Original operating manual

Mounted compact disc harrow

Catros^{XL} 3003

Catros^{XL} 3503

Catros^{XL} 4003

SmartLearning

www.amazone.de

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

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About this operating manual

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CMS-T-00000081-J.1

1.1 Copyright

CMS-T-00012308-A.1

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

1.2 Diagrams

CMS-T-005676-G.1

1.2.1 Warnings and signal words

CMS-T-00002415-A.1

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

DANGER

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

WARNING

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

CAUTION

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

1.2.2 Further instructions

CMS-T-00002416-A.1

IMPORTANT

- Indicates a risk for damage to the implement.

ENVIRONMENTAL INFORMATION

- Indicates a risk for environmental damage.

NOTE

Indicates application tips and instructions for optimal use.

1.2.3 Instructions

CMS-T-00000473-E.1

1.2.3.1 Numbered instructions

CMS-T-005217-B.1

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

Example:

1. Instruction 1
2. Instruction 2

1.2.3.2 Instructions and responses

CMS-T-005678-B.1

Reactions to instructions are marked with an arrow.

Example:

1. Instruction 1

➡ Reaction to instruction 1

2. Instruction 2

1.2.3.3 Alternative instructions

CMS-T-00000110-B.1

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

Example:

1. Instruction 1

   or

   Alternative instruction

2. Instruction 2

1.2.3.4 Instructions with only one action

CMS-T-005211-C.1

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

Example:

▶ Instruction

1.2.3.5 Instructions without sequence

CMS-T-005214-C.1

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

Example:

▶ Instruction

▶ Instruction

▶ Instruction

1.2.3.6 Workshop work

CMS-T-00013932-B.1

WORKSHOP WORK

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

1.2.4 Lists

CMS-T-000024-A.1

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

Example:

- Point 1
- Point 2

1.2.5 Item numbers in figures

CMS-T-000023-B.1

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

1.2.6 Direction information

CMS-T-00012309-A.1

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

1.3 Other applicable documents

CMS-T-00000616-B.1

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

1.4 Digital operating manual

CMS-T-00002024-B.1

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

1.5 Your opinion is important

CMS-T-000059-D.1

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

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

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

CMS-I-00000638

Safety and responsibility 2

CMS-T-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

Observe the operating manual

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

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

2.1.2 Safe operating organisation

CMS-T-00002302-D.1

2.1.2.1 Personnel qualification

CMS-T-00002306-B.1

2.1.2.1.1 Requirements for persons working with the implement

CMS-T-00002310-B.1

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

the implement must meet the following minimum requirements:

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

2.1.2.1.2 Qualification levels

CMS-T-00002311-A.1

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

- Farmer
- Agricultural helper

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

2.1.2.1.3 Farmer

CMS-T-00002312-A.1

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

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

Farmers can be e.g.:

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

Activity example:

- Safety training for agricultural helpers

2.1.2.1.4 Agricultural helpers

CMS-T-00002313-A.1

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

Agricultural helpers can be e.g.:

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

Activity examples:

- Driving the machine
- Adjusting the working depth

2.1.2.2 Workplaces and passengers

CMS-T-00002307-B.1

Passengers

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

► Do not let anybody ride on the machine.

► Do not let anybody climb onto the driving machine.

2.1.2.3 Danger for children

CMS-T-00002308-A.1

Danger for children

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

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

2.1.2.4 Operational safety

CMS-T-00002309-D.1

2.1.2.4.1 Perfect technical condition

CMS-T-00002314-D.1

Only use properly prepared machines

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

- Prepare the machine according to this operating manual.

Danger due to damage to the machine

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

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

Observe the technical limit values

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

- Comply with the technical limit values.

2.1.2.4.2 Personal protective equipment

CMS-T-00002316-B.1

Personal protective equipment

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

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

Wear suitable clothing

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

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

2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

Keep warning symbols legible

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

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

2.1.3 Knowing and preventing dangers

CMS-T-00002303-F.1

2.1.3.1 Safety hazards on the implement

CMS-T-00002318-F.1

Liquids under pressure

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

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

Risk of injury on the universal joint shaft

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

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

Risk of injury on the PTO shaft

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

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

Danger due to machine parts still running

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

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

2.1.3.2 Danger areas

CMS-T-00002319-C.1

Dangers areas on the machine

The following basic dangers are encountered in the danger areas:

The implement and its work tools move during operation.

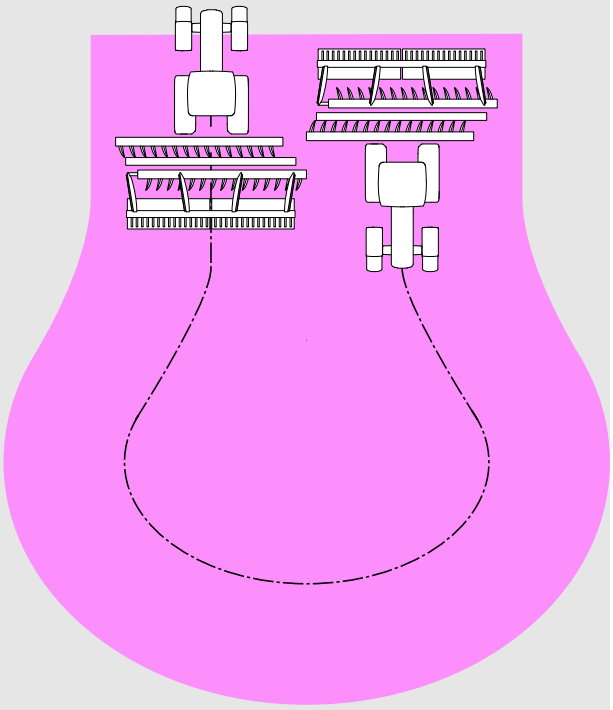
Hydraulically raised machine parts can descend unnoticed and slowly.

The tractor and implement can roll away unintentionally.

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

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

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



CMS-I-001131

2.1.4 Safe operation and handling of the machine

CMS-T-00002304-J.1

2.1.4.1 Coupling implements

CMS-T-00002320-D.1

Coupling the implement on the tractor

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

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

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

2.1.4.2 Driving safety

CMS-T-00002321-F.1

Risk when driving on roads and fields

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

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

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

- Lock the tractor lower links for road travel.

Preparing the machine for road travel

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

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

Parking the implement

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

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

Unsupervised parking

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

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

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 Changes on the implement

CMS-T-00002322-B.1

Only authorised design changes

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

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

2.1.5.2 Work on the machine

CMS-T-00002323-I.1

Only work on the machine when it is at a standstill

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

- *If you have to work on or under raised loads:*
  Lower the loads or secure the loads with a hydraulic or mechanical locking device.
- Switch off all drives.
- Actuate the parking brake.
- Particularly on slopes, additionally secure the machine against rolling away with wheel chocks.
- Remove the ignition key and carry it with you.
- Wait until all parts that are still running come to a stop and that hot parts cool down.

Maintenance work

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

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

Raised implement parts

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

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

Danger due to welding work

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

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

2.1.5.3 Operating materials

CMS-T-00002324-C.1

Unsuitable operating materials

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

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

2.1.5.4 Special equipment and spare parts

CMS-T-00002325-B.1

Special equipment, accessories, and spare parts

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

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

2.2 Safety routines

CMS-T-00002300-D.1

Securing the tractor and implement

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

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

Securing the machine

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

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

Make sure that the protective equipment is functional

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

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

Climbing on and off

Negligent behaviour while climbing on and off can cause people to fall off the ladder. People who climb onto the implement without using the intended access steps can slip, fall, and suffer severe injury. Dirt and operating materials can impair stepping and standing safety. Accidental actuation of control elements can unintentionally activate potentially dangerous functions.

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

Intended use

3

CMS-T-000026-D.1

- The implement is intended solely for professional use for soil tillage on agricultural crop lands according to Good Agricultural Practices.
- The implement is an agricultural implement to be mounted on the three-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 can be used on fields with a soil strength of up to 3.0 MPa.
- When driving on public roads, the implement, depending on the provisions of the applicable road traffic regulations, can be mounted and transported at the rear of a tractor that meets the technical requirements.
- The implement may only be used and maintained by persons who fulfil the requirements. The personnel requirements are described in the section *"Personnel qualification"*.
- The operating manual is part of the implement. The implement is solely intended for use in compliance with this operating manual. Uses of the implement that are not described in this operating manual can lead to serious personal injuries or even death and to implement and material damage.
- The applicable accident prevention regulations as well as generally accepted safety-related, occupational health and road traffic regulations must also be observed by the users and the owner.
- Further instructions for intended use in special cases can be requested from AMAZONE.
- Uses other than those specified under the intended use are considered as improper. The manufacturer is not liable for any damage resulting from improper use, solely the operator is responsible.

