following qualification levels are the prerequisites for working with the implement:**

- Farmer
- Agricultural helper

The activities described in this operating manual can always be performed by persons with the qualification level, "Agricultural helper".

#### **2.1.2.1.3 Farmer**

CMS-T-00002312-A.1

Farmers use agricultural machines to cultivate fields. They decide on the use of an agricultural machine for a specific objective.

Farmers are categorically familiar with work involving agricultural machines and can instruct agricultural helpers in how to use the machines, if necessary. They can perform specific, simple repairs and maintenance tasks on agricultural machines themselves.

**For example, farmers can be:**

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

**Activity example:**

- Safety instruction of agricultural helpers

#### 2.1.2.1.4 Agricultural helper

CMS-T-00002313-A.1

Agricultural helpers use agricultural machines on behalf of the farmer. They are instructed in the use of the machine by the farmer, and work independently according to the farmer's work order.

**For example, agricultural helpers can be:**

- Seasonal workers and laborers
- Prospective farmers in training
- Employees of the farmer (e.g. tractor driver)
- Members of the farmer's family

**Activity examples:**

- Driving the machine
- Adjusting the working depth

#### 2.1.2.2 Workstations and persons accompanying the driver

CMS-T-00002307-B.1

##### **Persons accompanying the driver**

Persons accompanying the driver can fall due to implement movements, be run over and suffer severe or fatal injuries. Objects thrown upward by the tractor or implement can hit and injure persons accompanying the driver.

- ▶ Never allow persons to ride on the implement.
- ▶ Never allow people to climb onto the moving implement.

### **2.1.2.3 Danger for children**

CMS-T-00002308-A.1

#### **Children in danger**

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

- ▶ Keep children at a safe distance.
- ▶ *When you drive out or activate implement movements,*  
ensure 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 implements**

Operational safety of the implement is only ensured with proper preparation as specified in this operating manual. This can result in accidents and persons can be severely injured or killed.

- ▶ Prepare the implement as specified in this operating manual.

#### **Danger due to implement damage**

Implement damage can impair the operational safety of the implement and cause accidents. This can result in severe or fatal injuries.

- ▶ *If you suspect or determine that there is damage,*  
Secure the tractor and the implement.
- ▶ Repair safety-relevant damage immediately.
- ▶ Repair the damage as specified in this operating manual.
- ▶ *If you yourself cannot rectify damage as specified in this operating manual:*  
Have damage rectified by a qualified specialist workshop.

#### **Comply with the technical limit values**

Failure to comply with the technical limits values of the implement can cause accidents and serious personal injury or death. Moreover, the implement can be damaged. The technical limit values are provided 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 component. Missing or unsuitable personal protective equipment increases the risk of health impairment or personal injury. Personal protective equipment includes: work gloves, safety footwear, protective clothing, respiratory protection, hearing protection, face protection, and eye protection

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

##### Wear suitable clothing

Loosely worn clothing increases the risk of catching or entanglement on rotating parts or protruding parts. This can result in severe or fatal injuries.

- ▶ Wear tight-fitting clothing.
- ▶ Never wear rings, necklaces or other jewelry.
- ▶ *If you have long hair,*  
wear a hair-net.

#### 2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

##### Keep warning symbols legible

Warning symbols on the implement warn of hazards in danger areas and are an important component of the implement's safety equipment. Missing warning symbols increase the risk of serious or fatal injury.

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

### 2.1.3 Recognizing and avoiding dangers

CMS-T-00002303-F.1

#### 2.1.3.1 Danger sources on the implement

CMS-T-00002318-F.1

##### Fluids under pressure

Escaping pressurized hydraulic fluid can penetrate into the body through the skin and cause serious injuries. Even a hole the size of a needle prick can result in serious injuries.

- ▶ *Before uncoupling hydraulic hose lines or check for damage,* depressurize the hydraulic system.
- ▶ *If you suspect that a pressure system is damaged,* have the pressure system checked by a qualified specialist workshop.
- ▶ Never search for leaks with your bare hand.
- ▶ Keep your body and face away from leaks.
- ▶ *If liquids penetrate into the body,* seek medical attention immediately.

##### Risk of injury on the universal joint shaft

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

- ▶ Ensure that the profile tube, universal joint shaft guard, and PTO shaft protective cap are sufficiently covered.
- ▶ Ensure correct direction of rotation and permissible speed of the universal joint shaft.
- ▶ *If the universal joint shaft is angled downward excessively:*  
Switch off the universal joint shaft drive.
- ▶ *If you do not need the universal joint shaft:*  
Switch off the universal joint shaft drive.

### **Risk of injury on the PTO shaft**

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

- ▶ Ensure that the profile tube, universal joint shaft guard, and PTO shaft protective cap are sufficiently covered.
- ▶ Allow the locks on the PTO shaft to engage.
- ▶ *To secure the universal joint shaft guard against rotating:*  
Hook in the safety chains.
- ▶ *To secure the coupled hydraulic pump against rotating:*  
Attach the torque support.
- ▶ Ensure proper direction of rotation and permissible speed of the PTO shaft.
- ▶ *To prevent implement damage due to torque peaks:*  
Slowly couple the PTO shaft at low tractor engine speed.

### **Danger due to implement parts that keep moving for a time after switch-off**

After switching off the drives, implement parts can keep moving for a time and cause serious or fatal injury.

- ▶ Wait until implement parts that are still moving have come to a complete standstill, before approaching the implement.
- ▶ Do not touch implement parts until after they have come to a complete standstill.

### 2.1.3.2 Danger areas

CMS-T-00002319-C.1

#### Danger areas on the implement

The following significant hazards are present in the danger areas:

The implement and its work tools move in operation.

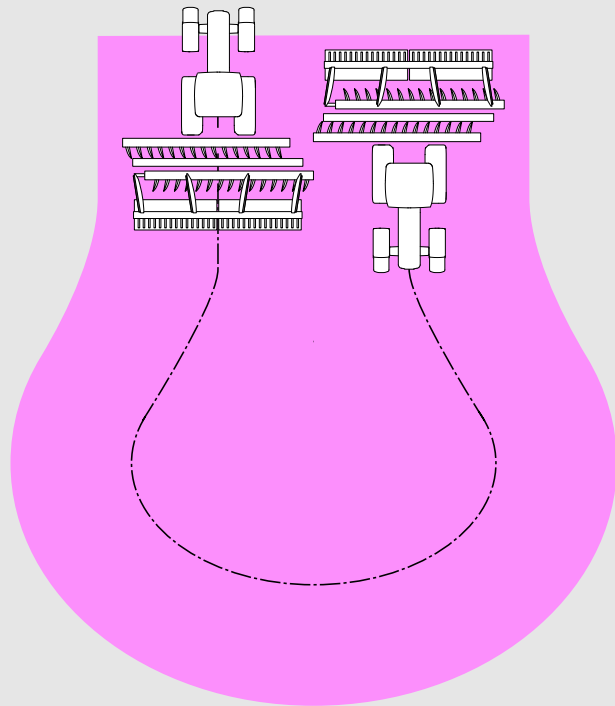
Hydraulically lifted implement parts can lower unnoticed and slowly.

The tractor and implement can roll unintentionally.

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

Failure to comply with instructions concerning the danger area can result in severe or fatal injury.

- ▶ Keep people out of the danger area of the implement.
- ▶ *If people enter the danger area,* immediately switch off motors and drives.
- ▶ *Before working in the danger area of the implement,* secure the tractor and implement. This also applies for quick inspection tasks.



CMS-I-001131

### 2.1.4 Safe operation and handling of the implement

CMS-T-00002304-J.1

#### 2.1.4.1 Coupling the implement

CMS-T-00002320-D.1

#### Coupling the implement to the tractor

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

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

- ▶ *If you couple the implement or uncouple the implement from the tractor,* be very careful.
- ▶ Only couple and transport the implement with suitable tractors.
- ▶ *When the implement is coupled on the tractor,* ensure that the tractor's connecting device meets the implement requirements.
- ▶ Carefully couple the implement to the tractor.



#### 2.1.4.2 Driving safety

CMS-T-00002321-F.1

##### Hazards when driving on roads and fields

Any implements or front/rear weights attached to the tractor influence the driving behavior and the steering and braking capacity of the tractor. Driving characteristics also depend on the operating condition, the fill level or load and on the substrate. If the driver does not take changed driving characteristics into account, he can cause accidents.

- ▶ Always ensure that the tractor has sufficient steering and braking capacity.
- ▶ *The tractor must provide the prescribed brake lag for the tractor and mounted implement.*  
Check the braking effect before moving off.
- ▶ *The tractor front axle must always be loaded with at least 20 % of the tractor tare weight to ensure sufficient steering capacity.*  
If necessary, use front weights.
- ▶ Always fasten the front weights or rear weights on the prescribed fastening points provided for this purpose.
- ▶ Calculate the payload and comply with the permissible payload for the mounted or towed implement.
- ▶ Comply with the permissible axle loads and drawbar loads of the tractor.
- ▶ Comply with the permissible drawbar load of the hitch device and drawbar.
- ▶ Comply with the permissible transport width of the implement.
- ▶ Drive in such a manner that you always have full control of the tractor with the mounted or trailed implement. In so doing, take your personal abilities into account, as well as the road, traffic, visibility conditions and weather conditions as well as the driving characteristics of the tractor and the influence of the mounted implement.

##### When driving on roads, there is risk of accident due to uncontrolled lateral movements of the implement

- ▶ Lock the tractor lower links in place for road travel.

##### Preparing the implement for road travel

If the implement is not properly prepared for road travel, it can cause serious traffic accidents.

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

### **Parking the implement**

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

- ▶ Only park the implement on stable and level ground.
- ▶ *Before performing adjustment tasks or maintenance tasks,* ensure that the implement is stable. If in doubt, support the implement.
- ▶ Follow the instructions in the section "*Parking the implement*".

### **Unsupervised parking**

Parked tractors with coupled implements that are insufficiently secured or unsupervised pose a hazard for people and for children at play.

- ▶ *Before leaving the implement:*  
Bring the tractor and the implement to a standstill.
- ▶ Secure the tractor and the implement.

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

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

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

## **2.1.5 Safe maintenance and modification**

CMS-T-00002305-J.1

### **2.1.5.1 Modifications on the implement**

CMS-T-00002322-B.1

#### **Only authorized modifications**

Structural modifications or extensions can impair the functionality and operational safety of the implement. This can result in severe or fatal injuries.

- ▶ Have any structural modifications or extensions performed only by a qualified specialist workshop.
- ▶ *This ensures 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 Tasks on the implement

CMS-T-00002323-I.1

#### **Only work on the implement after it has come to a complete standstill**

If the implement is not at standstill, parts can move unintentionally or the implement can be set in motion. This can result in severe or fatal injuries.

- ▶ *If you must work on or under raised loads:*  
Lower the loads or secure raised implement parts with a hydraulic device or mechanical locking device.
- ▶ Switch off all drives.
- ▶ Apply the parking brake.
- ▶ Particularly on slopes, in addition, use wheel chocks to prevent the implement from rolling.
- ▶ Remove the ignition key and keep it with you.
- ▶ Wait until all parts still in motion after the unit is switched off have come to a stop and until hot parts have cooled down.

#### **Maintenance tasks**

Improper maintenance tasks, particularly on safety-related components, compromise operational safety. This can result in accidents and persons can be severely injured or killed. For example, safety-related components include hydraulic components, electronic components, frames, springs, trailer coupling, axles and axle suspensions, lines and tanks containing flammable substances.

- ▶ *Before adjusting, maintaining or cleaning the implement,*  
secure the implement.
- ▶ Maintain the implement as specified in this operating manual.
- ▶ Only perform the tasks that are described in this operating manual.
- ▶ Have maintenance tasks that are indicated as "**WORKSHOP TASK**" performed in a specialist workshop that is adequately equipped in terms of agricultural engineering, environmental engineering, and technical safety, by qualified personnel with the appropriate training.
- ▶ Never perform welding, drilling, sawing, grinding, and cutting tasks on the frame, running gear or coupling devices of the implement.
- ▶ Never modify safety-related components.
- ▶ Never drill out existing holes.
- ▶ Perform all maintenance tasks at the prescribed maintenance intervals.

### **Raised implement parts**

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

- ▶ Never position yourself under raised implement parts.
- ▶ *If you must perform tasks on or under raised implement parts,*  
lower the implement parts or secure the raised implement parts with a mechanical support or hydraulic locking device.

### **Danger due to welding tasks**

Improper welding tasks, particularly on or close to safety-related components, compromise the operational safety of the implement. This can result in accidents and persons can be severely injured or killed. Safety-related components include, hydraulic components and electronic components, frames, springs, coupling devices to the tractor such as the three-point mounting frame, drawbars, trailer support, trailer coupling or tensioned crosspiece as well as axles and axle suspensions, lines, and tanks containing flammable substances.

- ▶ Only have qualified specialist workshops with appropriately approved personnel perform welding tasks on safety-related components.
- ▶ Only have qualified personnel perform welding tasks on all other components.
- ▶ *If in doubt as to whether welding tasks can be performed on a component:*  
Ask a qualified specialist workshop.
- ▶ *Before welding on the implement:*  
Uncouple the implement from the tractor.
- ▶ Do not weld in the vicinity of a crop protection sprayer that was previously used to spread liquid fertilizer.

#### **2.1.5.3 Operating materials**

CMS-T-00002324-C.1

### **Unsuitable operating materials**

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

- ▶ Only use operating materials that meet the requirements specified 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 impair the operational reliability of the implement and cause accidents.

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

## 2.2 Safety routines

CMS-T-00002300-D.1

##### Securing the tractor and implement

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

- ▶ Lower the lifted implement or lifted implement parts.
- ▶ Dissipate pressure in the hydraulic hose lines by activating the operating devices.
- ▶ *If you must stand under the raised implement or components, prevent the raised implement and components from lowering with a mechanical safety support or hydraulic locking device.*
- ▶ Switch off the tractor.
- ▶ Engage the tractor's parking brake.
- ▶ Remove the ignition key.

##### Securing the implement

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

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

### **Keep protective devices functional**

If protective devices are missing, damaged or faulty or have been removed, implement parts can severely injure or kill people.

- ▶ Check the implement at least once a day for damage, proper installation, and functionality of the protective devices.
- ▶ *If there is doubt as to whether the protective devices are properly installed and functional,* have the protective devices checked by a qualified specialist workshop.
- ▶ Ensure that the protective devices are properly installed and functional before any activity on the implement.
- ▶ Replace damaged protective devices.

### **Climbing on and off**

Negligent behavior while climbing on and off may cause personnel to fall off the ladder. Personnel who climb onto the implement without using the intended access aids can slip or fall, and suffer severe injury. Contamination as well as operating materials can impair stepping safety and stability. Accidental activation of control elements can unintentionally trigger potentially dangerous functions.

- ▶ Use only the intended access aids.
- ▶ *To ensure safe step and safe stance:*  
Always keep step surfaces and platforms clean and in proper condition, so that safe step and safe stance are ensured.
- ▶ *When the implement is moving:*  
Never climb onto or down from the implement.
- ▶ Climb up and down facing the implement.
- ▶ When climbing up and down, maintain 3-point contact with the access steps and handrails: Always keep either two hands and one foot on the implement or two feet and one hand on the implement.
- ▶ When climbing up and down, never use the control elements as a hand grip.
- ▶ When climbing down, never jump off of the implement.

## Intended use

# 3

CMS-T-000026-D.1

- The implement is intended exclusively for professional soil tillage on agricultural crop lands in accordance with Good Agricultural Practices.
- The implement is an agricultural implement designed to be mounted on the 3-point power lift of a tractor that meets the technical requirements.
- The implement is suitable and intended for shallow stubble cultivation or breaking up fallow land, for seedbed preparation and incorporating catch crops or farm manure.
- The implement may be used on fields with a soil strength of up to 3.0 Mpa.
- Depending on the provisions of the applicable road traffic regulations, when driving on public roads, the implement can be mounted and transported on the rear of a tractor that meets the technical requirements.
- The implement may only be used and maintained by persons who meet the requirements. The requirements imposed on personnel are described in the section "*Qualifications of personnel*".
- The operating manual is part of the implement. The implement is intended exclusively for use in compliance with this operating manual. Uses of the implement that are not described in this operating manual can result in serious personal injury or even death and implement damage and material damage.
- The users and the owner must also comply with the applicable accident prevention regulations as well as generally accepted safety-related, occupational health and road traffic regulations.
- Additional instructions concerning intended use for special cases can be requested from AMAZONE.
- Uses other than those specified under the intended use are considered non-intended use. The manufacturer is not liable for any damage resulting from non-intended use; the owner is exclusively liable for such damage.

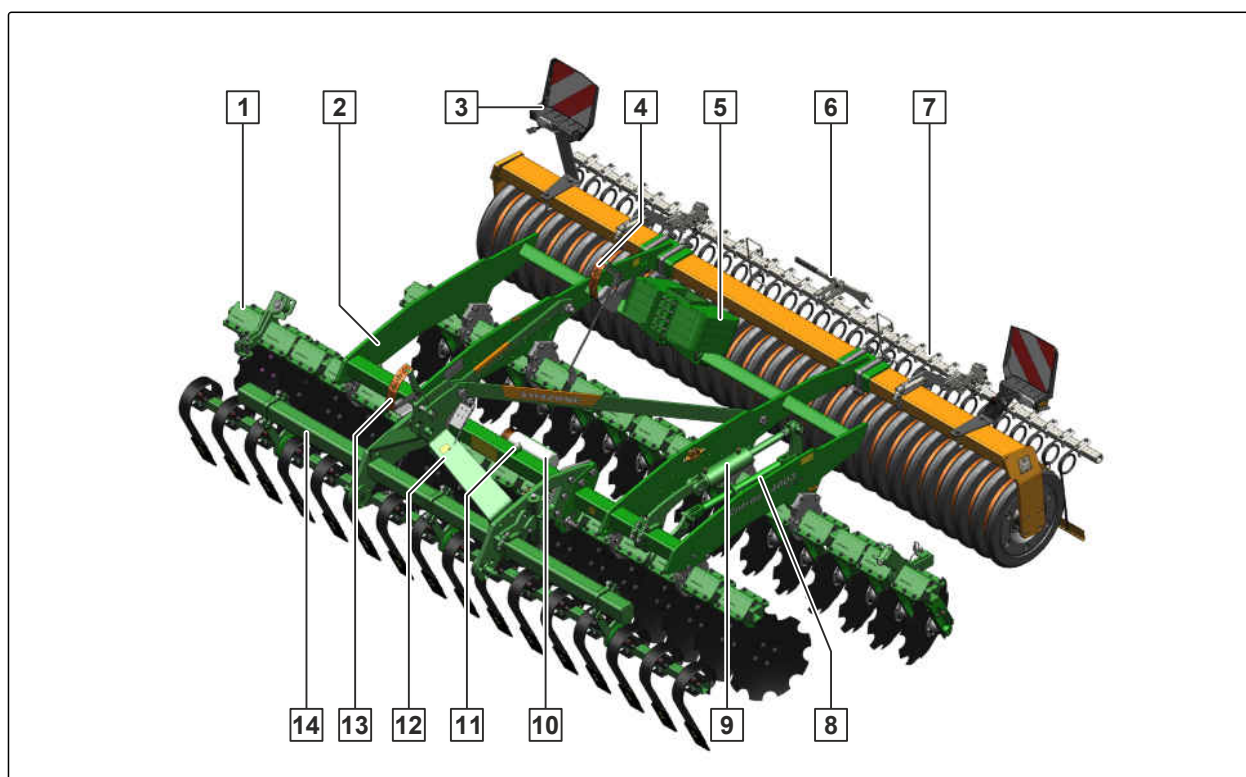
## Product description

4

CMS-T-00005880-D.1

### 4.1 Implement overview

CMS-T-000034-F.1



CMS-I-00000414

- |  |  |
|--|--|
| <b>1</b> Folding side disk   | <b>2</b> Rating plate on the implement                   |
| <b>3</b> Lighting and identification for road travel                 | <b>4</b> Scale for working depth adjustment of the disks |
| <b>5</b> Ballast weights   | <b>6</b> Adjustment lever                                |
| <b>7</b> Trailing elements   | <b>8</b> Adjustment spindle for the disk gangs           |
| <b>9</b> Working depth adjustment of the disks                       | <b>10</b> GewindePack                                    |
| <b>11</b> Spirit level   | <b>12</b> Front rack                                     |
| <b>13</b> Scale for the working depth adjustment of the leading tool | <b>14</b> Leading tool                                   |



## 4.2 Function of the implement

CMS-T-00002712-D.1

The leading tool prepares the soil.

The disk gangs till and mix 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 Special equipment

CMS-T-00002199-D.1

Special equipment is equipment that may possibly not be on your implement or that may only be available in some markets. The sales documents specify the equipment of your implement or contact your dealer for more detailed information.

**The following equipment is considered special equipment:**

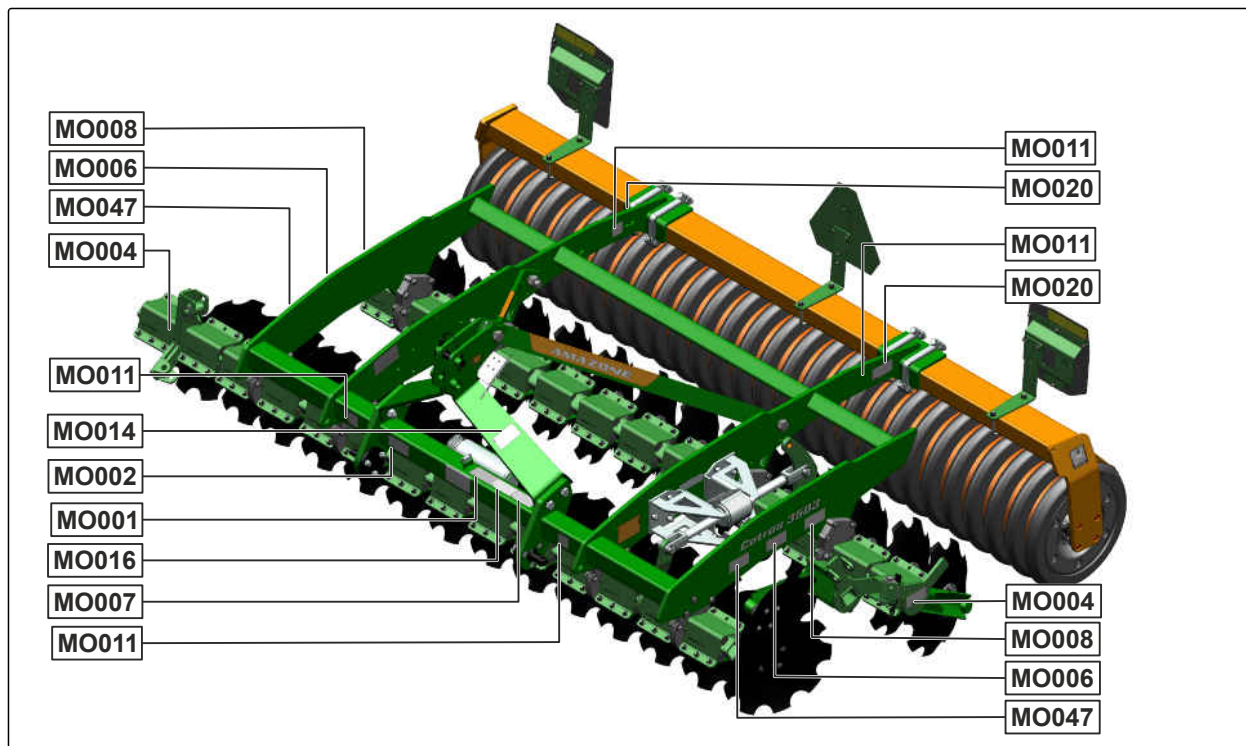
- Lighting and identification for road travel
- Crushboard
- Spring blade system
- Cutter roller
- Clearer system
- Wheel mark eradicator
- Trailing elements
- Front rack
- Ballast weights
- GreenDrill pack top seed drill

## 4.4 Warning symbols

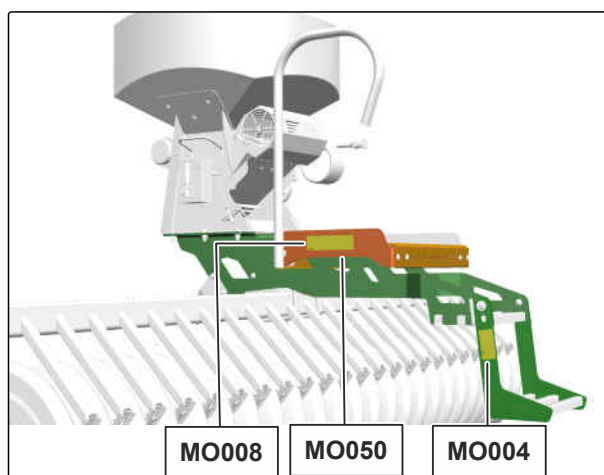
CMS-T-00005882-B.1

### 4.4.1 Positions of the warning symbols

CMS-T-004837-F.1



CMS-I-00000415



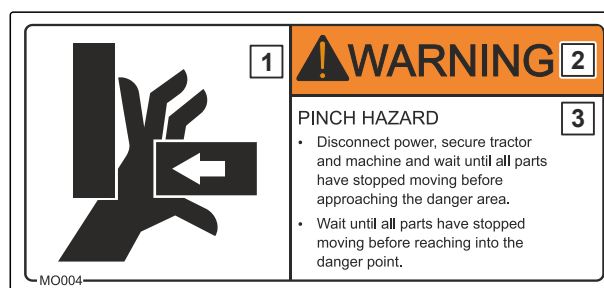
CMS-I-00008710

## 4.4.2 Structure of the warning symbols

Warning symbols indicate danger areas on the implement and warn of residual risks. In these danger areas, there are permanent hazards or hazards that occur unexpectedly.

A warning symbol consists of 3 fields:

- Field **1** shows the following:
  - The type of hazard represented using a symbol
  - The order number
- Field **2** contains the signal word
- Field **3** shows the type of hazard and instructions for avoiding the hazard



CMS-I-00004316

## 4.4.3 Description of the warning symbols

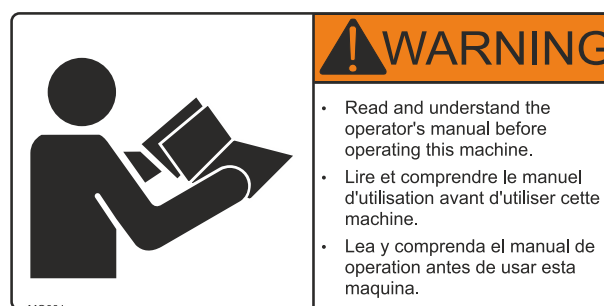
Enter 6.56 ft (2 m) working depth in ft ( m)

6.56 ft (2 m)

### MO001

#### OPERATOR'S MANUAL

- ▶ Read and understand the operator's manual before operating this machine.
- ▶ Lire et comprendre le manuel d'utilisation avant d'utiliser cette machine.
- ▶ Lea y comprenda el manual de operation antes de usar esta maquina.

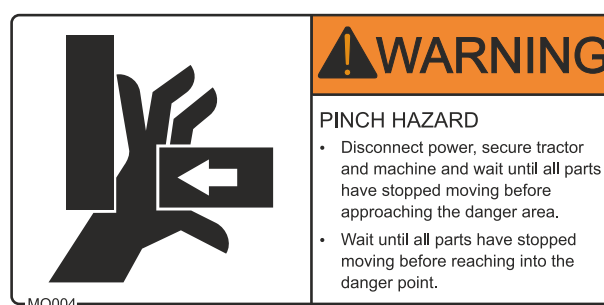


CMS-I-00004161

### MO004

#### PINCH HAZARD

- ▶ Disconnect power, secure tractor and machine and wait until all parts have stopped moving before approaching the danger area.
- ▶ Wait until all parts have stopped moving before reaching into the danger point.

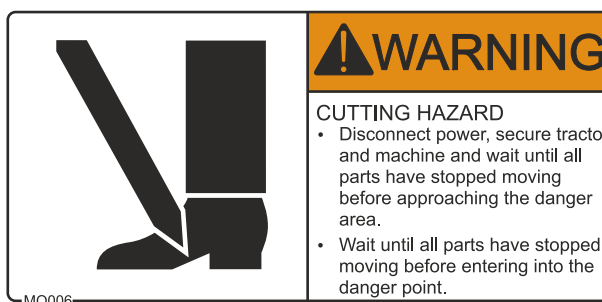


CMS-I-00004164

MO006

CUTTING HAZARD

- ▶ Disconnect power, secure tractor and machine and wait until all parts have stopped moving before approaching the danger area.
- ▶ Wait until all parts have stopped moving before entering into the danger point.

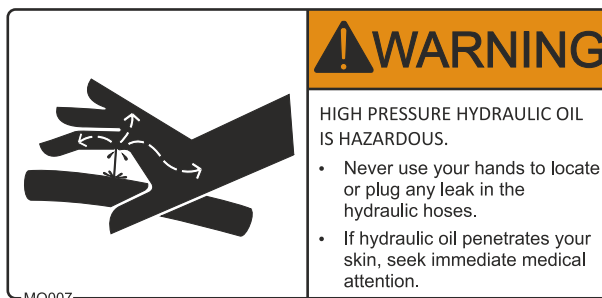


CMS-I-00004166

MO007

HIGH-PRESSURE HYDRAULIK OIL IS  
HAZARDOUS

- ▶ Never use your hands to locate or plug any leak in the hydraulic hoses.
- ▶ If hydraulic oil penetrates your skin, seek immediate medical attention.

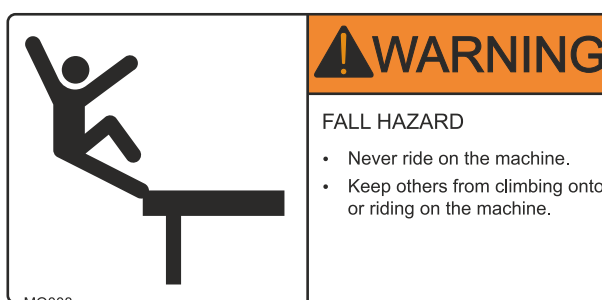


CMS-I-00004167

MO008

FALLING HAZARD

- ▶ Never ride on the machine.
- ▶ Keep others from climbing onto or riding on the machine.

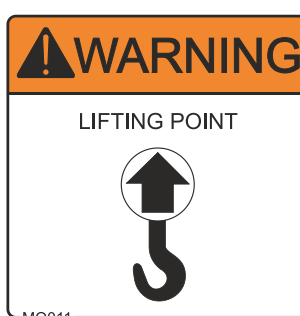


CMS-I-00004168

MO011

LIFTING POINT

- ▶ Only attach the sling gear at the marked points.

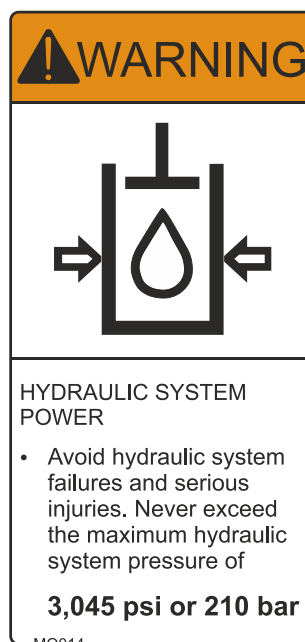


CMS-I-00004171

#### MO014

##### HYDRAULIC SYSTEM POWER

- Avoid hydraulic system failures and serious injuries. Never exceed the maximum hydraulic system pressure of 3,045 psi or 210 bar.



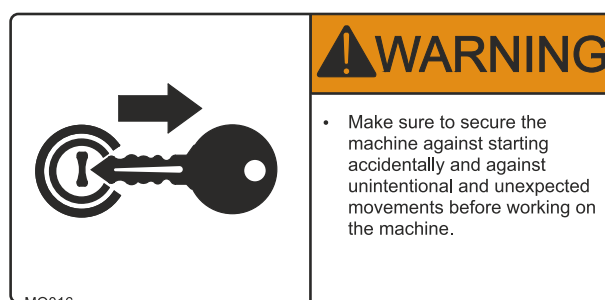
MO014

CMS-I-00004174

#### MO016

##### REMOVE KEY

- Make sure to secure the machine against starting accidentally and against unintentional and unexpected movements before working on the machine.



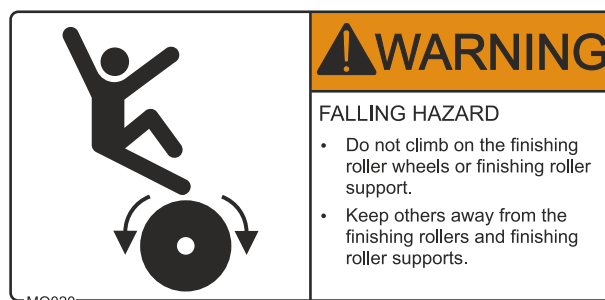
MO016

CMS-I-00004176

#### MO020

##### FALLING HAZARD

- Do not climb on the finishing roller wheels or finishing roller support.
- Keep others away from the finishing rollers and finishing roller supports.



MO020

CMS-I-00004180

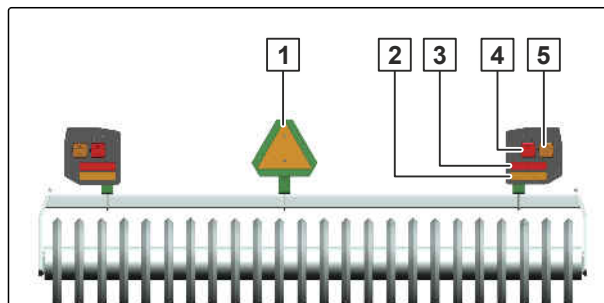
## 4.5 Lighting and identification for road travel

CMS-T-00009563-A.1

### 4.5.1 Rear lighting and identification

CMS-T-00009565-A.1

- 1 Triangular warning sign
- 2 Yellow warning sticker
- 3 Red warning sticker
- 4 Rear lights and brake lights
- 5 Turn indicators

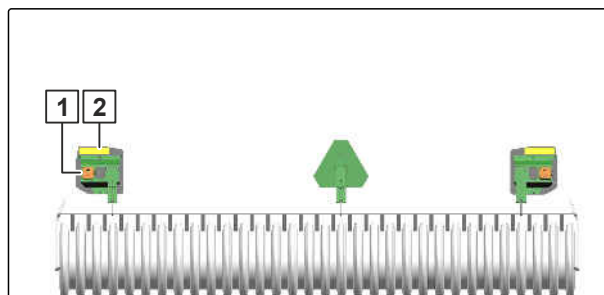


CMS-I-00004246

### 4.5.2 Front lighting and identification

CMS-T-00009564-A.1

- 1 Direction indicators, only for CATROS 4003
- 2 Yellow warning sticker

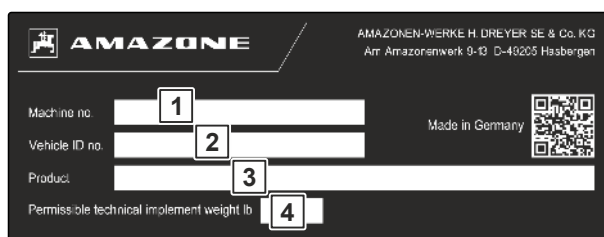


CMS-I-00004247

## 4.6 Rating plate on the implement

CMS-T-00015505-C.1

- 1 Implement number
- 2 Vehicle ID number
- 3 Product
- 4 Permissible technical implement weight



CMS-I-00008272

## 4.7 GewindePack

CMS-T-00001776-E.1

The GewindePack contains the following:

- Documents
- Auxiliary equipment



CMS-I-00002306

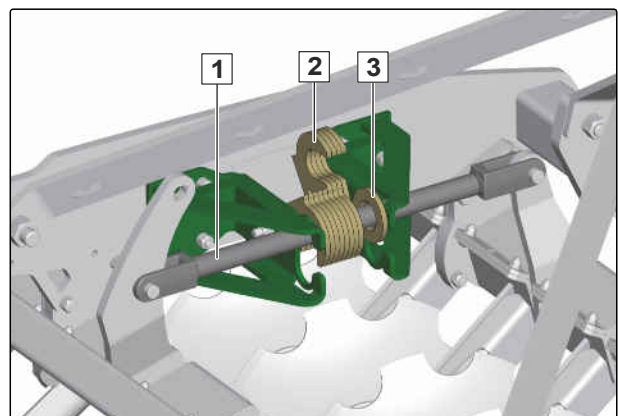
## 4.8 Working depth adjustment

CMS-T-00001404-B.1

### 4.8.1 Mechanical working depth adjustment

CMS-T-00000635-B.1

- 1 Adjustment rod
- 2 Spacer elements
- 3 Stop washer

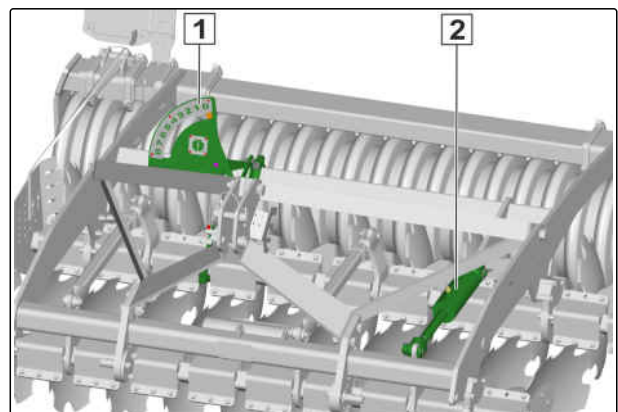


CMS-I-00000519

### 4.8.2 Hydraulic working depth adjustment

CMS-T-00003067-A.1

- 1 Scale for working depth
- 2 Hydraulic cylinder

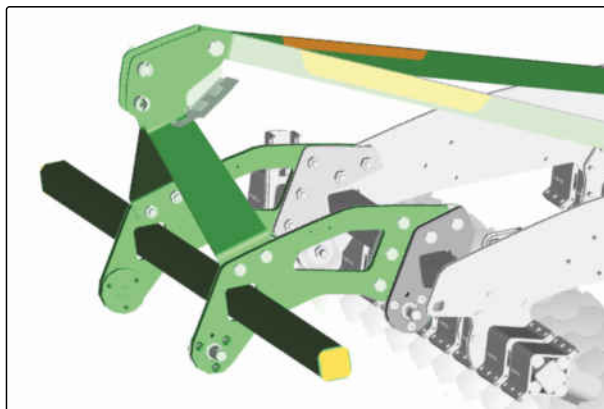


CMS-I-00002446

## 4.9 Front rack

CMS-T-00002255-B.1

Front-mounted soil tillage implements are installed on the front rack.