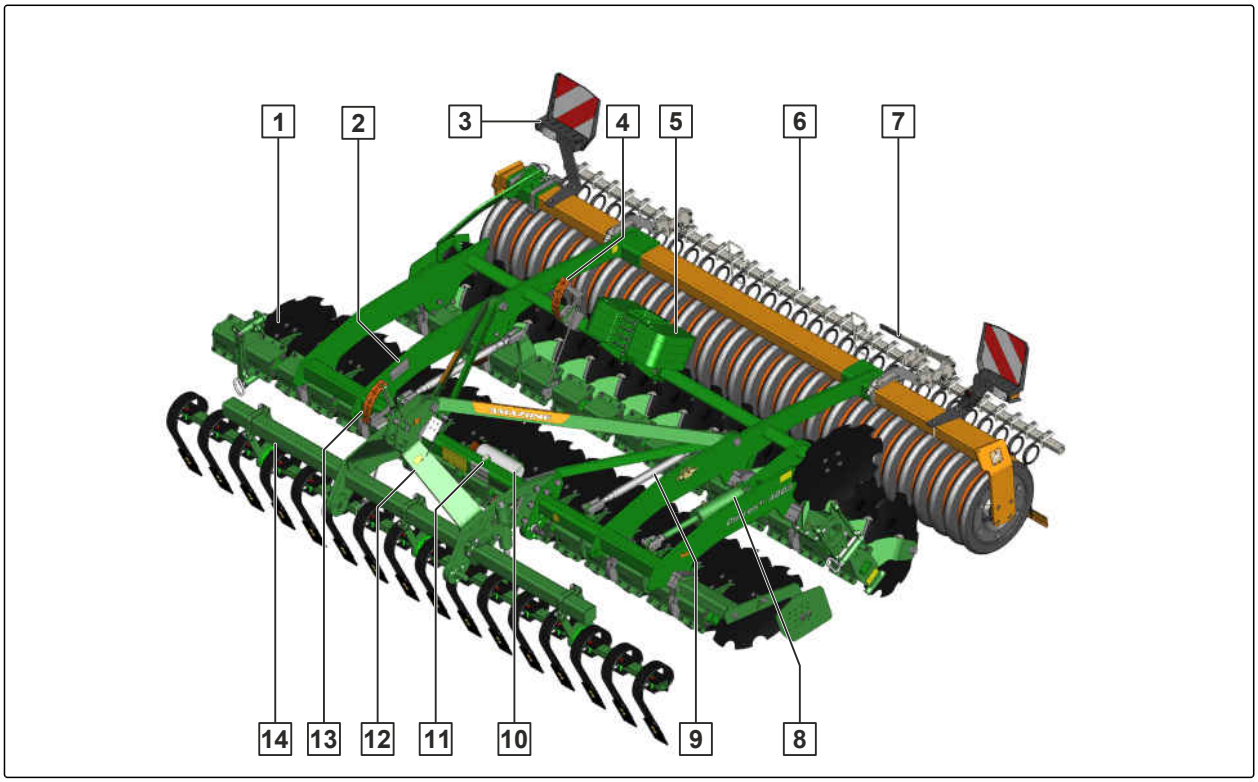
Product description

4

CMS-T-00001006-Q.1

4.1 Implement overview

CMS-T-00001007-G.1



CMS-I-00000754

1 Folding side disc	2 Rating plate on the implement
3 Lighting and identification for road travel	4 Scale for the working depth adjustment of the discs
5 Ballast weights	6 Trailing elements
7 Setting lever	8 Working depth adjustment of the discs
9 Setting spindle for the the disc gangs	10 Threaded cartridge
11 Spirit level	12 Front rack
13 Scale for the working depth adjustment of the leading tool	14 Leading tool

4.2 Special equipment

CMS-T-00004520-D.1

Special equipment is equipment that is not fitted on the implement or is only available in certain markets. The sales documents provide information on the equipment of your implement, or consult your dealer for more detailed information.

The following equipment is special equipment:

- Crushboard
- Spring blade system
- GreenDrill 200-E
- GOST-R identification
- Cutting roller
- Trailing elements
- Clearer system
- Side guide plate
- Straw harrow
- Front rack
- Ballast weights

4.3 Function of the implement

CMS-T-00002712-D.1

The leading tool prepares the soil.

The disc gangs till and mix the soil.

The roller reconsolidates the soil.

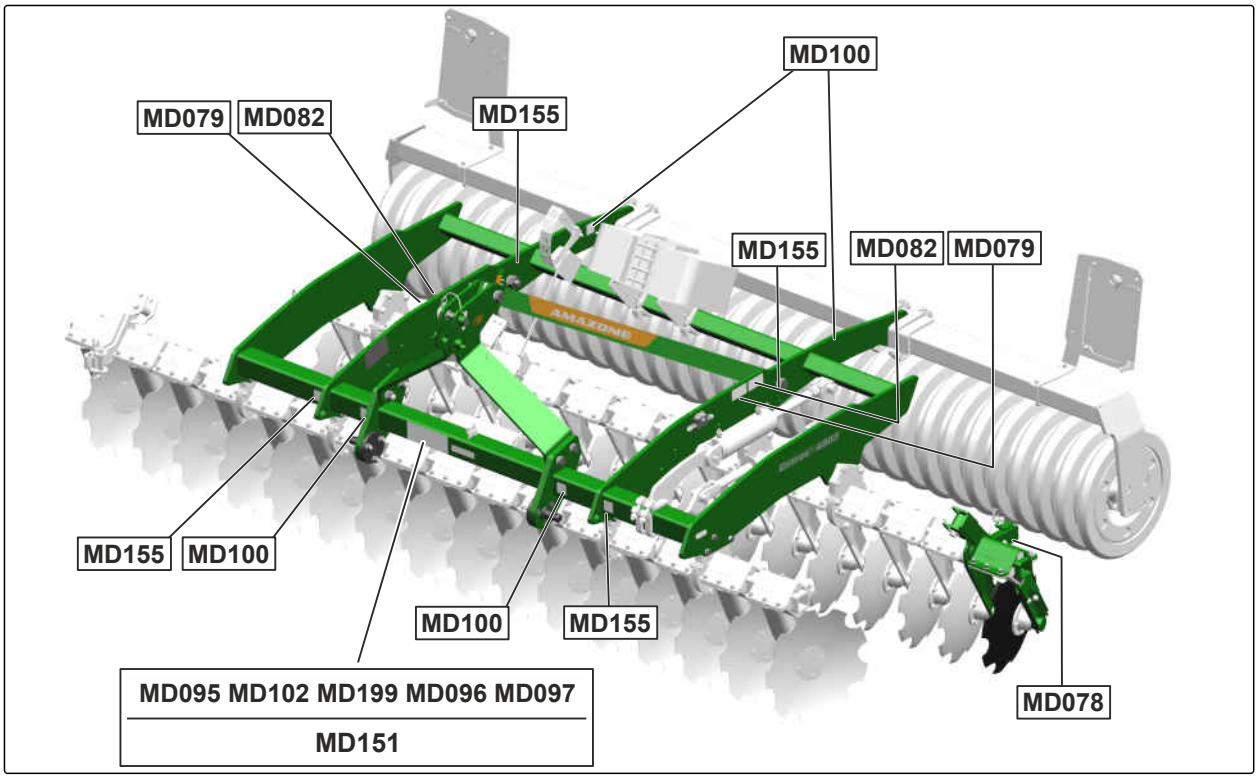
The trailing element crumbles the soil and deposits cut-off plant residues on the soil surface.

4.4 Warning symbols

CMS-T-00000139-H.1

4.4.1 Positions of the warning symbols

CMS-T-004837-F.1



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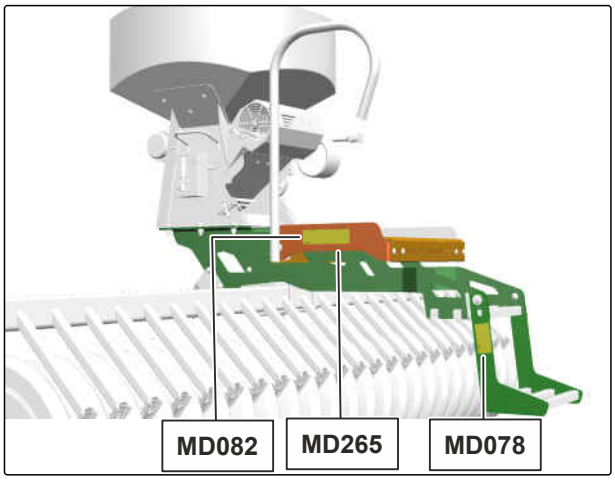


CMS-I-00008710

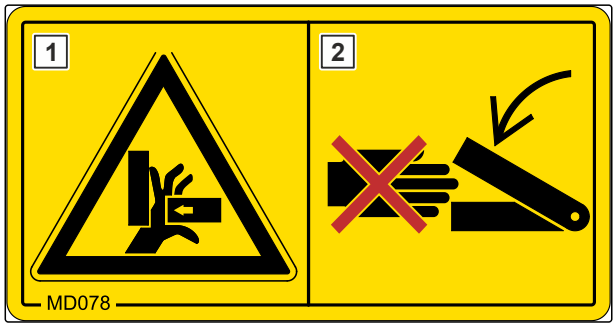
4.4.2 Layout of the warning symbols

CMS-T-000141-D.1

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

A warning symbol consists of two fields:

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



CMS-I-00000416

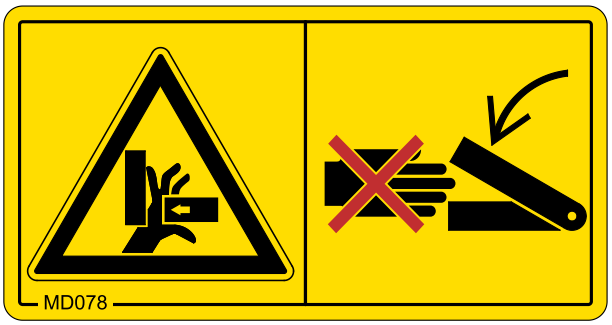
4.4.3 Description of the warning symbols

CMS-T-005683-K.1

MD 078

Risk of crushing fingers or hands

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

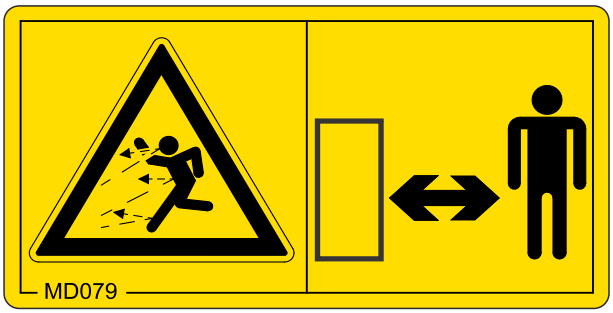


CMS-I-000074

MD 079

Danger due to ejected material

- ▶ Make sure that there is nobody standing in the danger area or close to the moving parts.