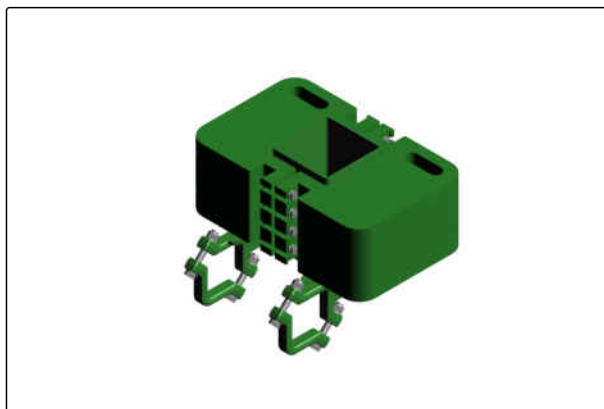


CMS-I-00002052

## 4.10 Ballast weights

CMS-T-00001016-C.1

The ballast weights optimize penetration of the disks into the soil under dry and extremely hard soil conditions. One set of ballast weights consists of 4 elements, each with a weight of 25 kg.



CMS-I-00000780

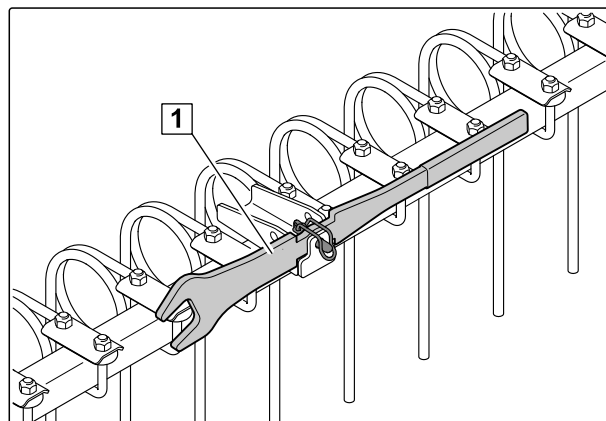
## 4.11 Adjustment lever for the trailing elements

CMS-T-00012588-A.1

Use the adjustment lever to conveniently adjust the inclination of the harrow system, of the double harrow, of the spring blade system, and of the spring clearer system.

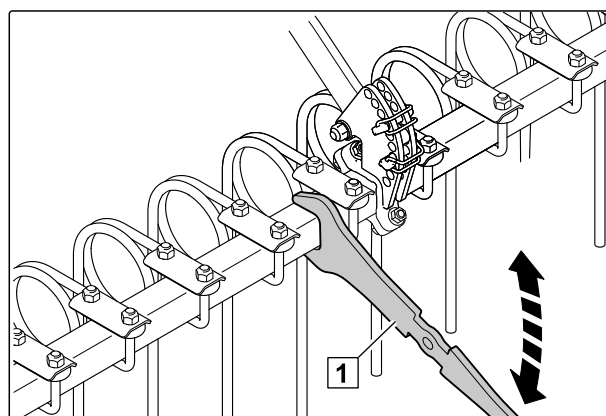


- 1 Adjustment lever in parking position



CMS-I-00002241

- 1 Adjustment lever in adjustment position



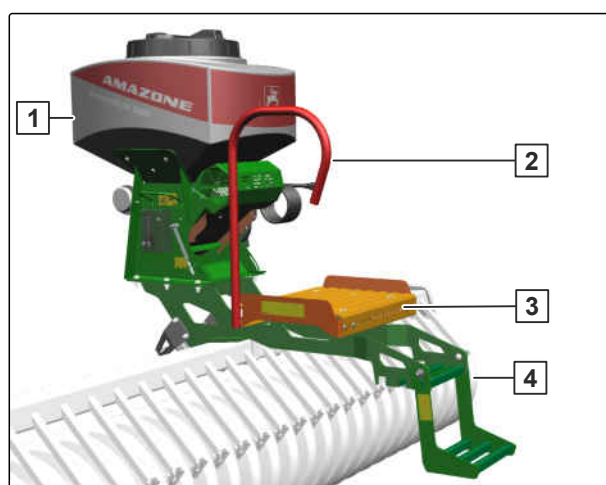
CMS-I-00007912

## 4.12 GreenDrill pack top seed drill

CMS-T-000196-E.1

The GreenDrill pack top seed drill enables sowing of fine seed and catch crops.

- 1 Hopper
- 2 Loading board
- 3 Handrail
- 4 Folding step



CMS-I-00010250

## Technical data

5

CMS-T-00002289-J.1

### 5.1 Dimensions

CMS-T-00002291-G.1

	Catros			
	2503	3003	3503	4003
Working width	8.2 ft (2.5 m)	9.84 ft (3 m)	11.48 ft (3.5 m)	13.12 ft (4 m)
Transport width	9.84 ft (3 m)			
Transport height	4.92 ft (1.5 m)	4.92 ft (1.5 m)	4.92 ft (1.5 m)	4.92 ft (1.5 m)
Total length	7.87 ft (2.4 m)	7.87 ft (2.4 m)	7.87 ft (2.4 m)	7.87 ft (2.4 m)
Total length with front rack	10.5 ft (3.2 m)	10.5 ft (3.2 m)	10.5 ft (3.2 m)	10.5 ft (3.2 m)
Centre of gravity distance without front rack	3.94 ft (1.2 m)	3.94 ft (1.2 m)	3.94 ft (1.2 m)	3.94 ft (1.2 m)
Center of gravity distance with front rack	6.04 ft (1.84 m)	6.04 ft (1.84 m)	6.04 ft (1.84 m)	6.04 ft (1.84 m)

### 5.2 Soil tillage tool

CMS-T-00002292-F.1

	Catros			
	2503	3003	3503	4003
Number of disks	20	24	28	32
Thickness of the disks	0.2 in (5 mm)			
Disk diameter	20.08 in (51 cm)			
Working depth	1.97-5.51 in (5-14 cm)			

### 5.3 Permissible mounting categories

CMS-T-00002293-D.1

Type	Three-point mounting frame
Catros 2503	Category 2, Category 3, and Category 3N
Catros 3003	Category 2, Category 3, and Category 3N
Catros 3503	Category 3 and Category 3N
Catros 4003	Category 3 and Category 3N

### 5.4 Forward speed

CMS-T-00002294-E.1

Optimal working speed	7.46-11.18 mph (12-18 km/h)
Permissible transport speed	37.28 mph (60 km/h)

### 5.5 Capacity characteristics of the tractor

CMS-T-00002295-E.1

Engine capacity			
Catros			
2503	3003	3503	4003
from 55 kW/73.97 HP (75 PS)	from 66 kW/88.77 HP (90 PS)	from 77 kW/103.56 HP (105 PS)	from 91 kW/123.29 HP (125 PS)

Electrical system	
Battery voltage	12 V
Lighting socket	7-pin

Hydraulics	
Maximum operating pressure	3,045.79 psi (210 bar)
Tractor pump capacity	At least 3.96 gpm (15 l/min) at 2,175.57 psi (150 bar)
Implement hydraulic oil	HLP68 DIN 51524  The hydraulic oil is suitable for the combined hydraulic oil circuits of all standard tractor manufacturers.
Control units	Depending on the implement equipment,

5.6 Noise emission data



CMS-T-00002296-D.1

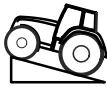
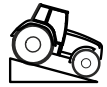
The workplace-related emission sound pressure level is lower than 70 dB(A), measured in operating status at the ear of the tractor driver with the cab closed.

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

5.7 Drivable slope inclination

CMS-T-00002297-E.1

Across the slope		
In direction of travel left	15%	
In direction of travel right	15%	

Uphill and downhill		
Uphill	15%	
Downhill	15%	

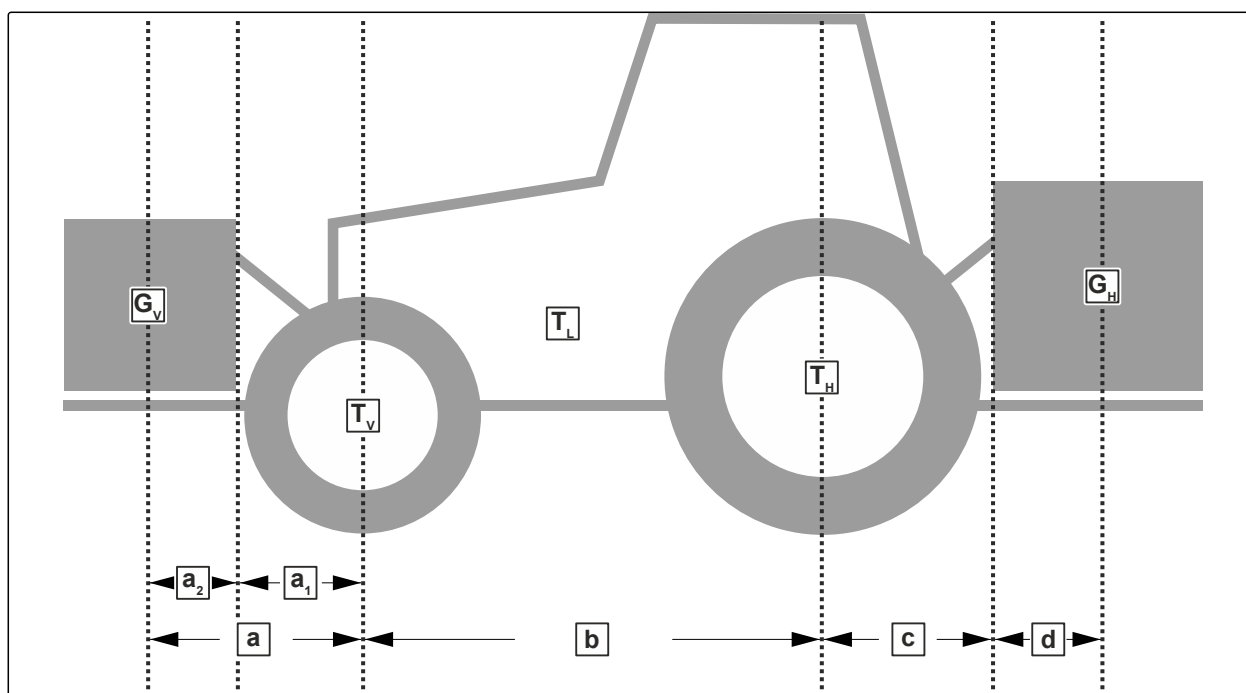
## Preparing the implement

# 6

CMS-T-00000064-N.1

### 6.1 Calculating the required tractor characteristics

CMS-T-00000063-F.1



CMS-I-00000581

Designation	Unit	Description	Determined values
$T_L$	lb ( kg)	Tractor tare weight	
$T_V$	lb ( kg)	Front axle load of the operational tractor without mounted implement or weights	
$T_H$	lb ( kg)	Rear axle load of the operational tractor without mounted implement or weights	
$G_V$	lb ( kg)	Total weight of front-mounted implement or front weight	
$G_H$	lb ( kg)	Permissible total weight of rear-mounted implement or rear ballast	
$a$	ft ( m)	Distance between the center of gravity of the front-mounted implement or the front ballast and the center of the front axle	

## 6 | Preparing the implement

### Calculating the required tractor characteristics

Designation	Unit	Description	Determined values
$a_1$	ft ( m)	Distance between center of the front axle and center of the lower link connection	
$a_2$	ft ( m)	Center of gravity distance: Distance between the center of gravity of the front-mounted implement or the front ballast and the center of the lower link connection	
$b$	ft ( m)	Wheelbase	
$c$	ft ( m)	Distance between the center of the rear axle and the center of the lower link connection	
$d$	ft ( m)	Center of gravity distance: Distance between the center of the lower link coupling point and center of gravity of the rear-mounted implement or rear ballast.	

1. Calculate the minimum front ballast.

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

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

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

CMS-I-00000513

2. Calculate the actual front axle load.

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

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

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

CMS-I-00000516

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

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

CMS-I-00000515


4. Calculate the actual rear axle load.

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

CMS-I-00000514

5. Determine the tire load capacity for two tractor tires in the manufacturer specifications.

6. Note the determined values in the table below.

**IMPORTANT**

**Risk of accident due to implement damage caused by excessive loads**

► Ensure that the calculated loads are less than or equal to the permissible loads.

	Actual value according to calculation			Permissible value according to tractor operating manual			Tire load capacity for two tractor tires	
Minimum front ballast		lb ( kg)	≤		lb ( kg)		-	-
Total weight		lb ( kg)	≤		lb ( kg)		-	-
Front axle load		lb ( kg)	≤		lb ( kg)	≤		lb ( kg)
Rear axle load		lb ( kg)	≤		lb ( kg)	≤		lb ( kg)

## 6.2 Adjusting the three-point mounting frame

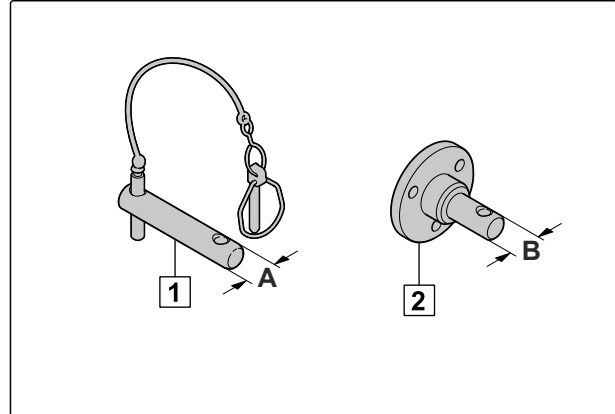
CMS-T-00000619-G.1

### 6.2.1 Adjusting the three-point mounting frame for mounting category 2

CMS-T-00000620-G.1

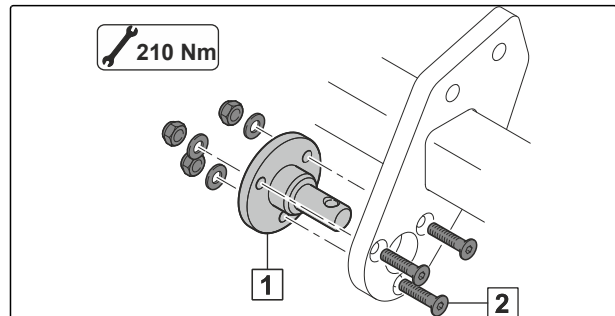
Dimension – mounting category 2	Diameter
A	0.98 in (25 mm)
B	1.1 in (28 mm)

1. Use mounting category 2 top link pins **1** and lower link pins **2**.



CMS-I-00001222

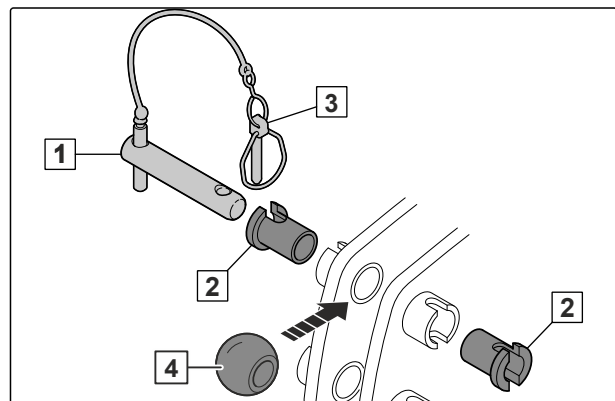
2. Insert the lower link pins **1** into the receptacles from the outside.
3. Insert the bolts **2** into the bores from the inside.
4. Tighten the bolts of the lower link pins.



CMS-I-00001224

For the top link pin **1** of mounting category 2, adapter sleeves **2** are required.

5. Insert the top link pin together with the adapter sleeves and the ball sleeve **4** into one of the bores.
6. Secure the top link pin with a linch pin **3**.



CMS-I-00001221

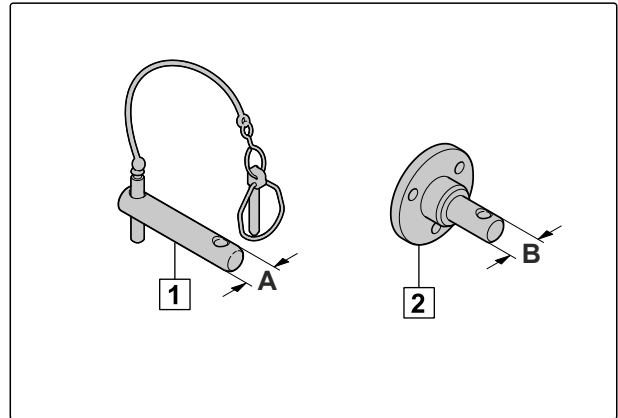


### 6.2.2 Adjusting the three-point mounting frame for mounting category 3

CMS-T-00000621-G.1

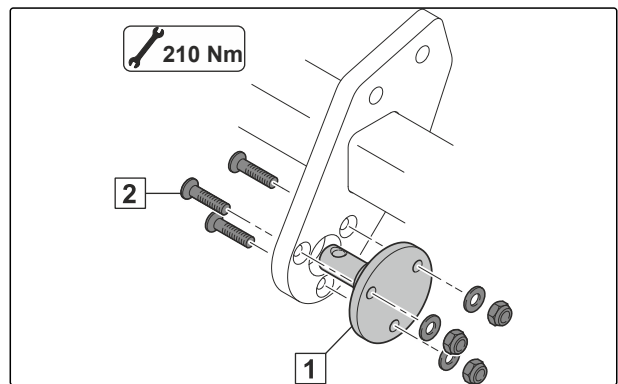
Dimension – mounting category 3	Diameter
A	1.25 in (31.7 mm)
B	1.44 in (36.6 mm)

1. Use mounting category 3 top link pins **1** and lower link pins **2**.



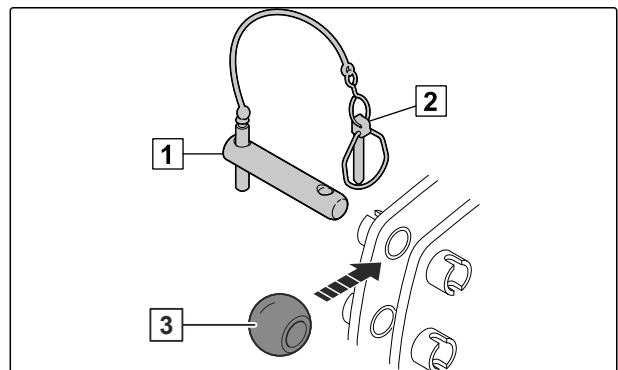
CMS-I-00001222

2. Insert the lower link pins **1** into the receptacles from the inside.
3. Insert the bolts **2** into the bores from the outside.
4. Tighten the bolts of the lower link pins.



CMS-I-00001218

5. Insert the top link pin **1** together with the ball sleeve **3** into one of the bores.
6. Secure the top link pin with a linch pin **2**.

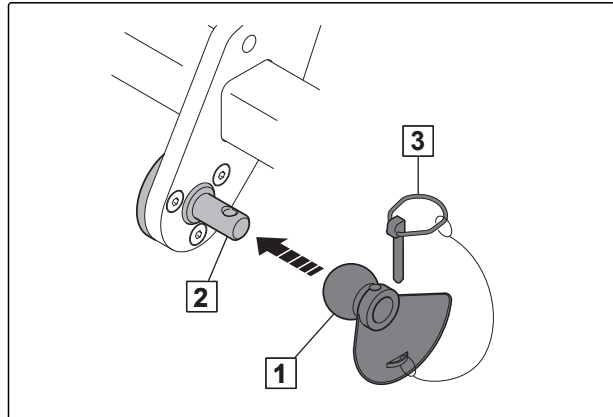


CMS-I-00001220

### 6.3 Attaching backstop profiles for lower links

CMS-T-00001398-A.1

1. Fit backstop profiles **1** on the lower link pins **2**.
2. Secure the backstop profiles with the linch pin **3**.



CMS-I-00001219

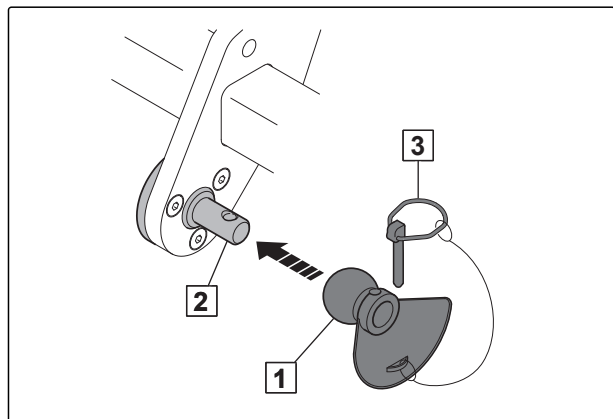
### 6.4 Coupling the implement

CMS-T-00001392-N.1

#### 6.4.1 Attaching backstop profiles for lower links

CMS-T-00001398-A.1

1. Fit backstop profiles **1** on the lower link pins **2**.
2. Secure the backstop profiles with the linch pin **3**.



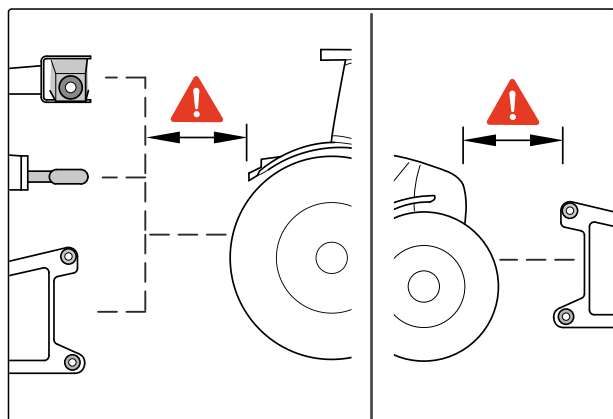
CMS-I-00001219

#### 6.4.2 Moving 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.

- Move the tractor towards the implement, leaving a sufficient distance in-between.



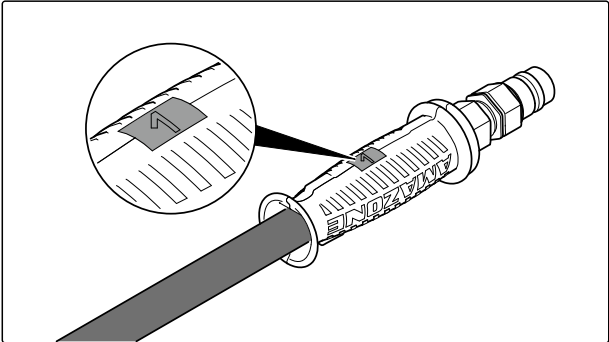
CMS-I-00004045

6.4.3 Coupling hydraulic hose lines

CMS-T-00006076-D.1

All hydraulic hoses are fitted with handles. The handles have colored markings with code number or a code letter. The markings are assigned to the respective hydraulic functions of the pressure line of a tractor control unit. Stickers that match the markings are affixed on the implement to illustrate the respective hydraulic functions.

The tractor control unit is used in different activation types, depending on the hydraulic function:



CMS-I-00000121

Activation type	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	

Marking		Function			Tractor control unit	
Green			Working depth of the concave disks	Increase	Double-acting	
				Reduce		
Beige			Working depth of the crushboard	Increase	Double-acting	
				Reduce		
Beige			Cutter roller	Insert	Double-acting	
				Lift out		

**WARNING**

**Risk of injury or even death**

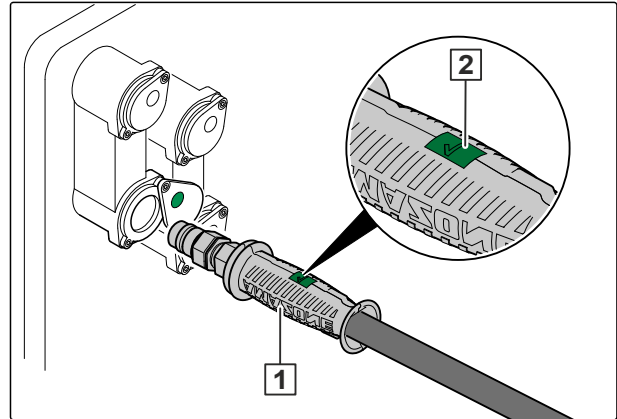
If the hydraulic hose lines are incorrectly connected, the hydraulic functions may be faulty.

► When coupling the hydraulic hose lines, pay attention to the colored markings on the hydraulic plug connectors.

## 6 | Preparing the implement

### Coupling the implement

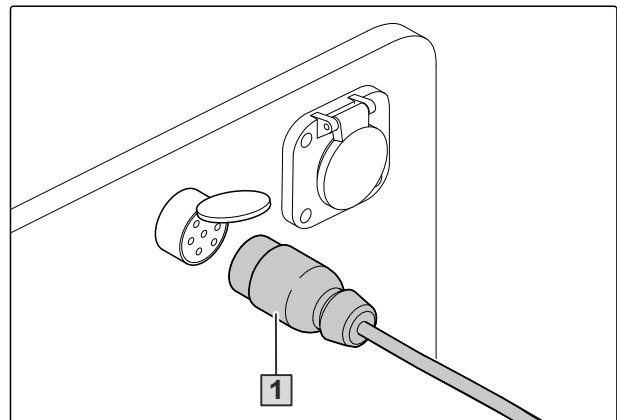
1. Depressurize the hydraulic system between the tractor and the implement using the tractor control unit.
  2. Clean the hydraulic plug connectors.
  3. Couple the hydraulic hose lines **1** to the hydraulic sockets of the tractor according to the marking **2**.
- ➔ The hydraulic plug connectors lock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



CMS-I-00001045

#### 6.4.4 Coupling the power supply

1. Plug in the plug connector **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.

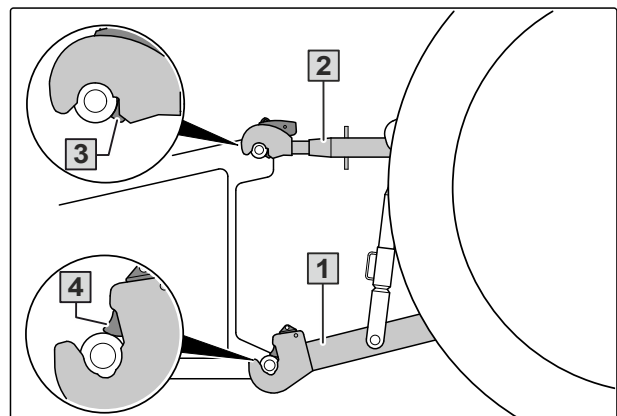


CMS-T-00001399-G.1

CMS-I-00001048

#### 6.4.5 Coupling the three-point mounting frame

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



CMS-T-00001400-H.1

CMS-I-00001225

### 6.4.6 Aligning the implement horizontally

CMS-T-00003221-E.1

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

1. Drive the tractor and implement on a horizontal surface.
2. Align the implement with top link horizontally.

## 6.5 Preparing the implement for operation

CMS-T-00001394-I.1

### 6.5.1 Adjusting the working depth

CMS-T-00000608-G.1

#### 6.5.1.1 Manually adjusting the working depth of disks

CMS-T-00000633-D.1

##### 6.5.1.1.1 Manual working depth reduction of the disks

CMS-T-00000270-D.1

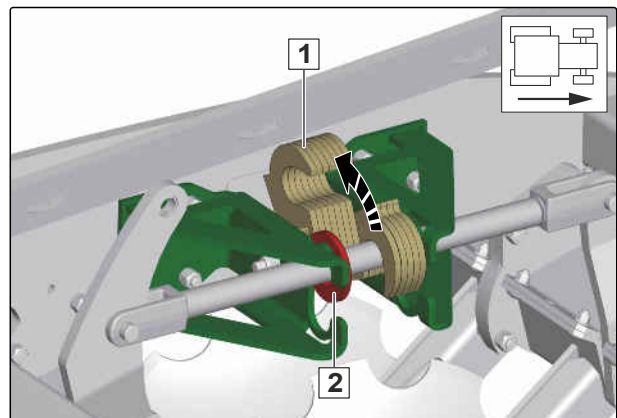
1. Lift the implement.

➔ The spacer elements **1** in front of the stop washer **2** are offloaded.

2. Swing the desired number of spacer elements in front of the stop washer.

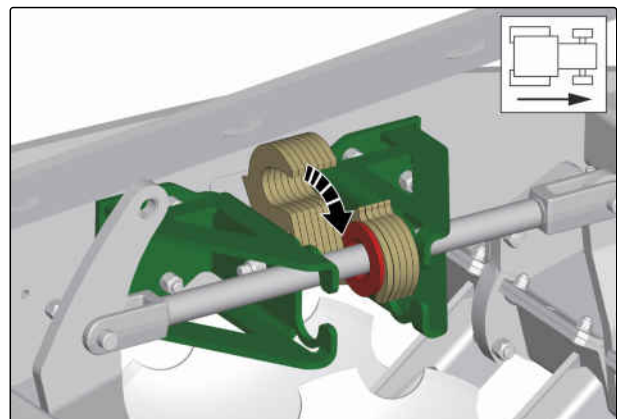
3. Lower the implement onto the ground.

➔ The stop washer shifts forward.



CMS-I-00000522

4. Swing down the spacer elements that were swung up behind the stop washer.

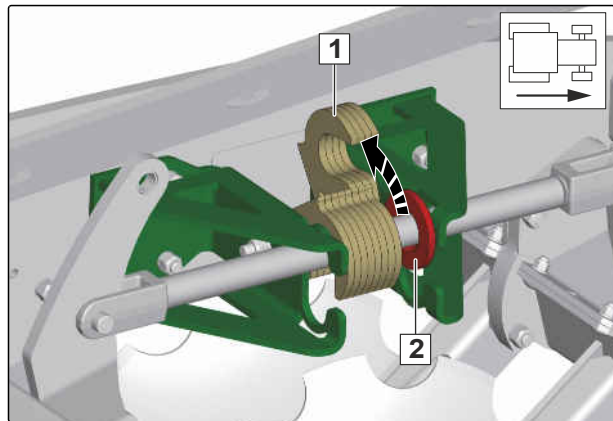


CMS-I-00000524

#### 6.5.1.1.2 Manually increasing the working depth of the disks

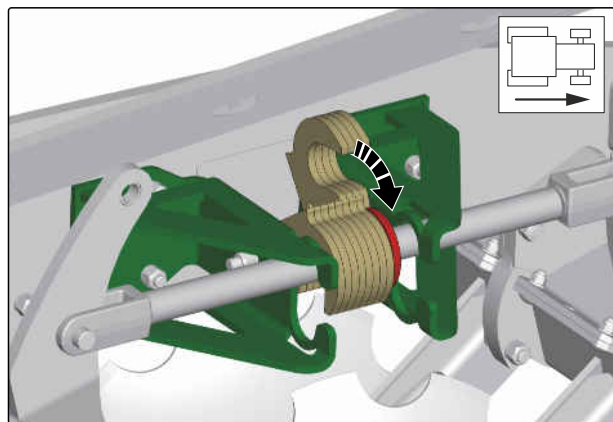
CMS-T-00000634-D.1

1. Lower the implement onto the ground.  
➔ The spacer elements **1** behind the stop washer **2** are offloaded.
2. Swing up the desired number of spacer elements behind the stop washer.
3. Lift the implement.  
➔ The stop washer shifts to the rear.



CMS-I-00000525

4. Swing down the spacer elements that were swung up in front of the stop washer.



CMS-I-00000523

#### 6.5.1.2 Hydraulic working depth adjustment of the disks

CMS-T-00000271-E.1



#### NOTE

If a uniform working depth cannot be adjusted, the hydraulic cylinders must be synchronized.

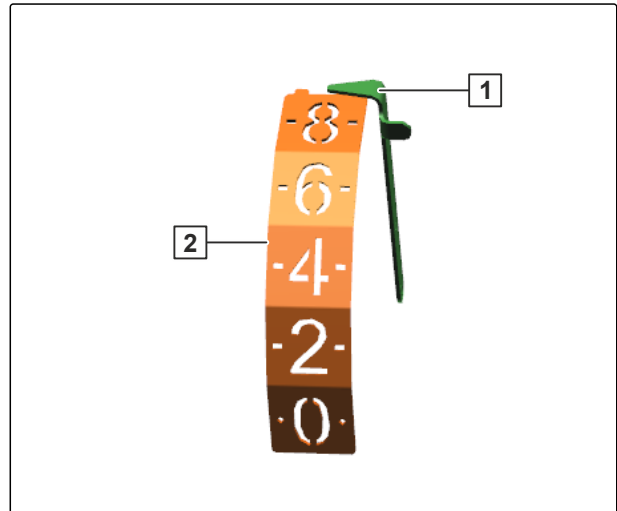
1. *To synchronize the hydraulic cylinders,* completely extend the hydraulic cylinders with the "green" tractor control unit.
2. Hold the "green" tractor control unit for 10 seconds.  
➔ The hydraulic cylinders will be synchronized.

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

**NOTE**

The scale value is only for orientation. The scale value does not equal the working depth in centimeters.

3. Adjust the working depth hydraulically using the "green" tractor control unit.



CMS-I-00002447

### 6.5.1.3 Adjusting the working depth of the side disks

CMS-T-00000077-G.1

The working depth of the side disks is adjusted to prevent formation of soil ridges in operation.