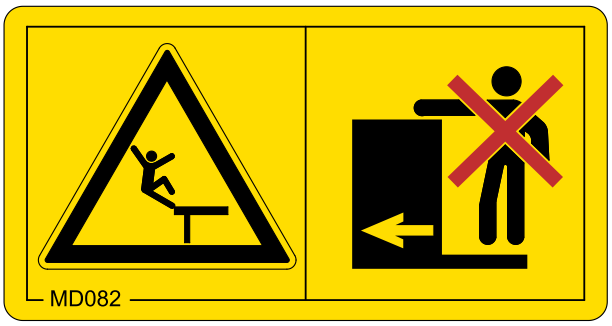


CMS-I-000076

MD 082

Risk of falling from tread surfaces and platforms

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



CMS-I-000081

MD095

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

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

CMS-I-000138

MD 096

Risk of infection from escaping hydraulic fluid under high pressure

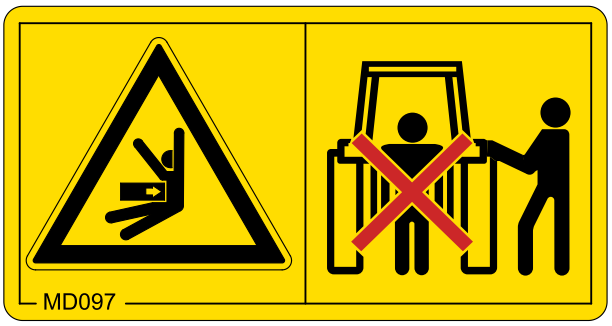
- Never look for leaks in hydraulic hose lines using your hand or fingers.
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.
- *If you are injured by hydraulic oil,* consult a doctor immediately.

CMS-I-000216

MD 097

Risk of crushing between the tractor and the implement

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

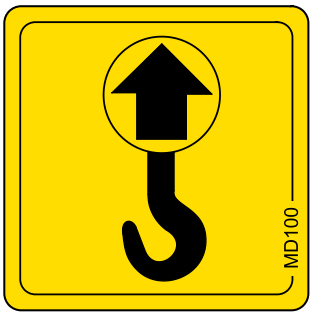


CMS-I-000139

MD 100

Risk of accidents due to improperly attached lifting gear

- Only attach the lifting gear at the marked positions.

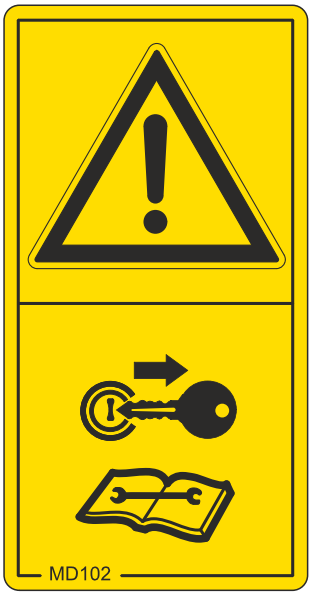


CMS-I-000089

MD 102

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

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

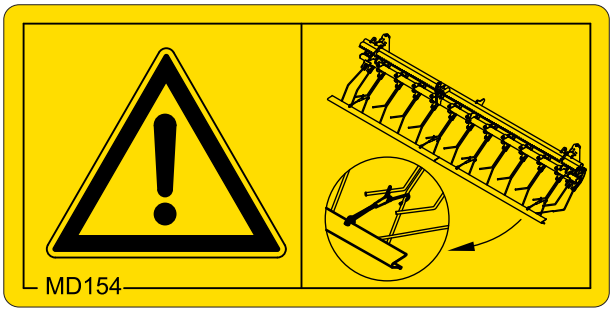


CMS-I-00002253

MD 154

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

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

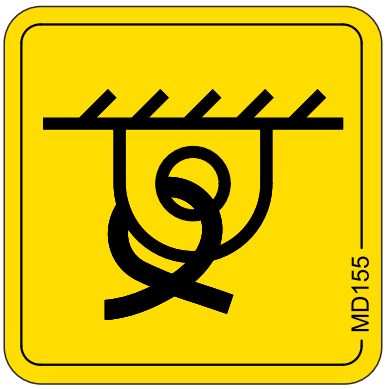


CMS-I-00003657

MD 155

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

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

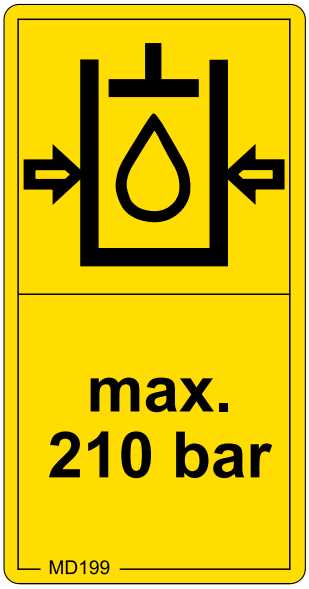


CMS-I-00000450

MD 199

Risk of accident if the hydraulic system pressure is too high

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

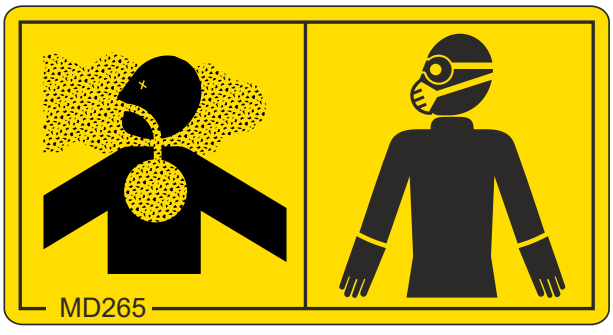


CMS-I-00000486

MD 265

Risk of chemical burns by dressing dust

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



CMS-I-00003659

MD 278

Severe injuries due to incorrect handling of the hydraulic accumulator when it is under pressure

- Have the pressurised hydraulic accumulator checked and repaired only by a qualified specialist workshop.

CMS-I-00007679

4.5 Rear lighting and identification

CMS-T-00009641-A.1

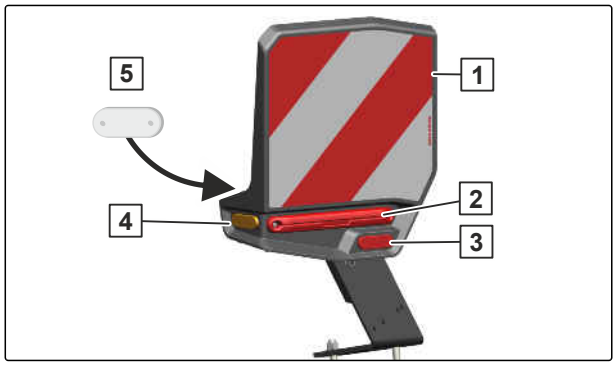
1 Warning signs

2 Rear lights, brake lights, and turn indicators

3 Red reflectors

4 Yellow reflector

5 White reflectors



CMS-I-00006654

NOTE

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

4.6 Rating plate on the implement

CMS-T-00004505-J.1

1 Implement number

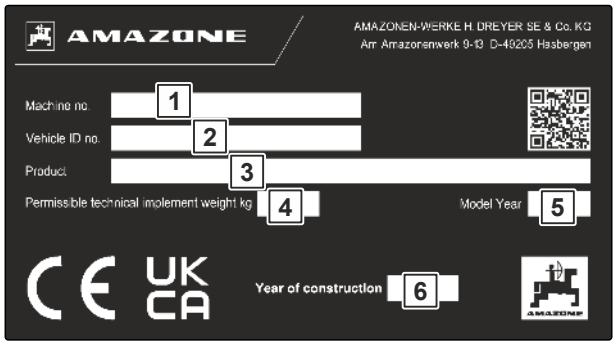
2 Vehicle ID number

3 Product

4 Permissible technical implement weight

5 Model year

6 Year of manufacture



CMS-I-00004294

4.7 Threaded cartridge

CMS-T-00001776-E.1

The threaded cartridge contains the following items:

- Documents
- Aids

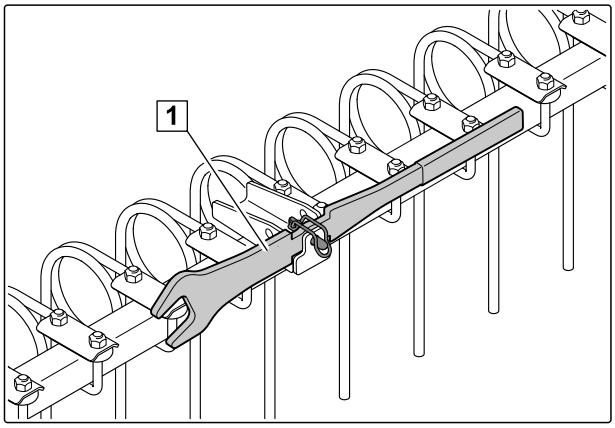
CMS-I-00002306

4.8 Setting lever for the trailing elements

CMS-T-00012588-A.1

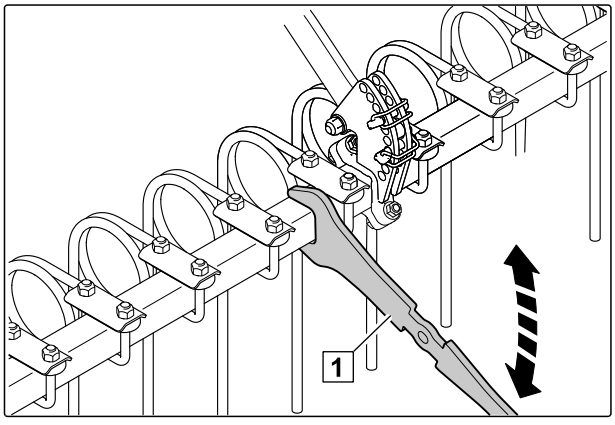
With the setting lever, the tilt of the harrow systems, the double harrow, the spring blade system and the spring clearer system can be conveniently adjusted.