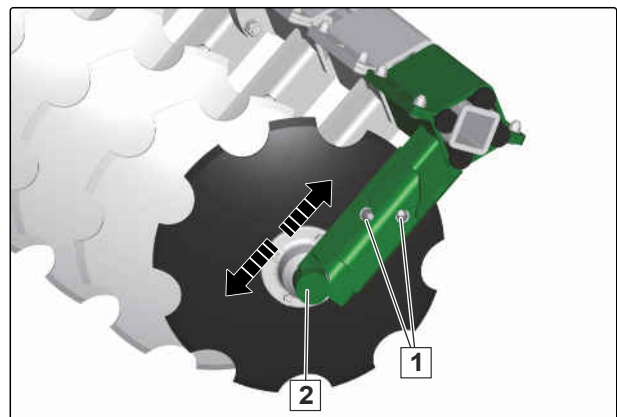
1. Lift the implement.
2. Unscrew bolts **1**.

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

3. Move the side disk up or down.

**NOTE**

The specified working width is only reached, when all disks are set to the same working depth.



CMS-I-00000520

4. Tighten the bolts **1**.

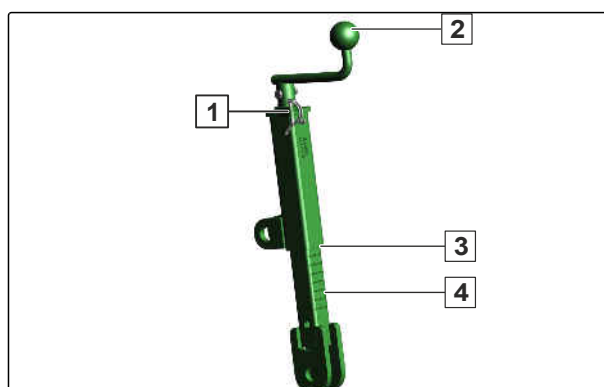
#### 6.5.1.4 Adjusting the working depth of the crushboard

CMS-T-00002258-G.1

##### 6.5.1.4.1 Manual crushboard working depth adjustment

CMS-T-00002259-F.1

1. Pull the linch pin **1**.
2. Use the crank **2** to change the working depth.
3. Read the working depth on the read-off edge **4** of the scale **3**.
4. *When the desired working depth has been set, secure the crank with a linch pin.*



CMS-I-00002053

##### 6.5.1.4.2 Hydraulically adjusting the working depth of the crushboard

CMS-T-00002260-E.1

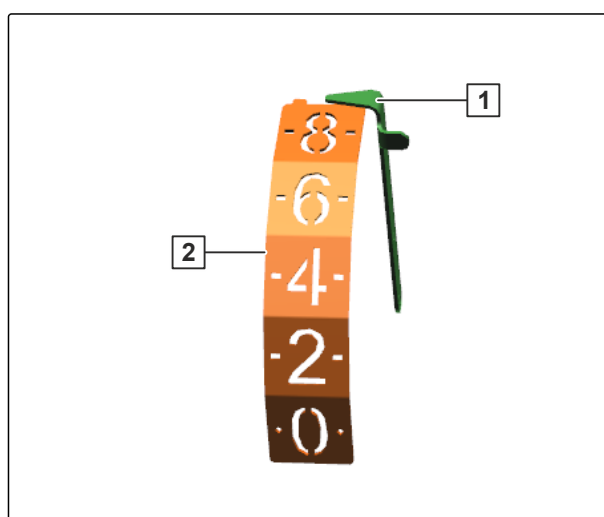
The set working depth is shown on the scale.



#### NOTE

The scale value is only for orientation. The scale value does not equal the working depth in centimeters.

- Hydraulically adjust the working depth via tractor control unit "beige".



CMS-I-00002447

#### 6.5.2 Adjusting the trailing elements

CMS-T-00012141-A.1

##### 6.5.2.1 Adjusting harrow system 12-125 HI

CMS-T-00012142-A.1

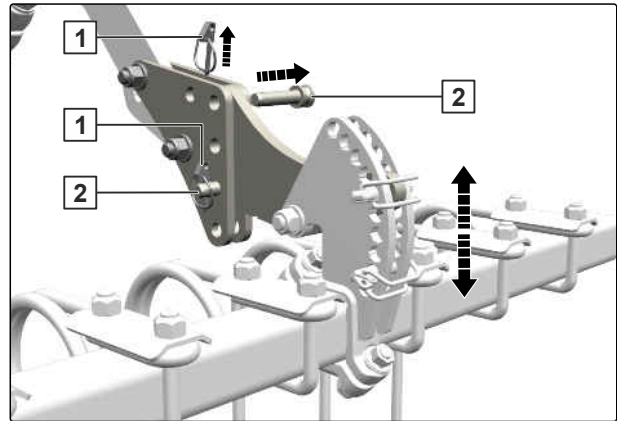
##### 6.5.2.1.1 Adjusting the height of the 12-125 HI harrow system

CMS-T-00012144-A.1

With the two pins on the adjustment units, four height adjustment settings can be pegged.



1. Prevent harrow from lowering with suitable lifting gear and slings.
2. Pull linch pins **1** of the two pins **2**.
3. Pull both pins.
4. Likewise, remove the pins on the second adjustment unit.
5. Lift or lower the harrow to the desired height.
6. Secure the adjustment with the pins.
7. Secure the pins with the linch pins.



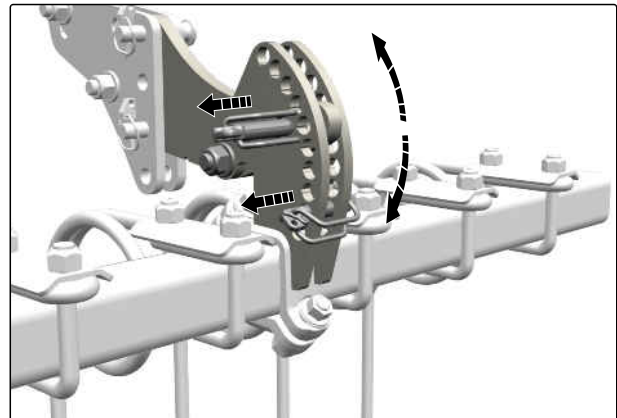
CMS-I-00007854

#### 6.5.2.1.2 Adjusting the inclination of the 12-125 HI harrow system

1. Pull both linch pins on both adjustment units.

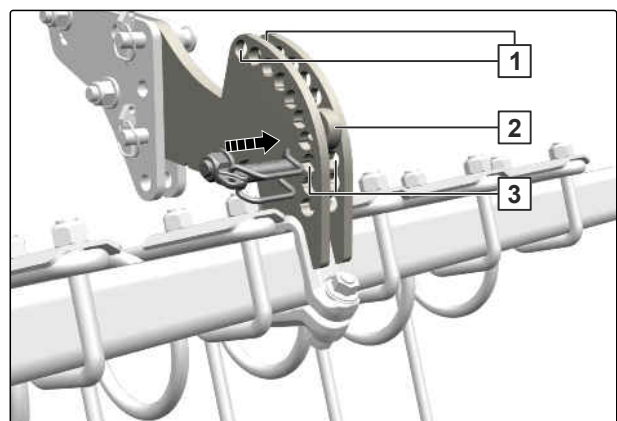
The next work step can also be executed with the adjustment lever.

2. Turn the harrow into the desired position.



CMS-I-00007852

3. Insert a linch pin through each of the bores **3** directly underneath the holder **2**.
4. Park every second linch pin in the top-most bores **1**.



CMS-I-00007853

### 6.5.2.2 Adjusting the 12-125 H KWM/DW harrow system

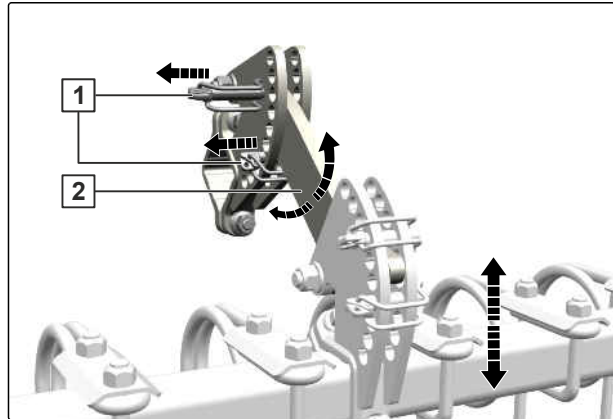
CMS-T-00012148-A.1

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

CMS-T-00012150-A.1

With the two linch pins on the adjustment units, six height adjustment settings can be pegged.

1. Pull both linch pins **1** on both adjustment units.
2. Lift or lower the harrow to the desired height.
3. Insert linch pins through each of the bores directly above and below the holder **2**.



CMS-I-00007870

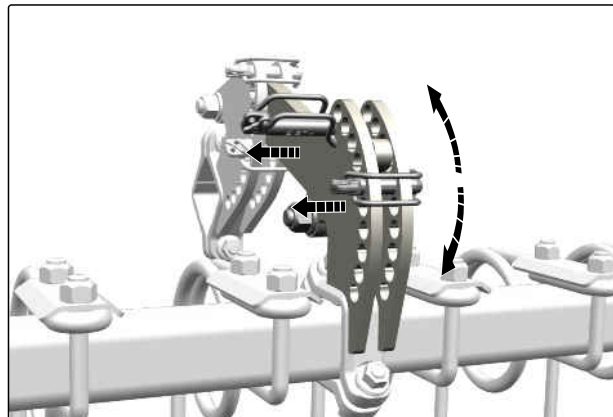
#### 6.5.2.2.2 Adjusting the inclination of the 12-125 HI KWM/DW harrow system

CMS-T-00012149-A.1

1. Pull both linch pins on both adjustment units.

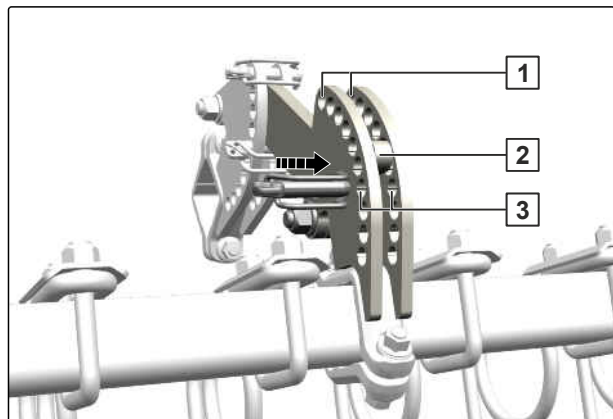
The next work step can also be executed with the adjustment lever.

2. Turn the harrow into the desired position.



CMS-I-00007866

3. Insert a linch pin through each of the bores **3** directly underneath the holder **2**.
4. Park every second linch pin in the top-most bores **1**.



CMS-I-00007869

### 6.5.2.3 Adjusting harrow system 12-250 HI

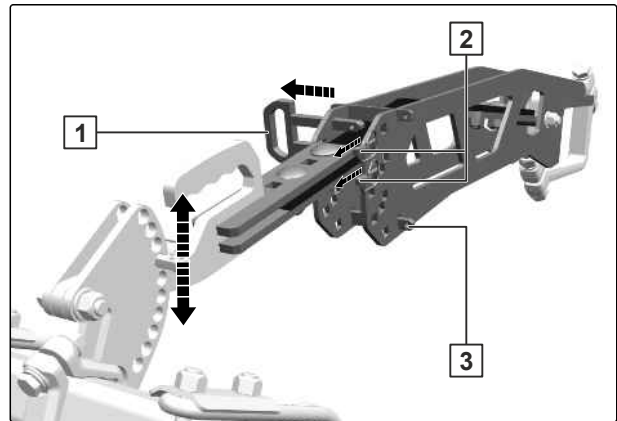
CMS-T-00012163-A.1

#### 6.5.2.3.1 Adjusting the height of the 12-250 HI harrow system

CMS-T-00012166-A.1

With the double pin on the adjustment units, five height adjustment settings can be pegged.

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



CMS-I-00007880

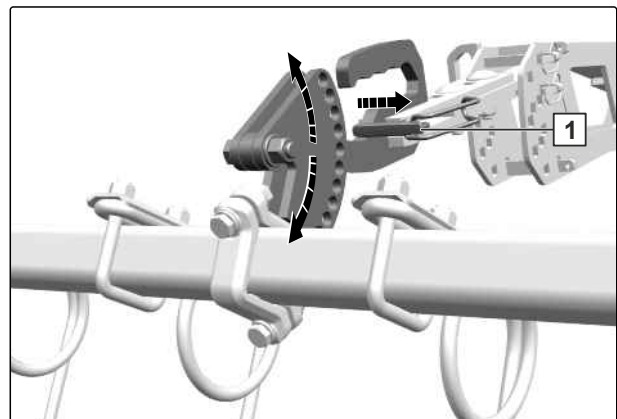
#### 6.5.2.3.2 Adjusting the inclination of the 12-250 HI harrow system

CMS-T-00012164-A.1

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

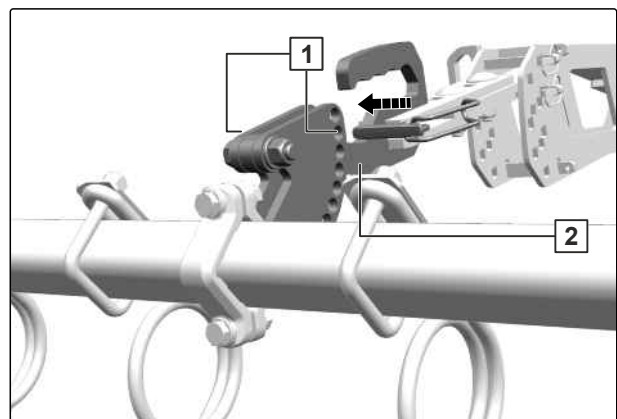
The next work step can also be executed with the adjustment lever.

2. Turn the harrow into the desired position.



CMS-I-00007871

3. Insert linch pins through each of the bores **1** directly above the holder **2**.



CMS-I-00007874

#### 6.5.2.4 Adjusting the CXS double harrow

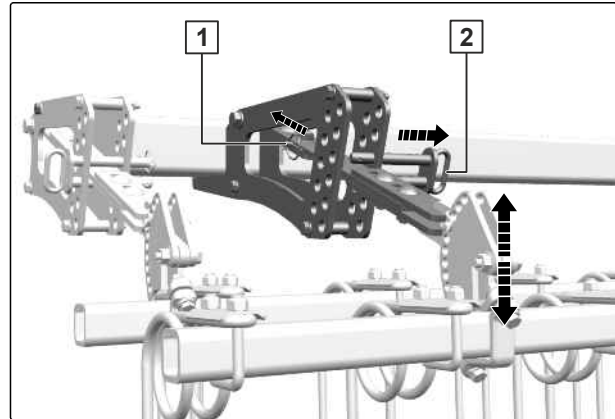
CMS-T-00012167-A.1

##### 6.5.2.4.1 Adjusting the height of the CXS double harrow

CMS-T-00012169-A.1

With the double pin on the adjustment units, nine height adjustment settings can be pegged.

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



CMS-I-00007887

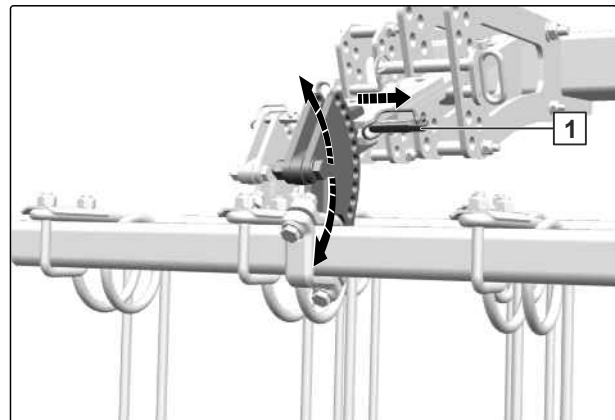
##### 6.5.2.4.2 Adjusting the inclination of the CXS double harrow

CMS-T-00012168-A.1

1. On both adjustment units of a harrow beam, pull the linch pin **1**.

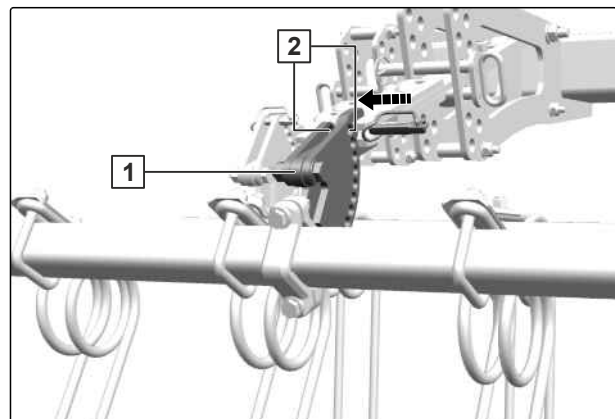
The next work step can also be executed with the adjustment lever.

2. Turn the harrow beam to the desired position.



CMS-I-00007882

3. Insert linch pins through each of the bores **2** directly above the holder **1**.
4. Adjust the inclination of the second double harrow beam in the same manner.



CMS-I-00007884

#### 6.5.2.5 Adjusting spring blade system 142 or spring clearer system 167

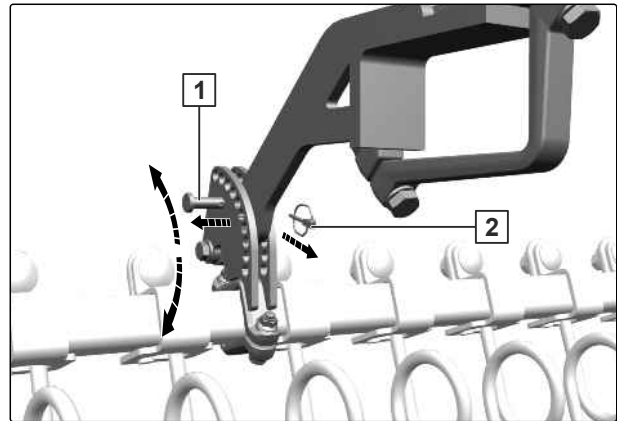
CMS-T-00012170-A.1

1. On both adjustment units of a spring blade beam or of a spring clearer beam, pull the linch pin **2** out of the bolt **1**.

2. Pull pin.

The next work step can also be executed with the adjustment lever.

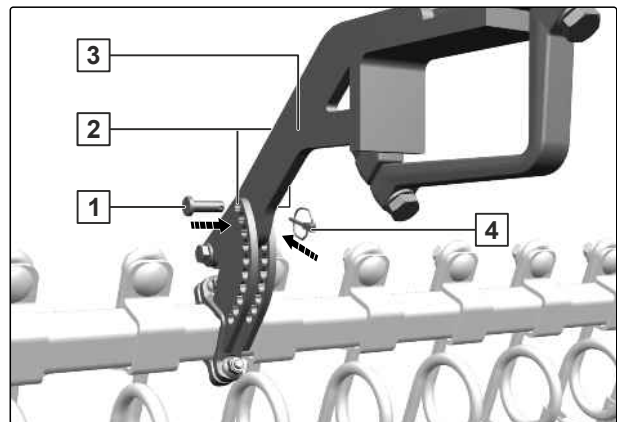
3. Turn the spring blade beam or spring clearer beam into the desired position.



CMS-I-00007888

4. Insert pins **1** through each of the bores **2** and one of the bores in the holder **3**.

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



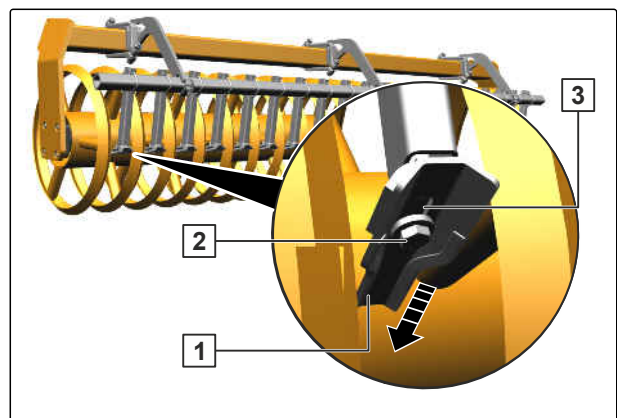
CMS-I-00007889

#### 6.5.2.6 Adjusting the scrapers of the WW 142 HI clearer system

CMS-T-00012171-A.1

If there is wear, the scrapers of the WW 142 HI can be moved closer to the angled profile roller.

1. Unscrew the bolt **2** on the scraper **1**.
2. Move scraper in the slotted hole **3** towards the roller.
3. Tighten the bolt.



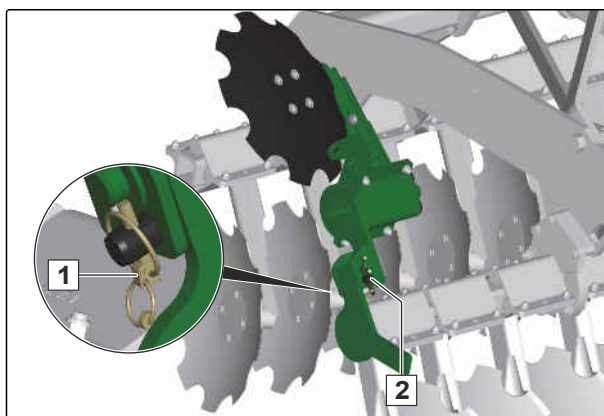
CMS-I-00007890

### 6.5.3 Preparing the side disks for use

CMS-T-0000083-E.1

The side disks ensure a good work pattern in the outer area of the implement. For optimal connection of the next bout, the working depths of the side disks are adjustable. To ensure that the prescribed transport width is complied with, the side disks have a folding design, depending on the implement equipment.

1. Pull the linch pins **1** of the side disks.
2. Pull the pins **2**.



CMS-I-00000632

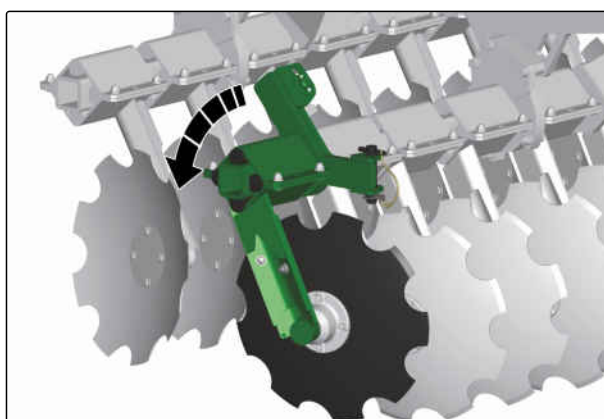


#### **WARNING**

##### **Risk of crushing**

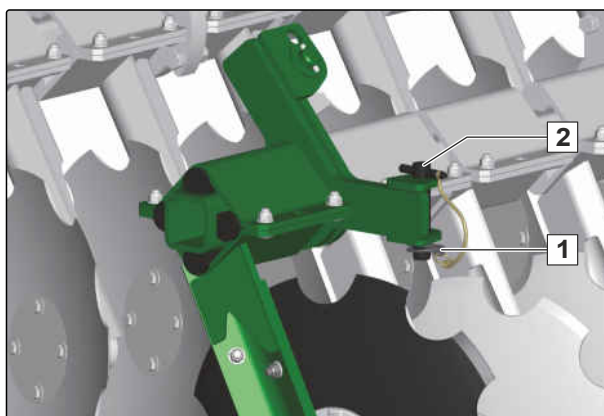
- Carefully swing the side disks into the desired position.

3. Swing down the side disks.



CMS-I-00000527

4. Peg the side disk in place with the pin **2**.
5. Secure the pin with a linch pin **1**.



CMS-I-00000487

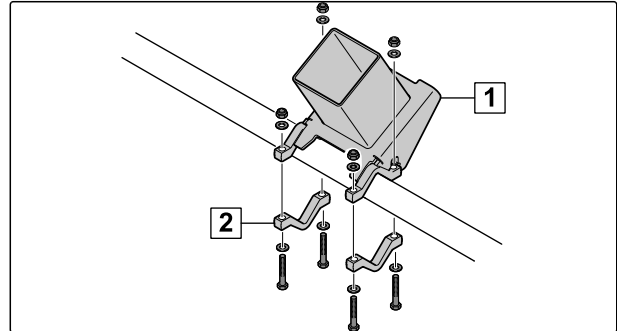


### 6.5.4 Mounting ballast weights

CMS-T-00000069-E.1

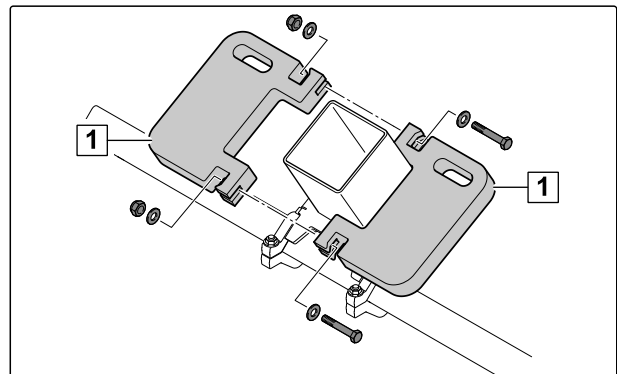
The ballast weights optimize penetration of the disks into the soil under dry and extremely hard soil conditions. One set of ballast weights consists of 4 elements, each with a weight of 55.12 lb (25 kg).

1. Screw on the holder **1** for the ballast weights with the clamp bracket **2** centered on the rear frame carrier.



CMS-I-00000643

2. Put two ballast weights **1** on each holder.
3. Always bolt two ballast weights together.



CMS-I-00000533

### 6.5.5 Adjusting the scraper to the roller

CMS-T-00000076-F.1

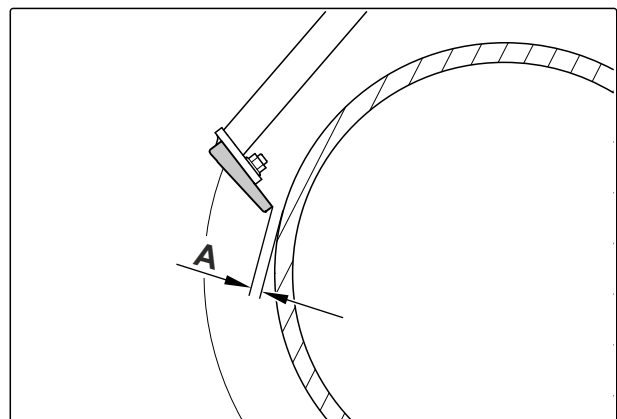
The scrapers on the roller are factory-adjusted. The scrapers can be adapted to the working conditions.



#### NOTE

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

- Wedge ring roller: 0.47 in (12 mm)  $\pm$  0.08 in (2 mm)
- Wedge ring roller with matrix tread: 0.51 in (13 mm)  $\pm$  0.08 in (2 mm)
- Tooth packer roller: at least 0.04 in (1 mm)

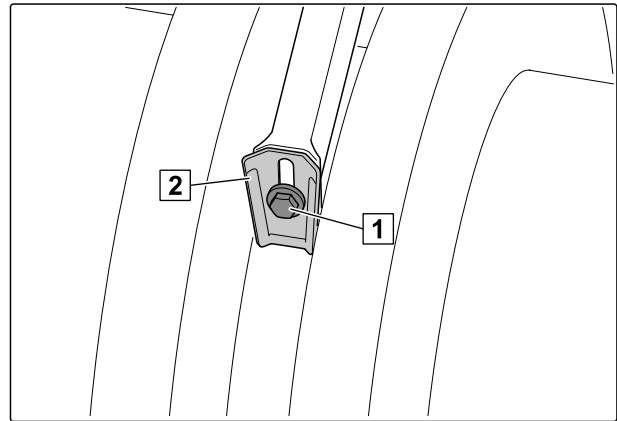


CMS-I-00002071

## 6 | Preparing the implement

### Preparing the implement for operation

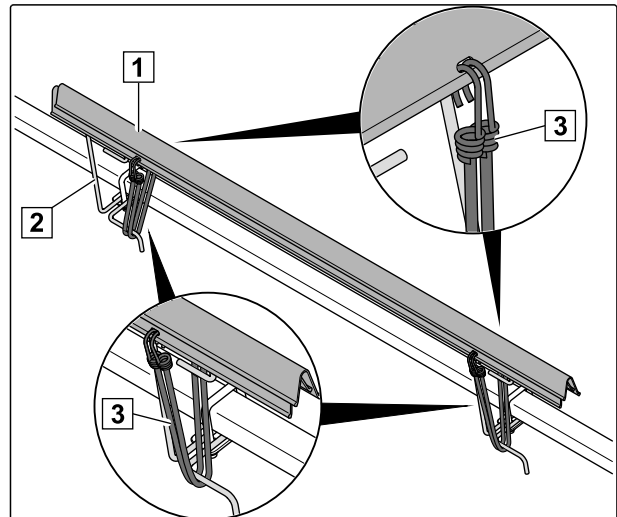
1. Unscrew the bolt **1** on the scraper **2**.
2. Move the scraper in the slotted hole.
3. Tighten the bolt **1**.
4. Check the distances with the implement lowered.



CMS-I-00000521

### 6.5.6 Removing the road safety bars

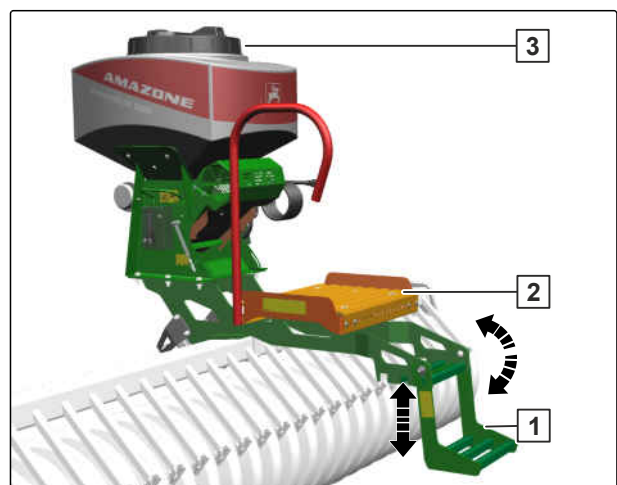
1. Remove the road safety bars from the harrow system.
2. Turn the traffic safety bars **1** 180°, place them on top of each other on the holders **2**.
3. Secure the road safety bars with tensioners **3**.



CMS-I-00000518

### 6.5.7 Filling the GreenDrill

1. Switch off the fan.
2. Switch off the control terminal.
3. Lift the folding step **1** and swing it downward.
4. Climb onto the loading board **2**.
5. *To fill the hopper of the GreenDrill **3**:*  
See the GreenDrill operating manual.
6. Swing the folding step upward and lower it into parking position.



CMS-I-00010251



## 6.6 Preparing the implement for road travel

CMS-T-00001395-E.1

### 6.6.1 Bringing the harrow into transport position

CMS-T-00012320-A.1

#### 6.6.1.1 Bringing the 12-125 HI harrow system into transport position

CMS-T-00012324-A.1

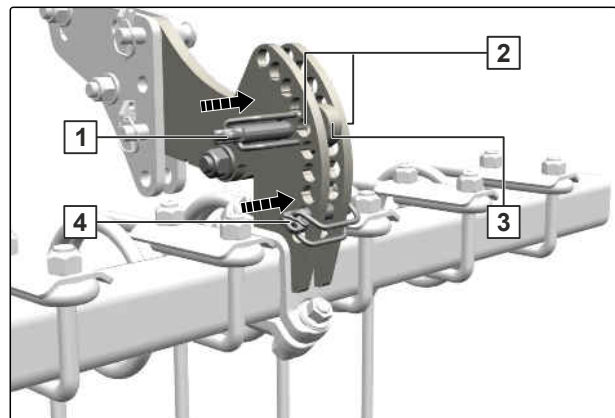
On folding implements, with the implement folded, the harrow tines, together with the road safety bars must not exceed the transport width of 9.84 ft (3 m).

1. Pull both lynch pins on both adjustment units.

The next work step can also be executed with the adjustment lever.

2. *With the implement folded, if the harrow tines exceed the transport width:*  
Turn the harrow beam to a shallower inclination.

3. Insert a lynch pin **1** through each of the bores **2** and the bore in the holder **3**.
4. Park the second lynch pin **4** underneath the holder.



CMS-I-00007934

#### 6.6.1.2 Bringing the 12-125 HI KWM/DW harrow system into transport position

CMS-T-00012322-A.1

On folding implements, with the implement folded, the harrow tines, together with the road safety bars must not exceed the transport width of 9.84 ft (3 m).

1. Pull both lynch pins on both adjustment units.

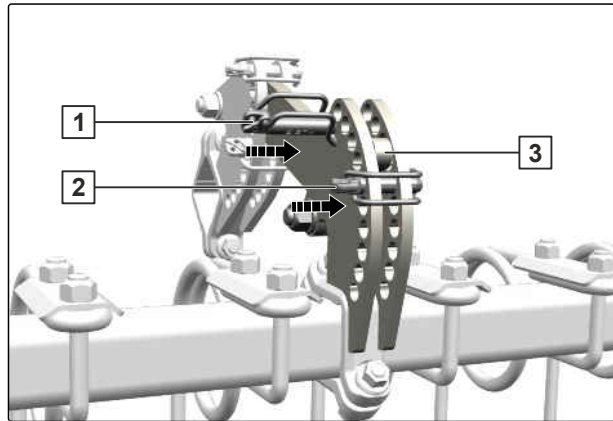
The next work step can also be executed with the adjustment lever.

2. *With the implement folded, if the harrow tines exceed the transport width:*  
Turn the harrow beam to a shallower inclination.

## 6 | Preparing the implement

### Preparing the implement for road travel

3. Insert linch pins **1** and **2** through the bores directly above and below the holder **3**.



CMS-I-00007936

#### 6.6.1.3 Bringing the 12-250 HI harrow system into transport position

CMS-T-00012326-A.1

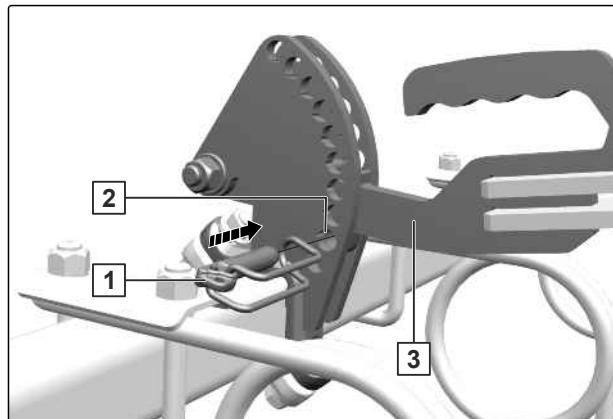
On folding implements, with the implement folded, the harrow tines, together with the road safety bars must not exceed the transport width of 9.84 ft (3 m).

1. Pull the linch pin on both adjustment units.

The next work step can also be executed with the adjustment lever.

2. *With the implement folded, if the harrow tines exceed the transport width:*  
Turn the harrow beam to a shallower inclination.

3. Insert linch pins **1** through each of the bores **2** and the bore below in the holder **3**.



CMS-I-00007907

#### 6.6.1.4 Bringing the CXS double harrow into transport position

CMS-T-00012328-A.1

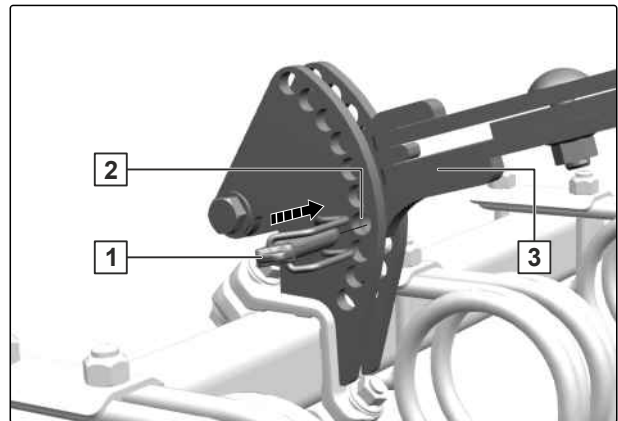
On folding implements, with the implement folded, the harrow tines, together with the road safety bars must not exceed the transport width of 9.84 ft (3 m).

1. Pull the lynch pin on both adjustment elements of a double harrow beam.

The next work step can also be executed with the adjustment lever.

2. *With the implement folded, if the harrow tines exceed the transport width:*  
Turn the harrow beam to a shallower inclination.