1 Setting lever in parking position



CMS-I-00002241

1 Setting lever in set position



CMS-I-00007912

4.9 GreenDrill pack top seed drill

CMS-T-000196-E.1

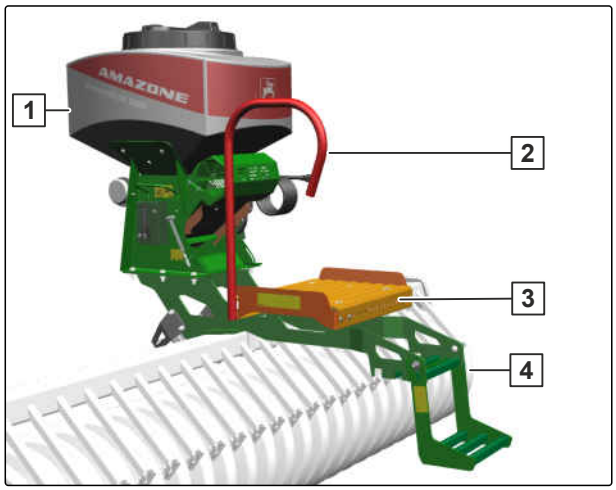
The GreenDrill pack top seed drill enables the seeding of fine seeds and catch crops.

1 Hopper

2 Loading board

3 Handrail

4 Folding step



CMS-I-00010250

Technical data

5

CMS-T-00002332-L.1

5.1 Dimensions

CMS-T-00002333-B.1

Catros[XL]	3003	3503	4003
Transport width	3 m	3.5 m	4 m
Transport height	1.5 m	1.5 m	1.5 m
Total length	3.34 m	3.34 m	3.34 m
Working width	3 m	3.5 m	4 m
Centre of gravity distance	1.237 m		

5.2 Soil tillage tools

CMS-T-00002334-E.1

Catros[XL]	3003	3503	4003
Number of discs	24	28	32
Thickness of the discs	6 cm		
Disc diameter	61 cm		
Disc spacing	25 cm		
Working depth	5-16 cm		

X-Cutter disc			
Catros[XL]	3003	3503	4003
Number of discs	22	26	30
	2 additional serrated side discs		
Thickness of the discs	5 cm		
Disc diameter	48 cm		
Disc spacing	25 cm		
Working depth	2-8 cm		

5.3 Permitted mounting categories

CMS-T-00002335-D.1

Three-point mounting frame	Category 3 and Category 3N

5.4 Forward speed

CMS-T-00002294-E.1

Optimal working speed	12-18 km/h

Permissible transport speed	60 km/h

5.5 Performance characteristics of the tractor

CMS-T-00002336-A.1

Catros^{XL}	**3003**	**3503**	**4003**
Engine rating	Starting at 88 kW / 120 HP	Starting at 103 kW / 140 HP	Starting at 118 kW / 160 HP

Electrical system	
Battery voltage	12 V
Lighting socket	7-pin

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

5.6 Noise development data

CMS-T-00002296-D.1

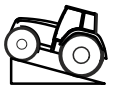
The workplace-related emission sound pressure level is lower than 70 dB(A), measured in operating condition at the ear of the tractor driver with the cab closed.

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

5.7 Drivable slope inclination

CMS-T-00002297-E.1

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

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

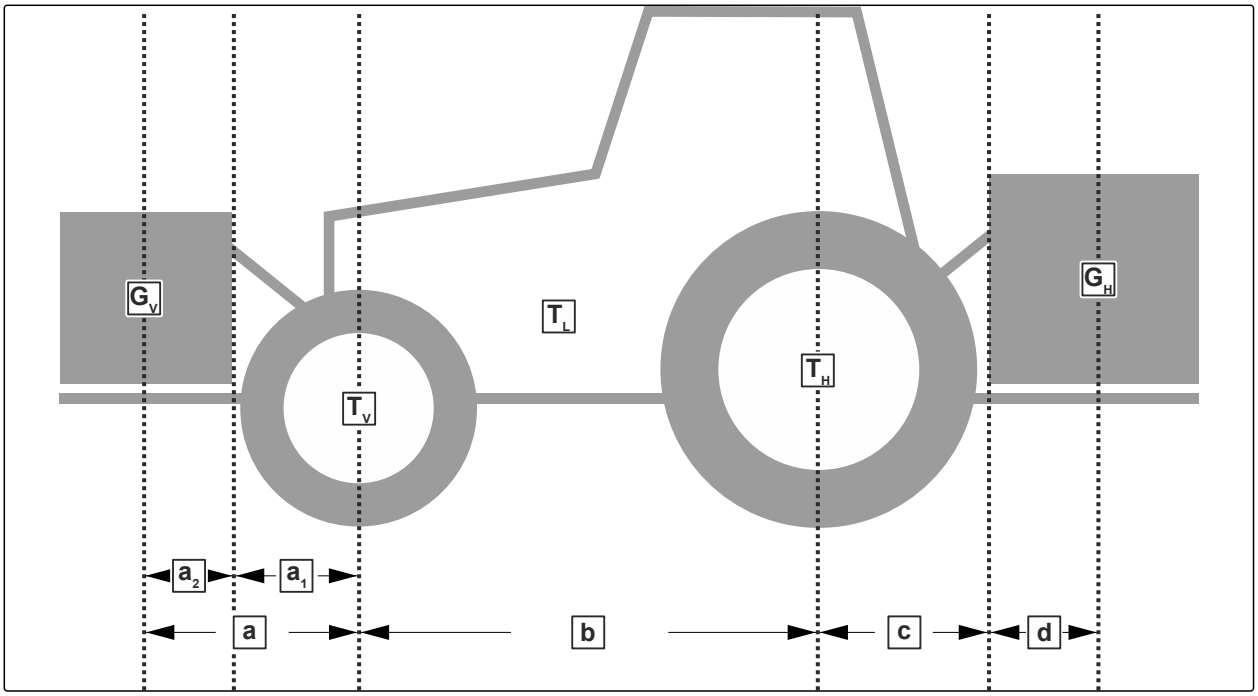
Preparing the machine

6

CMS-T-00000997-O.1

6.1 Calculating the required tractor characteristics

CMS-T-00000063-F.1



CMS-I-00000581

Designation	Unit	Description	Calculated values
T_L	kg	Tractor empty weight	
T_V	kg	Front axle load of the operational tractor without mounted implement or ballast weights	
T_H	kg	Rear axle load of the operational tractor without mounted implement or ballast weights	
G_V	kg	Total weight of front-mounted implement or front ballast	
G_H	kg	Permissible total weight of rear-mounted implement or rear ballast	
a	m	Distance between the centre of gravity of the front-mounted implement or the front ballast and the centre of the front axle	

Designation	Unit	Description	Calculated values
a_1	m	Distance between the centre of the front axle and the centre of the lower link connection	
a_2	m	Centre of gravity distance: Distance between the centre of gravity of the front-mounted implement or the front ballast and the centre of the lower link connection	
b	m	Wheelbase	
c	m	Distance between the centre of the rear axle and the centre of the lower link connection	
d	m	Centre of gravity distance: Distance between the centre of the lower link coupling point and centre of gravity of the rear-mounted implement or rear ballast.	

1. Calculate the minimum front ballasting.

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

G_{Vmin} = _____

G_{Vmin} =

CMS-I-00000513

2. Calculate the actual front axle load.

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

T_{Vtat} = _____

T_{Vtat} =

CMS-I-00000516

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

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

$$G_{tat} =$$

$$G_{tat} =$$

CMS-I-00000515

4. Calculate the actual rear axle load.

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

$$T_{Htat} =$$

$$T_{Htat} =$$

CMS-I-00000514

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

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

IMPORTANT

Danger of accident due to implement damage caused by excessive loads

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

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

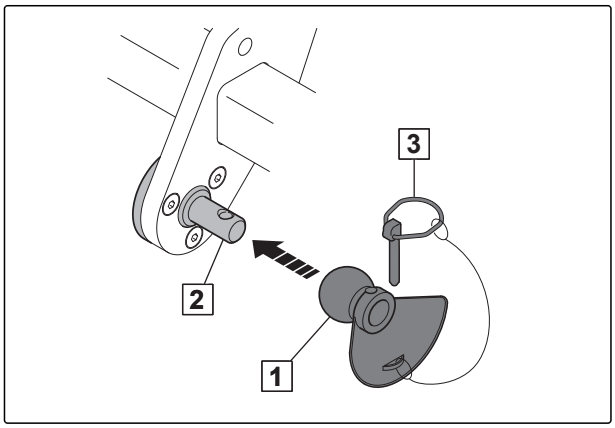
6.2 Coupling the implement

CMS-T-00001392-N.1

6.2.1 Attaching the backstop profiles for the lower links

CMS-T-00001398-A.1

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



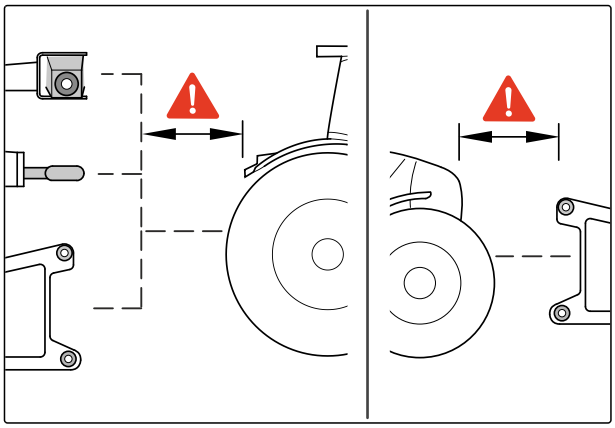
CMS-I-00001219

6.2.2 Driving the tractor towards the implement

CMS-T-00005794-D.1

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

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



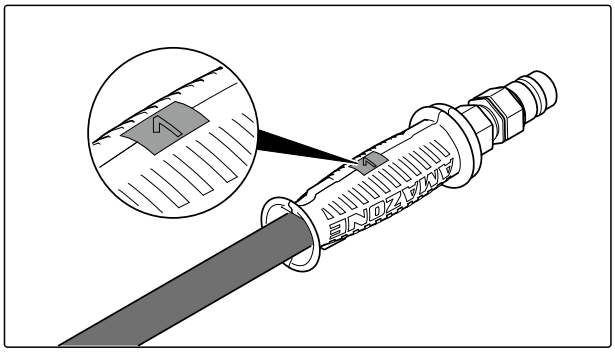
CMS-I-00004045

6.2.3 Coupling the hydraulic hose lines

CMS-T-00006076-D.1

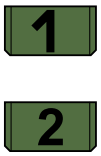
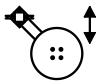
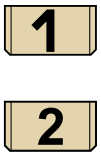
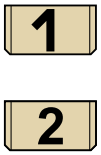
All hydraulic hoses are equipped with handles. The handles have colour labels with a code number or a code letter. The labels are assigned to the respective hydraulic functions of the pressure line of a tractor control unit. Stickers are applied on the implement for the labels, which illustrate the respective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