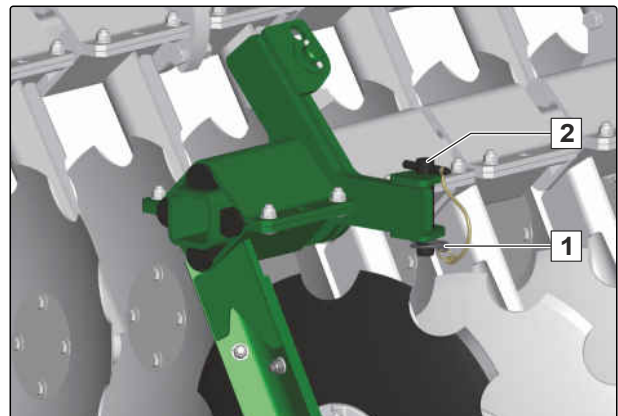
3. Insert lynch pins **1** through each of the bores **2** and the bore below in the holder **3**.
4. Bring the second double harrow beam into transport position in the same manner.




CMS-I-00007908

### 6.6.2 Preparing the side disks for road travel

1. Pull the lynch pins **1** of the side disks.
2. Pull the pins **2**.



CMS-I-00000487

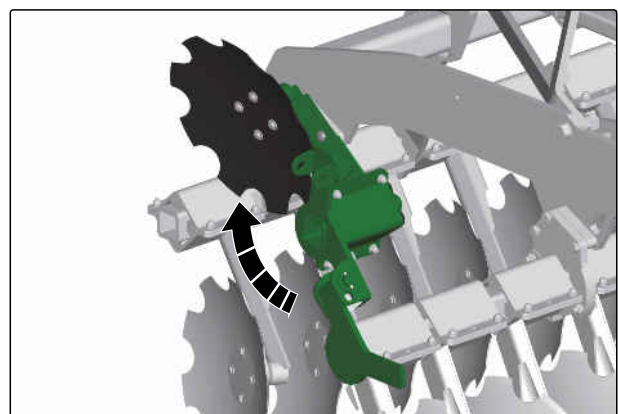


**WARNING**

**Risk of crushing**

► Carefully swing the side disks into the desired position.

3. Swing up the side disks.

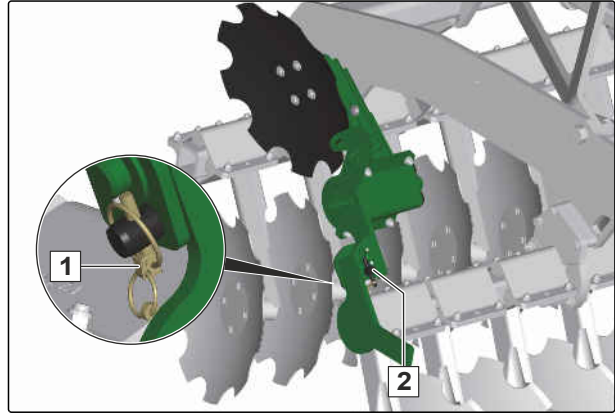


CMS-I-00000526

## 6 | Preparing the implement

### Preparing the implement for road travel

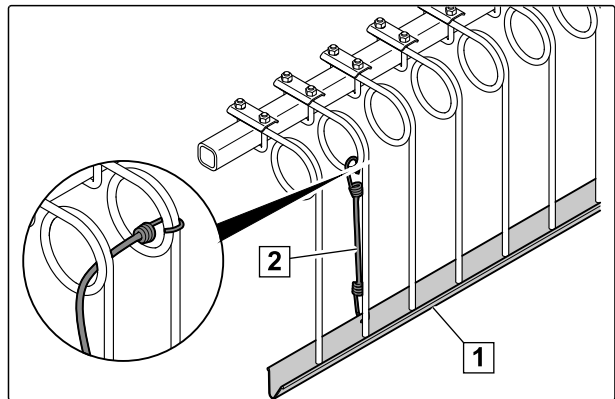
4. Peg the side disk in place with the pin **2**.
5. Secure the pin with a linch pin **1**.



CMS-I-00000632

#### 6.6.3 Attaching the road safety bars

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



CMS-T-00000614-C.1

CMS-I-00000517

## Using the implement

7

CMS-T-00000071-I.1

### 7.1 Using the implement

CMS-T-001727-G.1

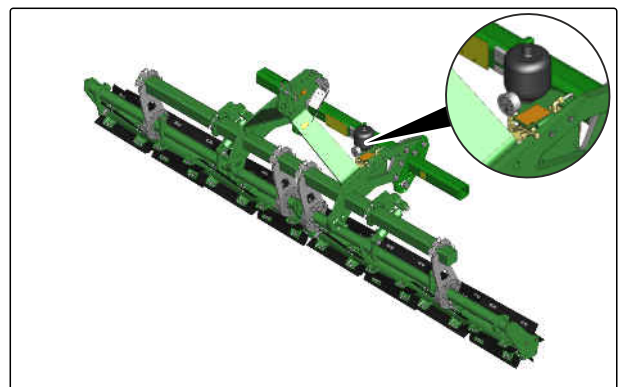
1. Lower the implement onto the field.
2. Bring the hydraulics of the 3-point power lift into float position.

### 7.2 Using the cutter roller

CMS-T-00006284-C.1

The cutter roller chops up crop residues and catch crops. The cutter roller is automatically preloaded by means of a hydraulic pressure accumulator. A stop tap is attached to the hydraulic pressure accumulator.

1. Open the stop tap.
2. Insert the cutter roller via the "beige" tractor control unit.
3. *To build up the hydraulic preload, hold the "beige" tractor control unit for 20 seconds.*
4. Place the tractor control unit in float position.



CMS-I-00004475

### 7.3 Turning on headlands

CMS-T-001728-B.1

1. *To prevent lateral loads when turning on headlands,*  
Lift out soil tillage tools.
2. *If the direction of the implement is the same as the direction of travel,*  
lower the soil tillage tools.

# Parking the implement

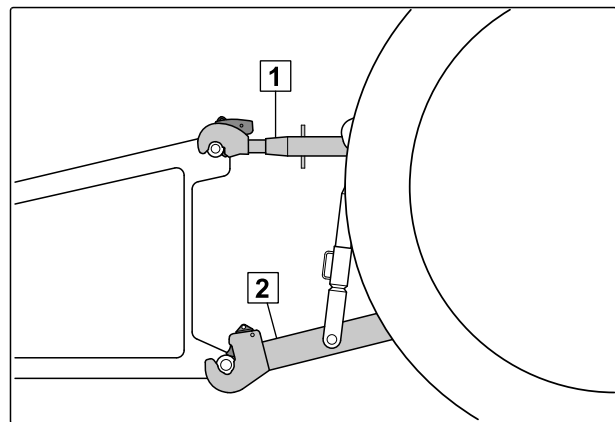
8

CMS-T-00001393-G.1

## 8.1 Uncoupling the three-point mounting frame

CMS-T-00001401-D.1

1. Park the implement on a horizontal, stable surface.
2. Offload the top link **1**.
3. Uncouple the top link from the implement.
4. Offload the lower link **2**.
5. Uncouple the lower links of the implement from the tractor seat.



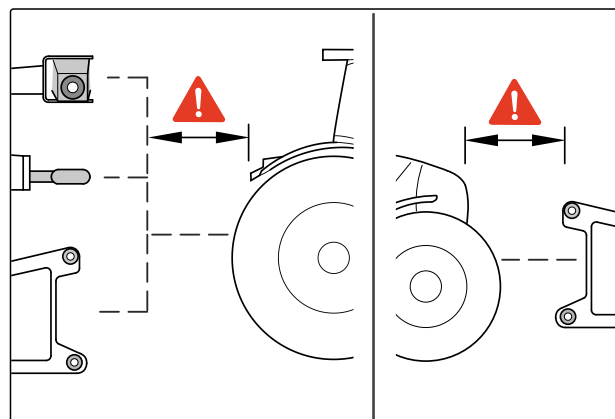
CMS-I-00001249

## 8.2 Moving the tractor away from the implement

CMS-T-00005795-D.1

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

- Move the tractor an adequate distance away from the implement.

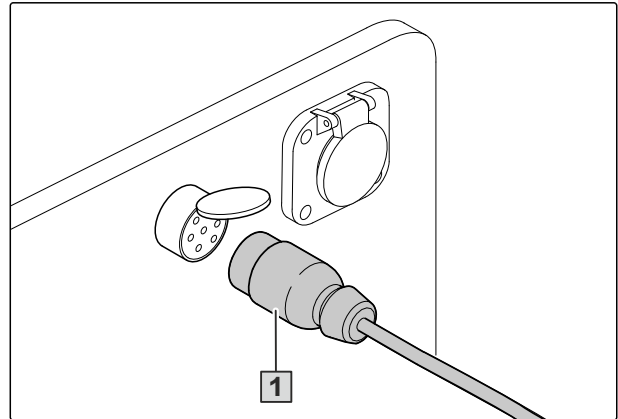


CMS-I-00004045

### 8.3 Uncoupling the power supply

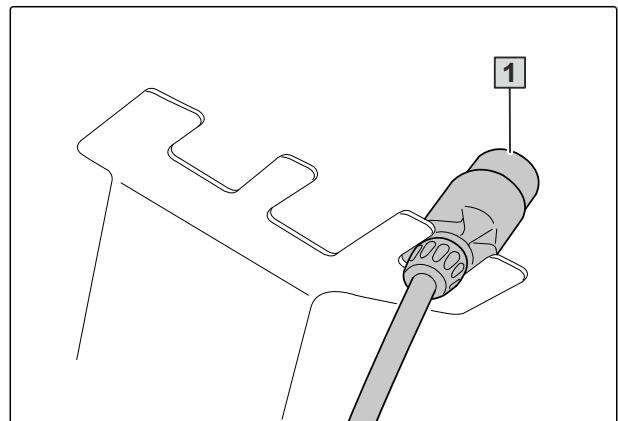
CMS-T-00001402-H.1

1. Unplug the connector **1** for the power supply.



CMS-I-00001048

2. Hook-in the connector **1** on the hose cabinet.

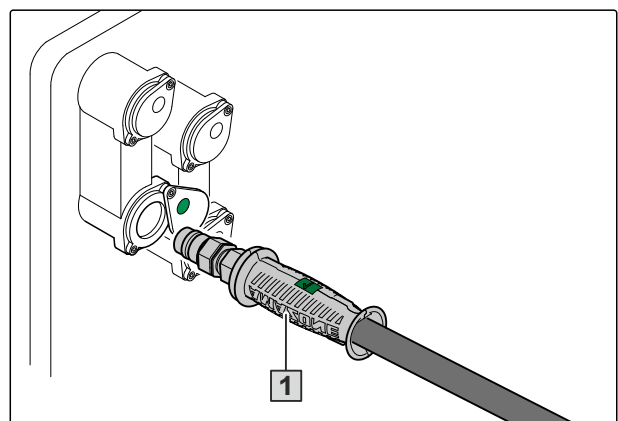


CMS-I-00001248

### 8.4 Uncoupling the hydraulic hose lines

CMS-T-00000277-F.1

1. Secure tractor and implement.
2. Bring the tractor control unit into float position.
3. Uncouple the hydraulic hose lines **1**.
4. Attach the dust caps on the hydraulic sockets.



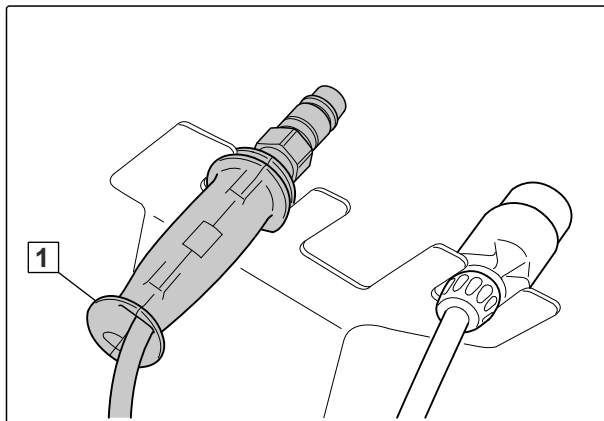
CMS-I-00001065

## 8 | Parking the implement

### Uncoupling the hydraulic hose lines

---

5. Hook-in the hydraulic hose lines **1** on the hose cabinet.



CMS-I-00001250



# Maintaining the implement

# 9

CMS-T-00000146-M.1

## 9.1 Maintaining the implement

CMS-T-00002326-L.1

### 9.1.1 Maintenance schedule

<b>After initial operation</b>		
Checking the disk carrier connection	See page 63	
Checking the rollers	See page 64	
Checking the hydraulic hose lines	See page 65	
<b>As needed</b>		
Replacing the disks	See page 62	
Aligning the disk gangs relative to each other	See page 62	<b>WORKSHOP TASK</b>
<b>Daily</b>		
Checking the top link pin and lower link pin	See page 64	
<b>Every 50 operating hours / Weekly</b>		
Checking the hydraulic hose lines	See page 65	
<b>Every 200 operating hours / Every 3 months</b>		
Checking the rollers	See page 64	

### 9.1.2 Replacing the disks

CMS-T-00002327-I.1

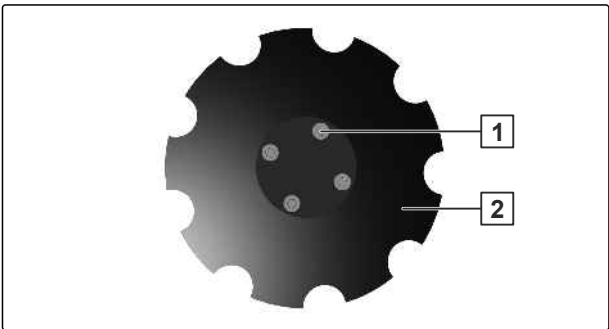


#### INTERVAL

- As needed

Original disk diameter	Wear limit
18.11 in (46 cm)	14.17 in (36 cm)
18.9 in (48 cm)	15.75 in (40 cm)
20.08 in (51 cm)	14.17 in (36 cm)
24.02 in (61 cm)	16.93 in (43 cm)
25.98 in (66 cm)	18.11 in (46 cm)

1. Slightly lift the implement.



CMS-I-00002450

2. Unscrew the 4 bolts **1** of the disk fastening.
3. Take off the disk **2**.
4. Fasten the new disk with the 4 bolts.

### 9.1.3 Aligning the disk gangs relative to each other

CMS-T-00015517-A.1



#### WORKSHOP TASK

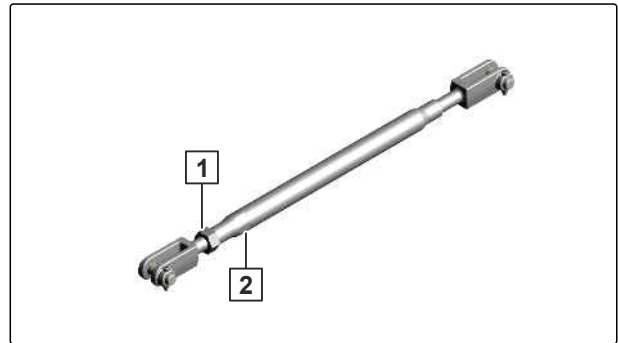
- As needed

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

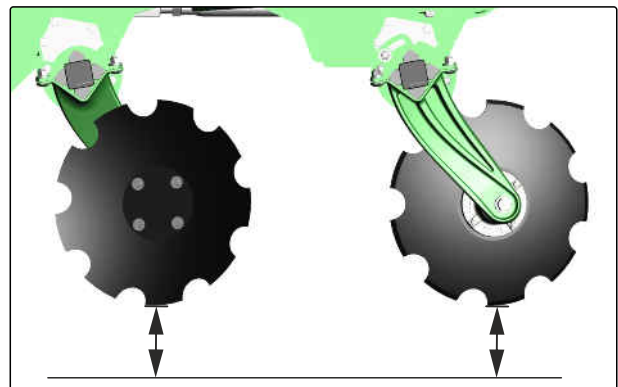
**The alignment of the disk gangs is suitable for the following:**

- Optimizing the working depth of the disk gangs relative to each other
- Correcting lateral pull of the implement
- Preventing non-uniform wear of the disks

1. Align the implement horizontally.
2. Set the working depth of the disk gangs to the lowest value.  
➔ The disks are not standing on the ground.
3. Unscrew the lock nuts **1** on all of the adjustment spindles.
4. Align the disk gangs using the hexagonal profile **2** on the adjustment spindle.
5. Ensure that all disk carriers are uniformly aligned.
6. Tighten the lock nuts.



CMS-I-00003204



CMS-I-00003385

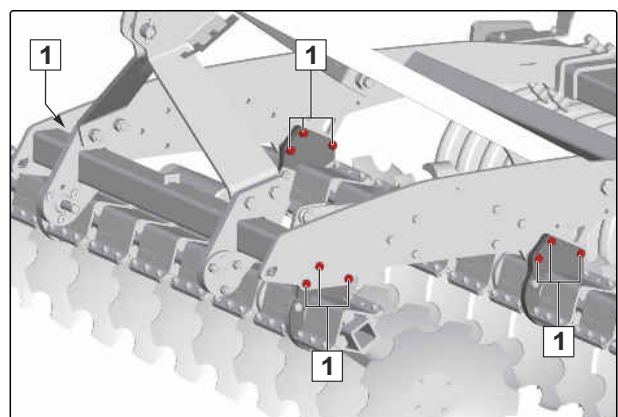
#### 9.1.4 Checking the disk carrier connection

CMS-T-00002328-E.1



##### INTERVAL

- After initial operation
- Check the bolted connection for firm seat.



CMS-I-00000531

### 9.1.5 Checking the rollers

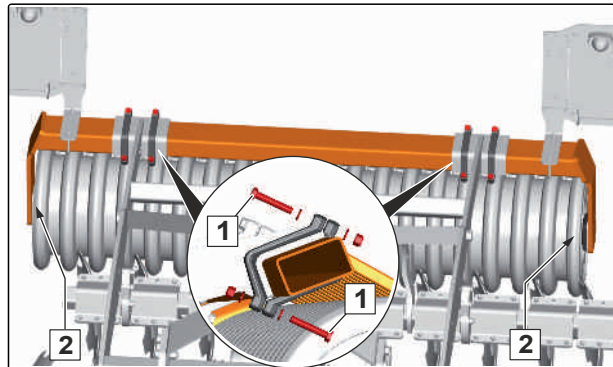
CMS-T-00002329-D.1



#### INTERVAL

- After initial operation
- Every 200 operating hours  
or  
Every 3 months

- ▶ Check the bolted connection **1** for firm seat.
- ▶ *If the bolts must be replaced,*  
pay attention to alignment of the bolts.
- ▶ Check the roller **2** for ease of movement.