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



CMS-I-00000121

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

Designation		Function			Tractor control unit	
Green			Working depth of the concave discs	Increase Reduce	Double-acting	
beige			Working depth of the crushboard	Increase Reduce	Double-acting	
beige			Cutting roller	Lower Lift	Double-acting	

WARNING

Risk of injury or even death

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

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

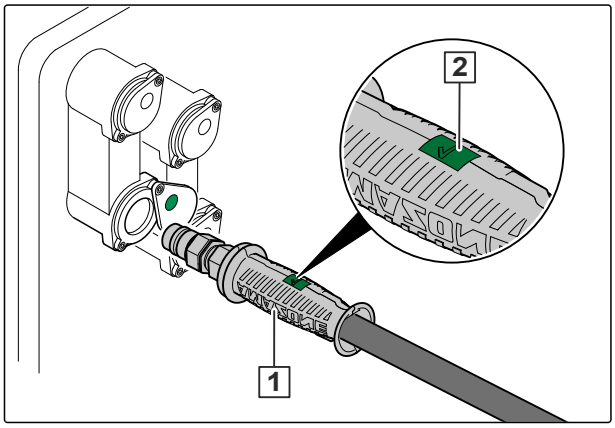
1. Depressurise the hydraulic system between the tractor and the implement using the tractor control unit.

2. Clean the hydraulic plugs.

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

➡ The hydraulic plugs lock perceptibly.

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



CMS-I-00001045

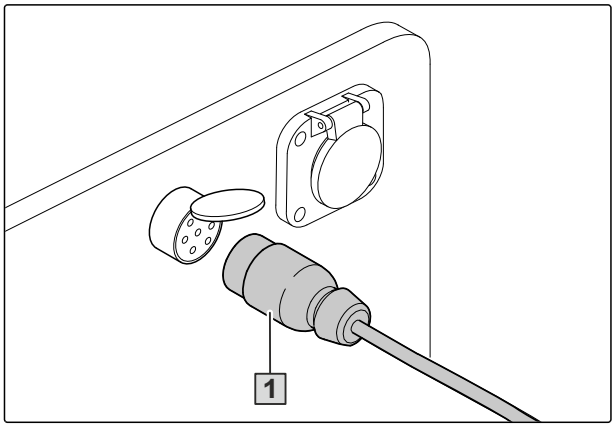
6.2.4 Coupling the power supply

CMS-T-00001399-G.1

1. Insert the plug 1 for the power supply.

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

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



CMS-I-00001048

6.2.5 Coupling the three-point mounting frame

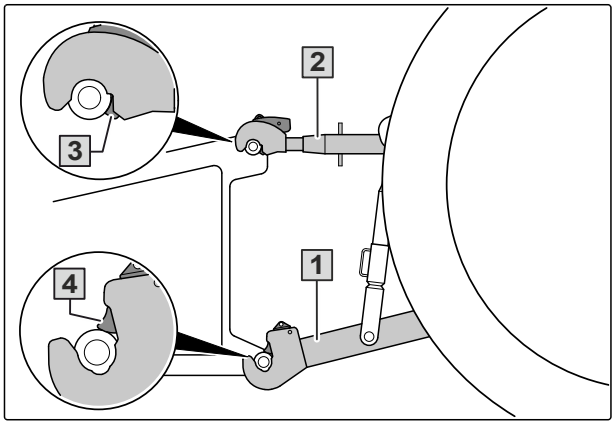
CMS-T-00001400-H.1

1. Set the lower link 1 at the same height.

2. Couple the lower links from the tractor seat.

3. Couple the top link 2.

4. Check whether the top link catch hooks 3 and lower link catch hooks 4 are correctly locked.



CMS-I-00001225

6.2.6 Aligning the implement horizontally

CMS-T-00003221-E.1

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

1. Drive the tractor and implement onto a level surface.

2. Align the implement horizontally using the top link.

6.3 Preparing the implement for operation

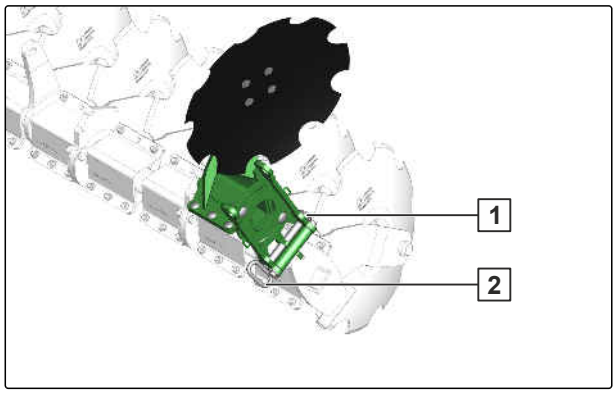
CMS-T-00002337-K.1

6.3.1 Preparing the side discs for operation

CMS-T-00001001-D.1

1. Pull the linch pin [1] for the side discs.

2. Pull out the pin [2].



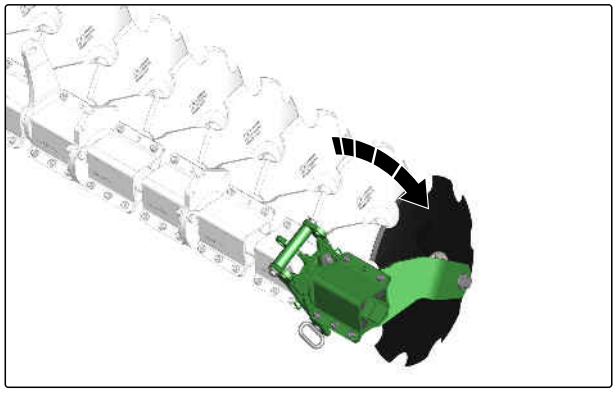
CMS-I-00002248

WARNING

Risk of crushing

- Swivel the side discs carefully to the desired position.

3. Swivel down the side discs.



CMS-I-00002247

4. Secure the side disc with a pin.

5. Secure the pin with a linch pin.

6.3.2 Adjusting the working depth

CMS-T-00000998-K.1

6.3.2.1 Adjusting the working depth of the discs

CMS-T-00008792-C.1

6.3.2.1.1 Hydraulic adjustment of the working depth of the discs

CMS-T-00000271-E.1

NOTE

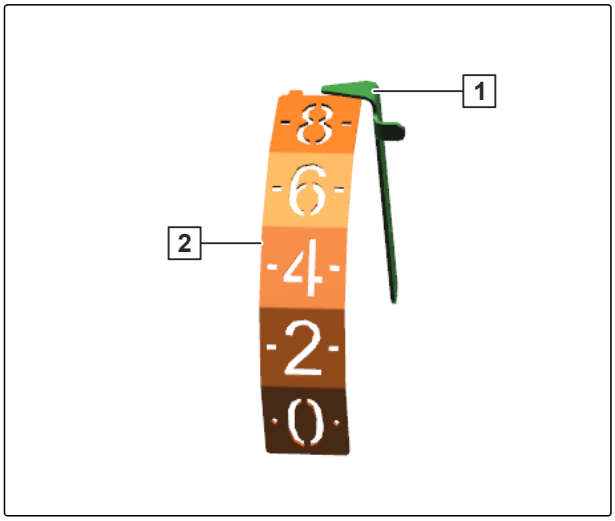
If a uniform working depth cannot be adjusted, the hydraulic cylinders must be synchronised.

1. *To synchronise 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 synchronised.

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



CMS-I-00002447

NOTE

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

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

6.3.2.1.2 Adjusting the working depth of the side discs

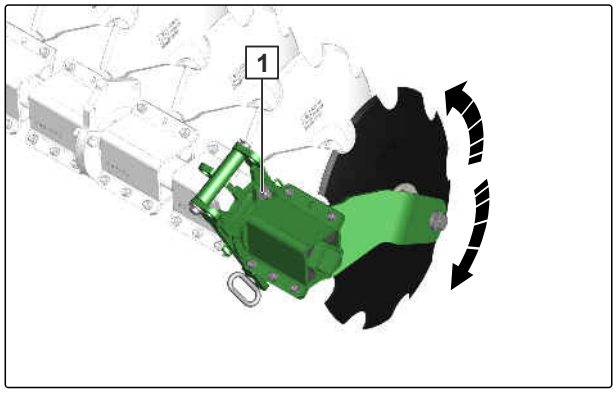
CMS-T-00006268-C.1

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

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

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

3. Move the side disc up or down.



CMS-I-00004463

NOTE

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

4. Tighten the bolts.

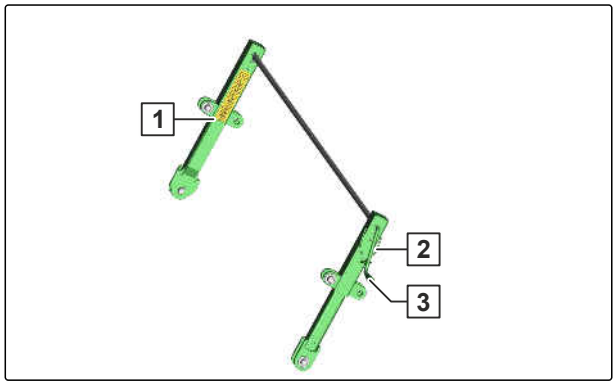
6.3.2.2 Adjusting the working depth of the straw harrow

CMS-T-00006810-D.1

6.3.2.2.1 Manually adjusting the working depth of the straw harrow

CMS-T-00006811-B.1

1. Fold up the safety clip 2.
2. Use the crank 3 to change the working depth.
3. Read the working depth on the read-off edge 1 of the scale.
4. *When the desired working depth has been set,* Secure the crank with the safety clip.



CMS-I-00004788

6.3.2.2.2 Hydraulically adjusting the working depth of the straw harrow

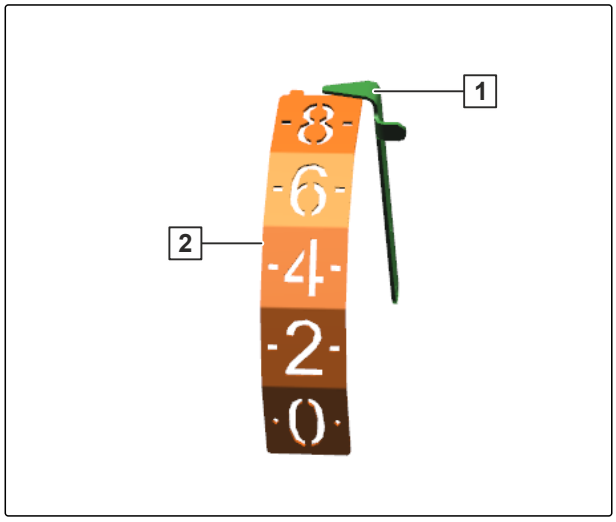
CMS-T-00004875-D.1

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

NOTE

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

▶ Adjust the working depth hydraulically using the *"beige"* tractor control unit.

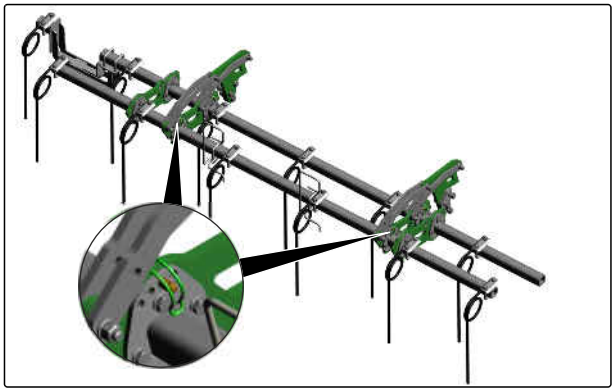


CMS-I-00002447

6.3.2.2.3 Adjusting the aggressiveness of the straw harrow

CMS-T-00004959-D.1

1. Pull out both linch pins of a harrow beam.
2. Turn the harrow beam to the desired position.
3. Secure the harrow beam with a linch pin.



CMS-I-00003549

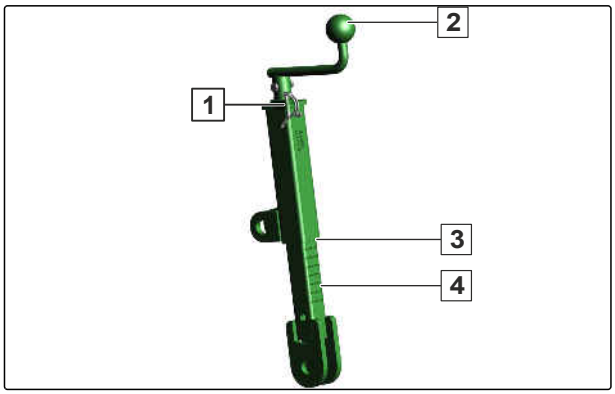
6.3.2.3 Adjusting the working depth of the crushboard

CMS-T-00002258-G.1

6.3.2.3.1 Manually adjust the working depth of the crushboard

CMS-T-00002259-F.1

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



CMS-I-00002053

6.3.2.3.2 Hydraulic adjustment of the crushboard working depth

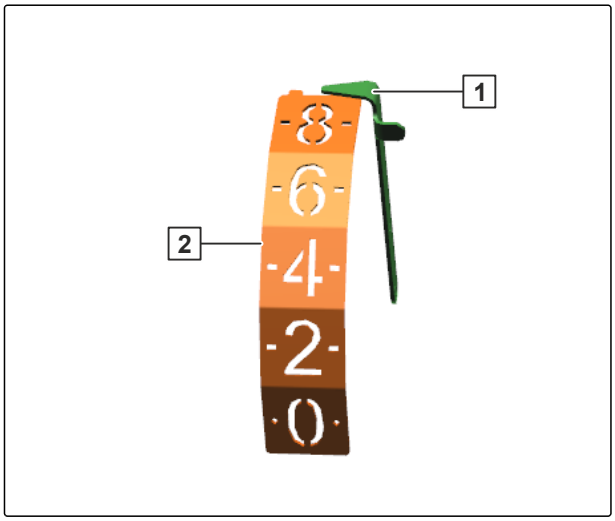
CMS-T-00002260-E.1

The set working depth is shown on the scale.

NOTE

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

► Adjust the working depth hydraulically using the *"beige"* tractor control unit.



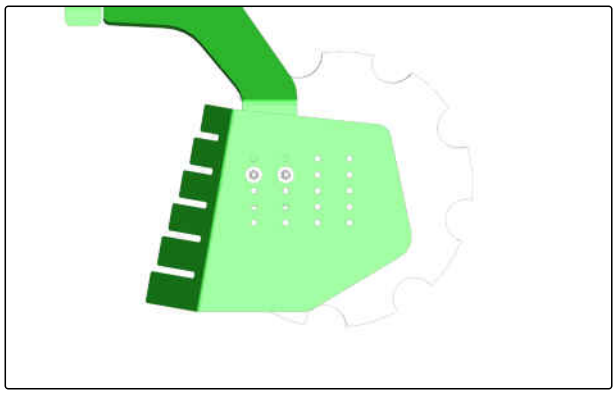
CMS-I-00002447

6.3.2.4 Adjust the working depth of the side guide plates

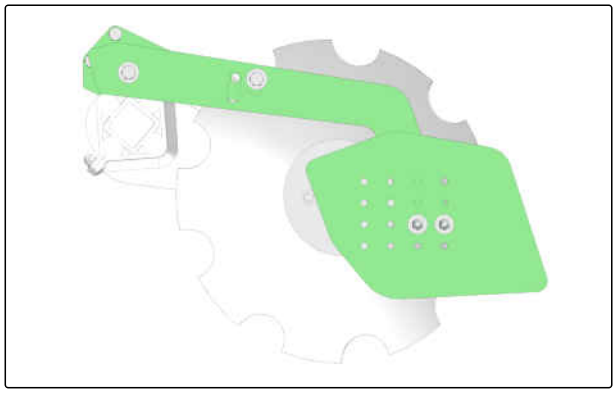
CMS-T-00004430-F.1

The side guide plates keep the displaced soil within the implement. The side guide plates must be adjusted so that the side discs do not form soil ridges and soil furrows.

The height and length of the side guide plates can be adjusted on the holding arms and via the hole patterns.



CMS-I-00003484



CMS-I-00003277

IMPORTANT

Damage due to the side guide plates being set too deep

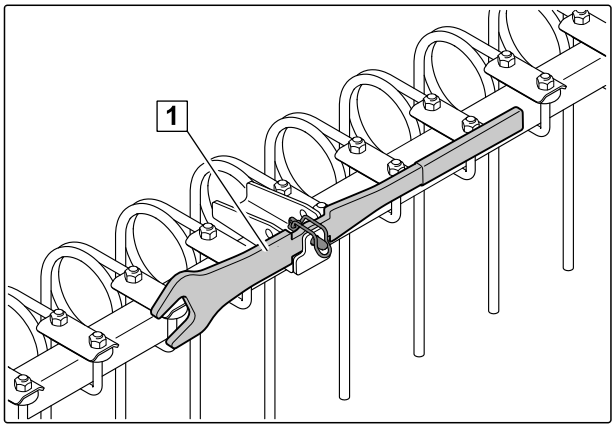
- ▶ Set the side guide plates at a distance of at least 30 mm from the ground.

1. Slightly raise the implement.
2. Loosen the bolts on the side guide plates.
3. Adjust the height and longitudinal spacing of the side guide plates.
4. Tighten the bolts.
5. Check the setting when operating the implement.

6.3.2.5 Adjusting the trailing elements

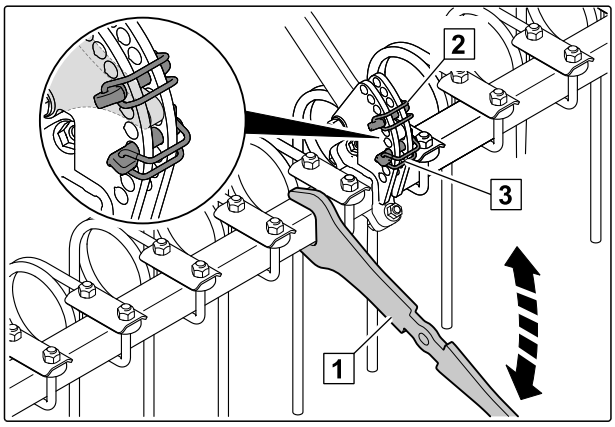
CMS-T-00002429-G.1

1. Take the setting lever **1** from the holder.



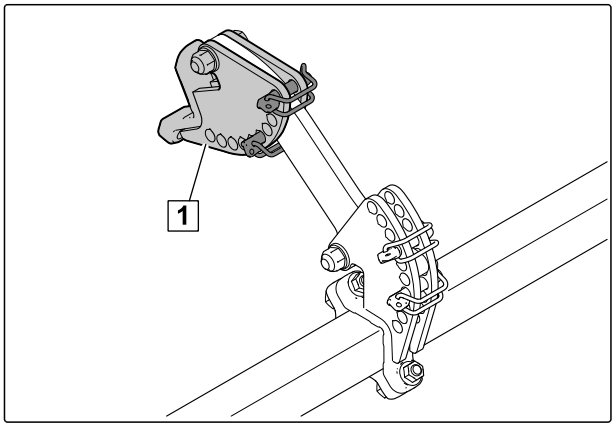
CMS-I-00002241

2. Use the setting lever **1** to relieve the linch pins **2** and **3**.
3. Remove the linch pins on the left and right adjustment unit.
4. Using the setting lever, adjust the trailing elements to the desired height.
5. Secure the trailing elements in the desired position with the linch pins.