CMS-I-00000099

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

CMS-T-00011936-A.1



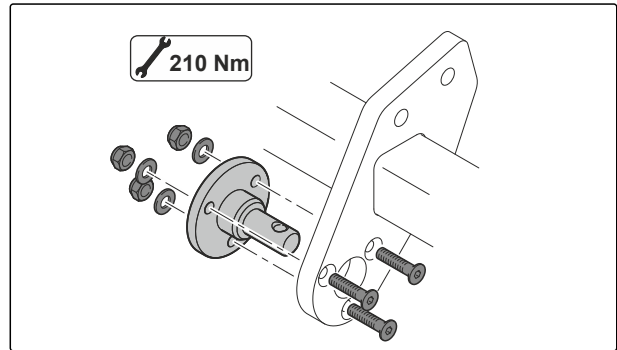
#### INTERVAL

- Daily

#### Criteria for visual inspection of lower link pin and top link pin:

- Cracks
  - Nicks
  - Permanent deformations
  - Permissible wear: 0.08 in (2 mm)
1. Check the lower link pins and top link pins for the criteria cited.
  2. Replace worn pins.

3. Check fastening bolts for firm seat.



CMS-I-00007687

### 9.1.7 Checking the hydraulic hose lines

CMS-T-00002331-G.1



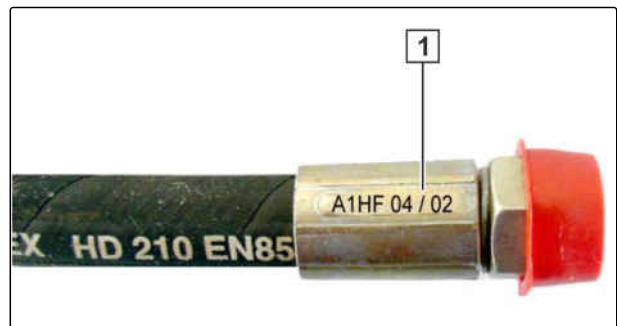
#### INTERVAL

- After initial operation
- Every 50 operating hours  
or  
Weekly

1. Check the hydraulic hose lines for damage, such as chafing points, cuts, tears or deformation.
2. Checking the hydraulic hose lines for leaks.
3. Retighten loose threaded connections.

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

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



CMS-I-00000532



#### WORKSHOP TASK

5. Have hydraulic hose lines replaced, if they are worn, damaged, or have exceeded their service life.

## 9.2 Cleaning the implement

CMS-T-00000593-F.1



### IMPORTANT

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

- ▶ Never aim the cleaning jet of the high-pressure cleaner or hot water high-pressure cleaner at the marked components.
- ▶ Never aim the cleaning jet of high-pressure cleaners or hot water high-pressure cleaners at electrical or electronic components.
- ▶ Never aim the cleaning jet of the high pressure cleaner directly at lubrication points, bearings, rating plates, warning signs, or stickers.
- ▶ Always maintain a minimum distance of 11.81 in (30 cm) between the high-pressure nozzle and the implement.
- ▶ Do not exceed maximum water pressure of 1,740.45 psi (120 bar).



CMS-I-00002692

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

## 9.3 Storing the implement

CMS-T-00005282-A.1



### IMPORTANT

#### Implement damage due to corrosion

Dirt attracts moisture and leads to corrosion.

- ▶ Store the implement only in a clean state and protected from the weather.

1. Clean the implement.
2. Protect unpainted components from corrosion using a suitable corrosion inhibitor.
3. Grease all lubrication points. Remove excess grease.
4. Park the implement in a place that offers protection from the influences of weather.

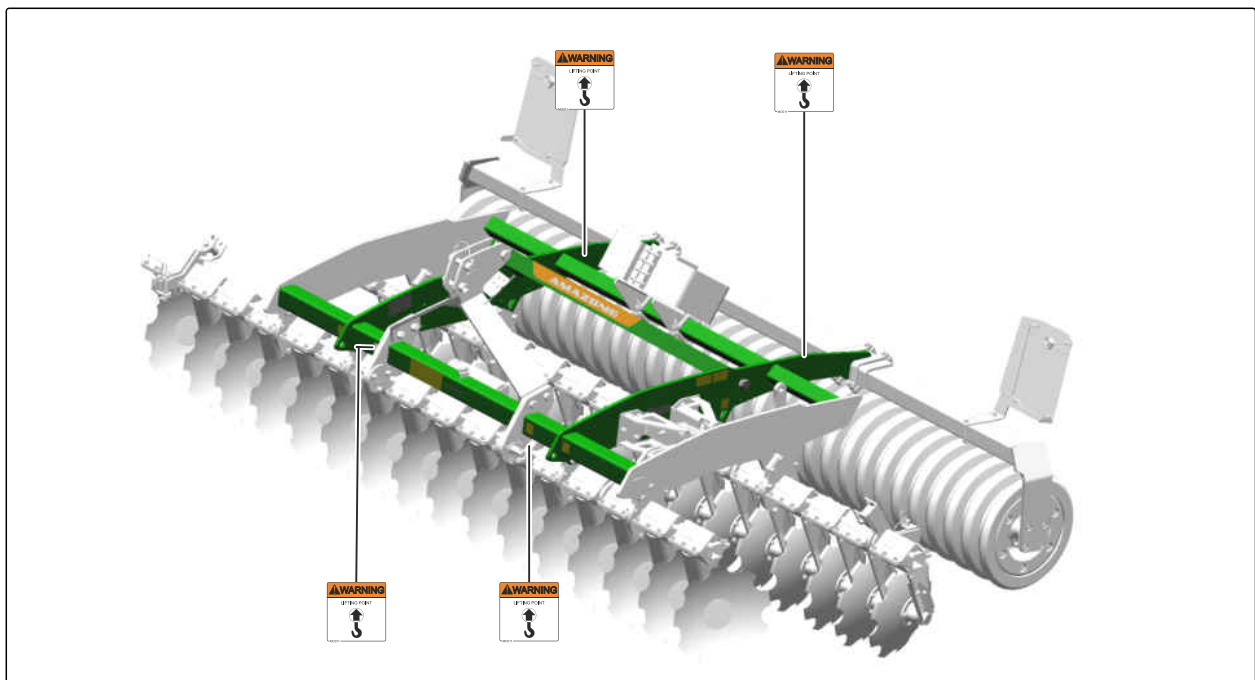
# Loading the implement

# 10

CMS-T-00000609-F.1

## 10.1 Loading the implement with a crane

CMS-T-006638-G.1



CMS-I-00000057

The implement has 4 attachment points for lifting slings.



### WARNING

#### Risk of accident due to improperly attached sling gear for lifting

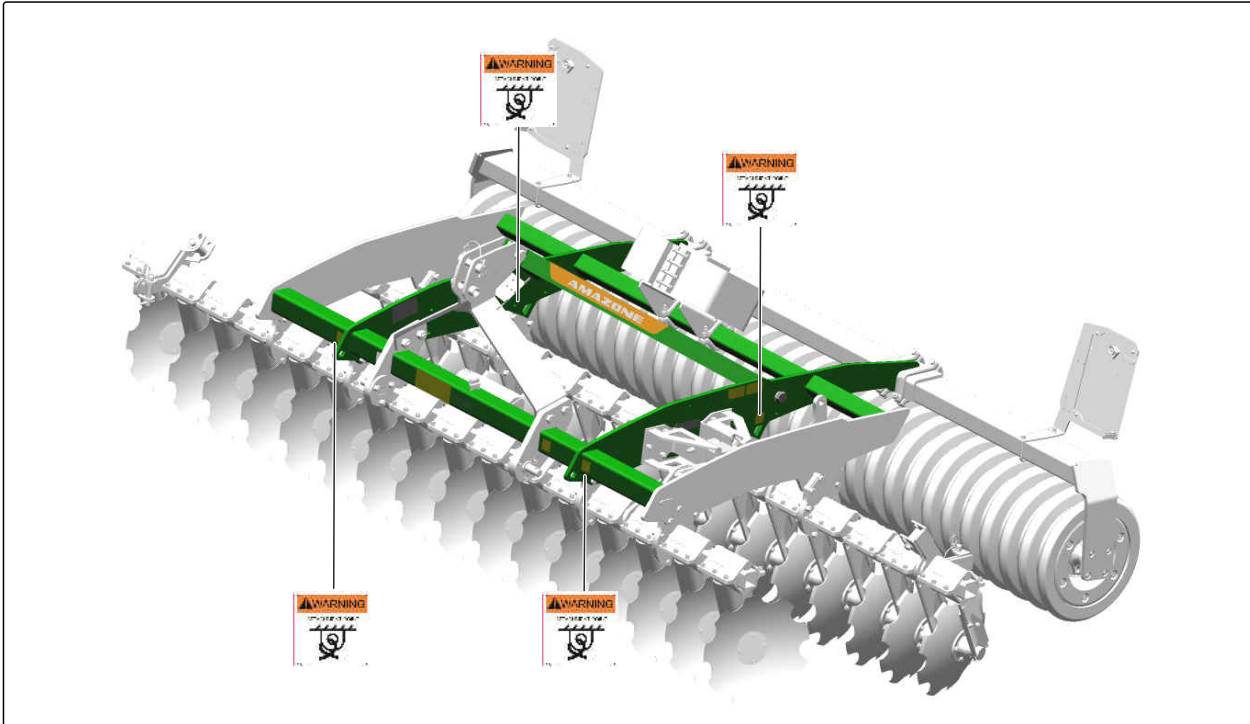
If slings are not attached at the marked attachment points, the implement can be damaged at lifting, which can impair safety.

- Only attach the sling gear for lifting at the marked attachment points.

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

## 10.2 Lashing the implement

CMS-T-00010050-B.1



CMS-I-00006823

The implement has 4 lashing points for lashing straps.



### WARNING

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

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

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

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



# Disposing of the implement

11

CMS-T-00010906-B.1

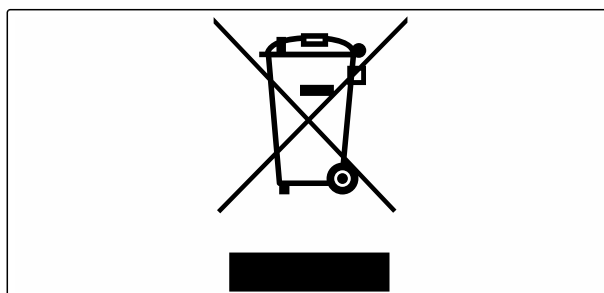


## ENVIRONMENTAL INFORMATION

### Environmental damage due to improper disposal

- ▶ Comply with the regulations issued by local authorities.
- ▶ Comply with the symbols on the implement regarding disposal.
- ▶ Comply with the following instructions.

1. Do not dispose of components bearing this symbol in the household waste.



CMS-I-00007999

2. Return batteries to the distributor

or

Dispose of batteries at a collection point.

3. Take recyclable materials to recycling points.
4. Treat operating materials like hazardous waste.



## WORKSHOP TASK

5. Dispose of coolant.

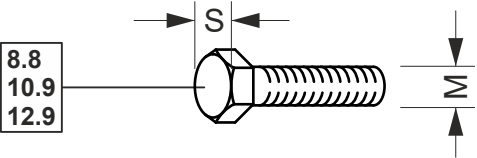
Appendix

12

CMS-T-00000372-D.1

12.1 Bolt tightening torques

CMS-T-00000373-E.1



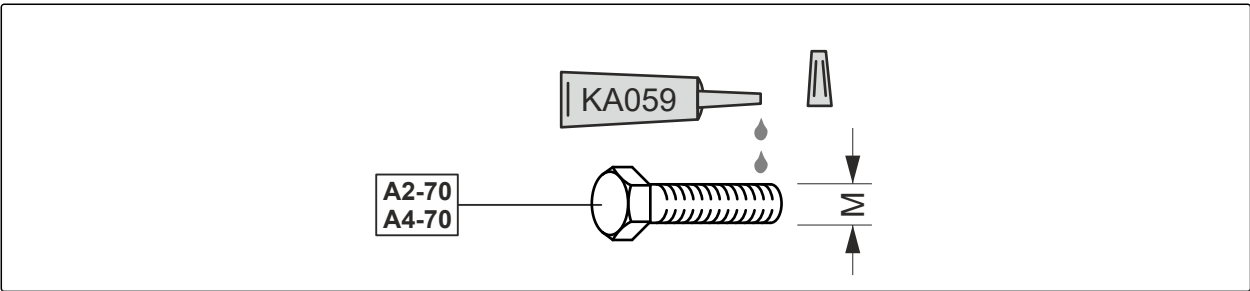
CMS-I-000260

**NOTE**

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

M	S	Strength classes		
		8.8	10.9	12.9
M8	0.51 in (13 mm)	18.44 ft-lb (25 Nm)	25.81 ft-lb (35 Nm)	30.24 ft-lb (41 Nm)
M8x1		19.91 ft-lb (27 Nm)	28.03 ft-lb (38 Nm)	30.24 ft-lb (41 Nm)
M10	16(17) in (16(17) mm)	36.14 ft-lb (49 Nm)	50.89 ft-lb (69 Nm)	61.22 ft-lb (83 Nm)
M10x1		38.35 ft-lb (52 Nm)	53.84 ft-lb (73 Nm)	64.91 ft-lb (88 Nm)
M12	18(19) in (18(19) mm)	63.43 ft-lb (86 Nm)	88.51 ft-lb (120 Nm)	106.95 ft-lb (145 Nm)
M12x1.5		66.38 ft-lb (90 Nm)	92.2 ft-lb (125 Nm)	110.63 ft-lb (150 Nm)
M14	0.87 in (22 mm)	99.57 ft-lb (135 Nm)	140.14 ft-lb (190 Nm)	169.64 ft-lb (230 Nm)
M14x1.5		110.63 ft-lb (150 Nm)	154.89 ft-lb (210 Nm)	184.39 ft-lb (250 Nm)
M16	0.94 in (24 mm)	154.89 ft-lb (210 Nm)	221.27 ft-lb (300 Nm)	261.83 ft-lb (355 Nm)
M16x1.5		165.95 ft-lb (225 Nm)	232.33 ft-lb (315 Nm)	280.27 ft-lb (380 Nm)

M	S	Strength classes		
		8.8	10.9	12.9
M18	1.06 in (27 mm)	213.89 ft-lb (290 Nm)	298.71 ft-lb (405 Nm)	357.72 ft-lb (485 Nm)
M18x1.5		239.71 ft-lb (325 Nm)	339.28 ft-lb (460 Nm)	405.66 ft-lb (550 Nm)
M20	1.18 in (30 mm)	302.4 ft-lb (410 Nm)	427.79 ft-lb (580 Nm)	508.92 ft-lb (690 Nm)
M20x1.5		339.28 ft-lb (460 Nm)	472.04 ft-lb (640 Nm)	567.92 ft-lb (770 Nm)
M22	1.26 in (32 mm)	405.66 ft-lb (550 Nm)	575.3 ft-lb (780 Nm)	685.93 ft-lb (930 Nm)
M22x1.5		449.91 ft-lb (610 Nm)	634.3 ft-lb (860 Nm)	774.44 ft-lb (1,050 Nm)
M24	1.42 in (36 mm)	523.67 ft-lb (710 Nm)	737.56 ft-lb (1,000 Nm)	885.07 ft-lb (1,200 Nm)
M24x2		575.3 ft-lb (780 Nm)	811.32 ft-lb (1,100 Nm)	958.83 ft-lb (1,300 Nm)
M27	1.61 in (41 mm)	774.44 ft-lb (1,050 Nm)	1,106.34 ft-lb (1,500 Nm)	1,327.61 ft-lb (1,800 Nm)
M27x2		848.2 ft-lb (1,150 Nm)	1,180.1 ft-lb (1,600 Nm)	1,438.25 ft-lb (1,950 Nm)
M30	1.81 in (46 mm)	1,069.47 ft-lb (1,450 Nm)	1,475.12 ft-lb (2,000 Nm)	1,770.15 ft-lb (2,400 Nm)
M30x2		1,180.1 ft-lb (1,600 Nm)	1,659.51 ft-lb (2,250 Nm)	1,991.42 ft-lb (2,700 Nm)



CMS-I-00000065

M	Tightening torque	M	Tightening torque
M4	1.77 ft-lb (2.4 Nm)	M14	82.61 ft-lb (112 Nm)
M5	3.61 ft-lb (4.9 Nm)	M16	128.34 ft-lb (174 Nm)
M6	6.2 ft-lb (8.4 Nm)	M18	178.49 ft-lb (242 Nm)
M8	15.05 ft-lb (20.4 Nm)	M20	252.25 ft-lb (342 Nm)
M10	30.02 ft-lb (40.7 Nm)	M22	346.65 ft-lb (470 Nm)
M12	52 ft-lb (70.5 Nm)	M24	434.42 ft-lb (589 Nm)

## 12.2 Other applicable documents

CMS-T-00000615-A.1

- Tractor operating manual
- Operating manual for the GreenDrill 200-E

# Lists

# 13

## 13.1 Glossary

CMS-T-00000513-B.1

### I

#### **Implement**

*Mounted implements are accessories of the tractor. However, mounted implements are always referred to as implements in this operating manual.*

### O

#### **Operating material**

*Operating materials are used for operational readiness. Operating materials include cleaning agents and lubricants, such as lubricating oil, greases or cleaning products.*

### T

#### **Tractor**

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

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**AMAZONE**

**AMAZONEN-WERKE**

H. DREYER SE & Co. KG

Postfach 51

49202 Hasbergen-Gaste

Germany

+49 (0) 5405 501-0

[amazone@amazone.de](mailto:amazone@amazone.de)

[www.amazone.de](http://www.amazone.de)