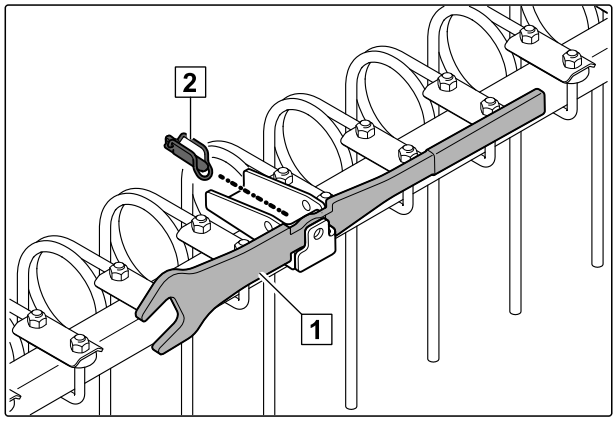
CMS-I-00002240

6. *If the trailing element has an upper adjustment unit* ***1***,
   adjust the upper adjustment unit in the same way.



CMS-I-00002243

7. Put the setting lever 1 in the holder.
8. Secure the setting lever with a linch pin 2.



CMS-I-00002242

6.3.3 Adjusting the trailing elements

CMS-T-00012141-A.1

6.3.3.1 Adjusting the harrow system 12-125 HI

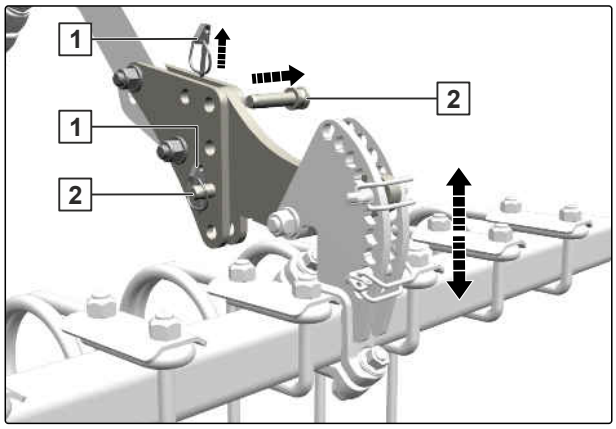
CMS-T-00012142-A.1

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

CMS-T-00012144-A.1

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

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



CMS-I-00007854

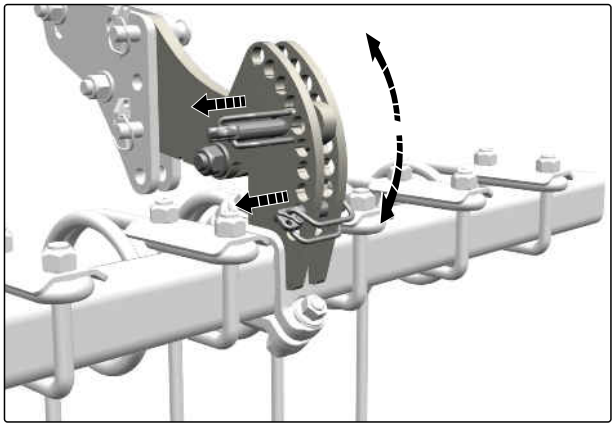
6.3.3.1.2 Adjusting the tilt of the harrow system 12-125 HI

CMS-T-00012143-A.1

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

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

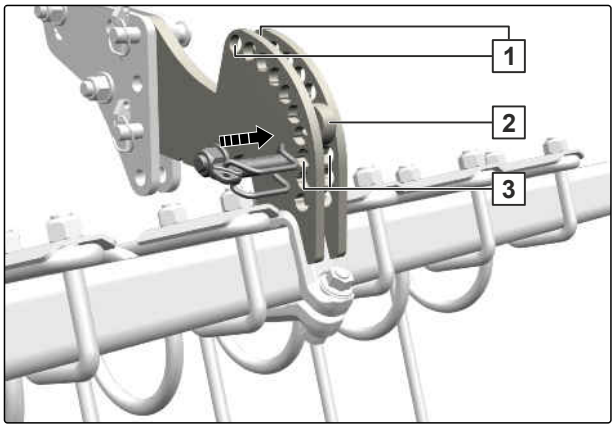
2. Turn the harrow to the desired position.



CMS-I-00007852

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

4. Park the second linch pin in each of the topmost holes **1**.



CMS-I-00007853

6.3.3.2 Adjusting harrow system 12-125 HI KWM/DW

CMS-T-00012148-A.1

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

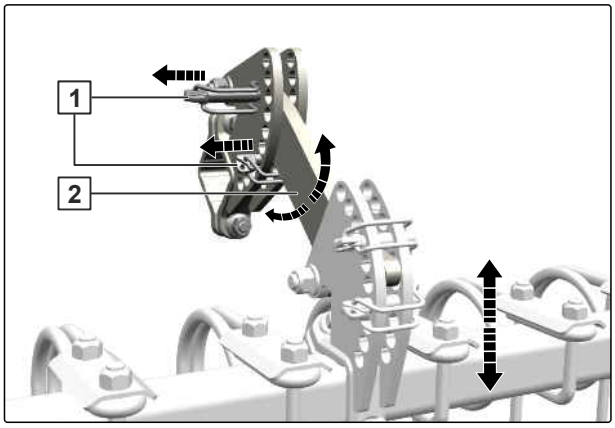
CMS-T-00012150-A.1

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

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

2. Lift or lower the harrow to the desired height.

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



CMS-I-00007870

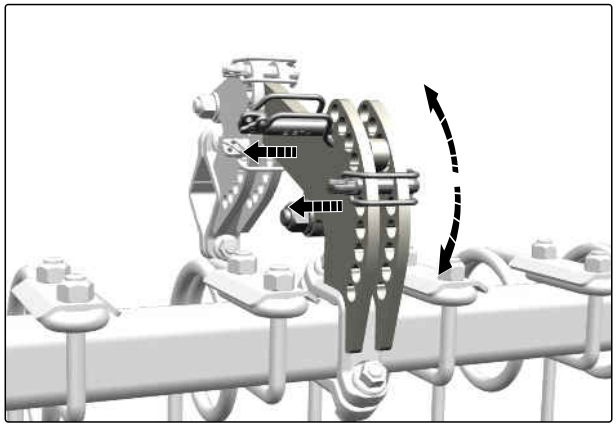
6.3.3.2.2 Adjusting the tilt of harrow system 12-125 HI KWM/DW

CMS-T-00012149-A.1

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

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

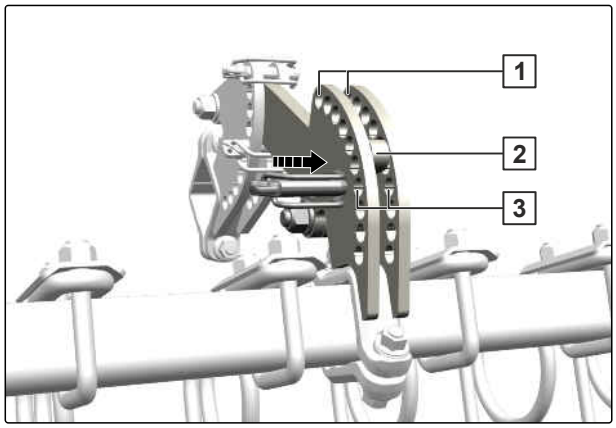
2. Turn the harrow to the desired position.



CMS-I-00007866

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

4. Park the second linch pin in each of the topmost holes **1**.



CMS-I-00007869

6.3.3.3 Adjusting the harrow system 12-250 HI

CMS-T-00012163-A.1

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

CMS-T-00012166-A.1

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

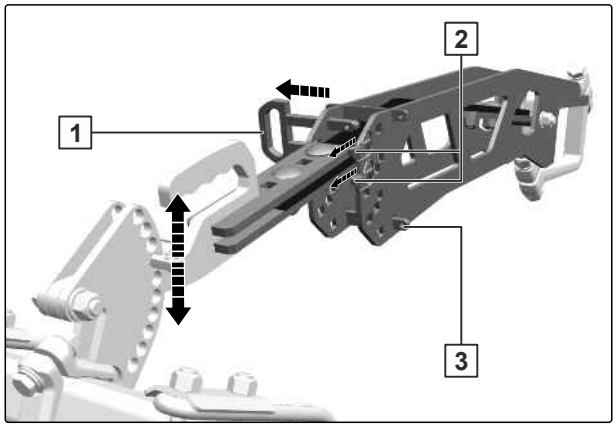
1. On both adjustment units, pull the two linch pins **2** out of the double pin **1** and insert them in the parking positions **3**.

2. Pull out the double pin.

3. Lift or lower the harrow to the desired height.

4. Secure the setting with the double pins.

5. Pull the linch pins out of the parking position and secure the double pin with the linch pins.



CMS-I-00007880

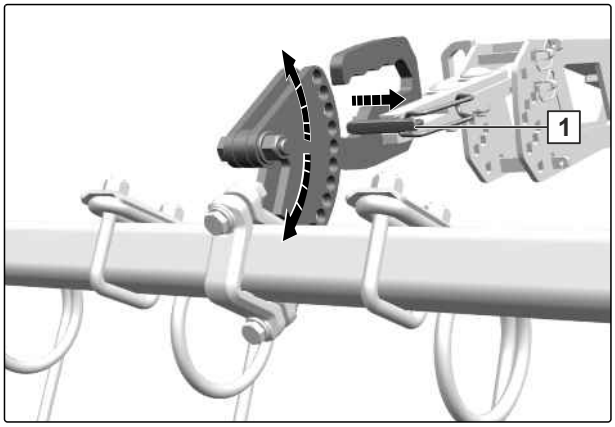
6.3.3.3.2 Adjusting the tilt of the harrow system 12-250 HI

CMS-T-00012164-A.1

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

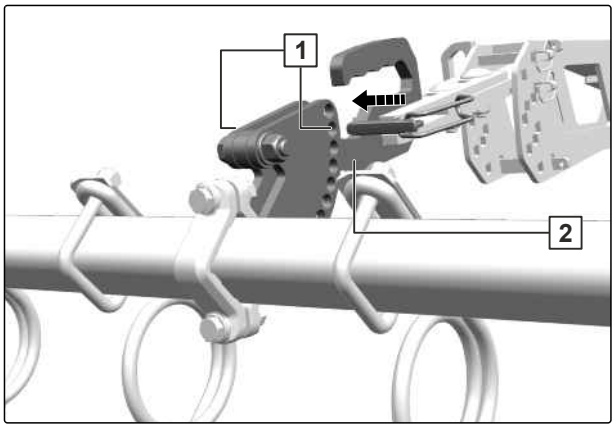
The next step can also be performed with the setting lever.

2. Turn the harrow to the desired position.



CMS-I-00007871

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



CMS-I-00007874

6.3.3.4 Adjusting the double harrow CXS

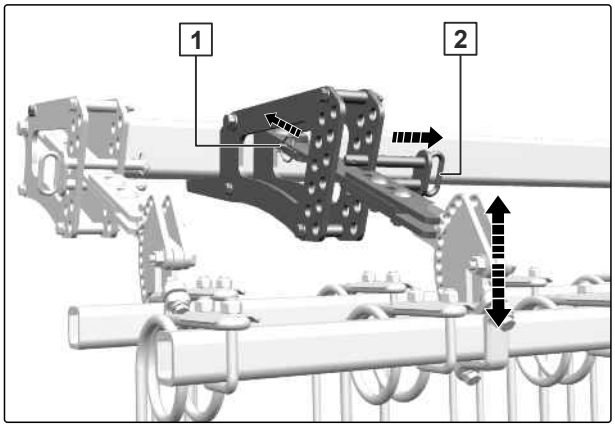
CMS-T-00012167-A.1

6.3.3.4.1 Adjusting the height of the double harrow CXS

CMS-T-00012169-A.1

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

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



CMS-I-00007887

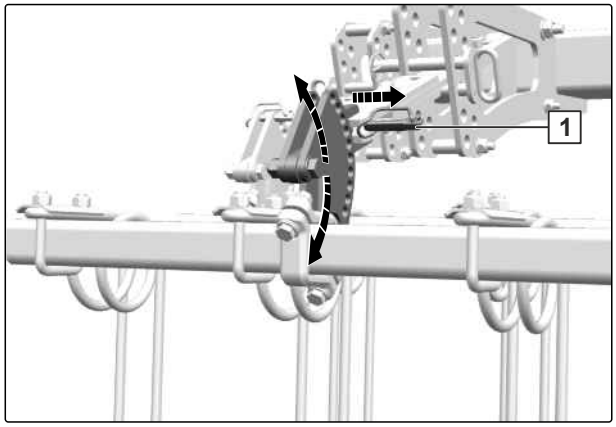
6.3.3.4.2 Adjusting the tilt of the double harrow CXS

CMS-T-00012168-A.1

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

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

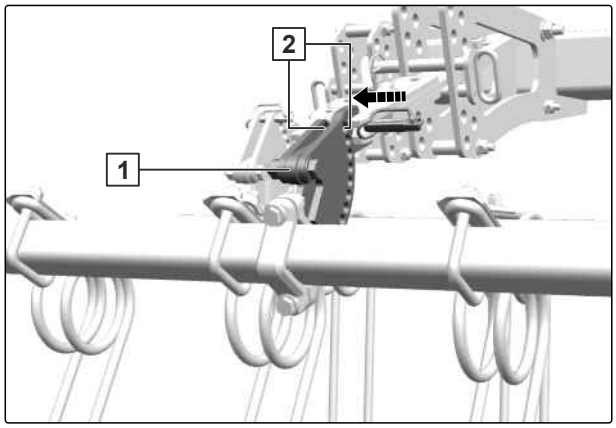
2. Turn the harrow beam to the desired position.



CMS-I-00007882

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

4. Adjust the tilt of the second double harrow bar in the same way.



CMS-I-00007884

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

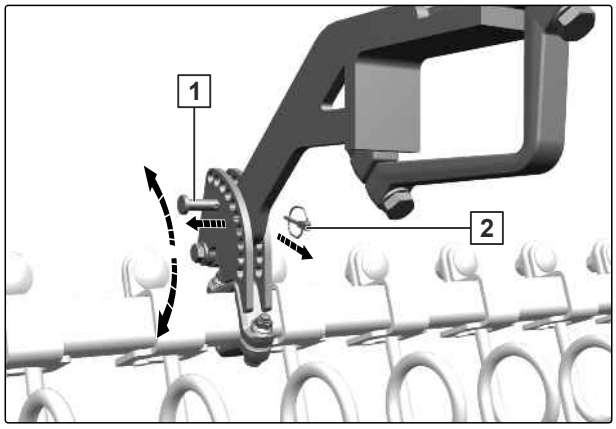
CMS-T-00012170-A.1

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

2. Pull out the pin.

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

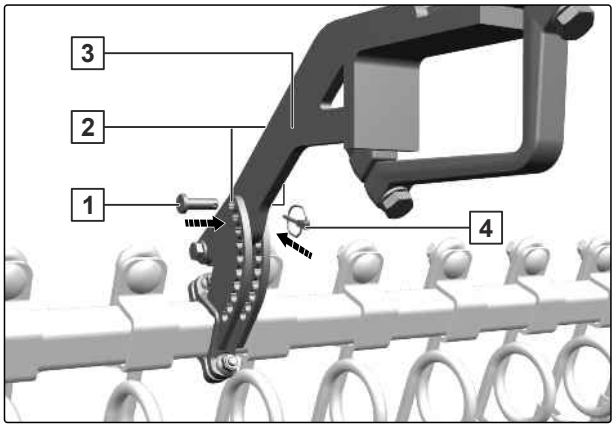
3. Turn the spring blade bar or spring clearer bar to the desired position.



CMS-I-00007888

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

5. Secure the pins with the linch pins 4.



CMS-I-00007889

6.3.3.6 Adjusting the scraper on the clearer system WW 142 HI

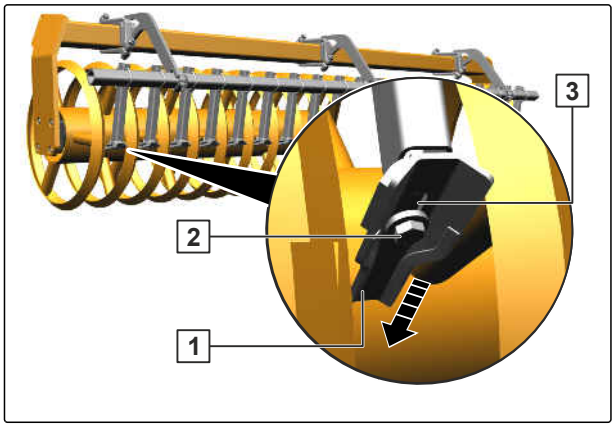
CMS-T-00012171-A.1

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

1. Loosen the bolt 2 on the scraper 1.

2. Move the scraper in the elongated slot 3 towards the roller.

3. Tighten the bolt.



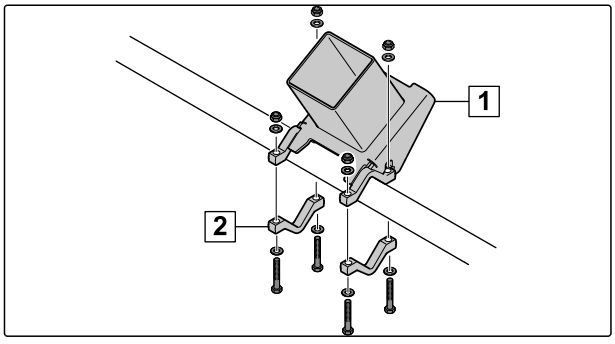
CMS-I-00007890

6.3.4 Installing ballast weights

CMS-T-00000069-E.1

The ballast weights optimise the penetration of the discs 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.

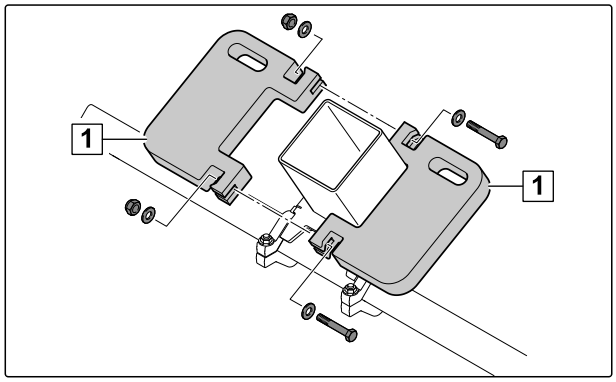
1. Screw on the bracket 1 for the additional weights with the clamp 2 at the centre of the rear frame carrier.



CMS-I-00000643

2. Put two ballast weights 1 on each bracket.

3. Screw two ballast weights together respectively.



CMS-I-00000533

6.3.5 Adjusting the scraper to the roller

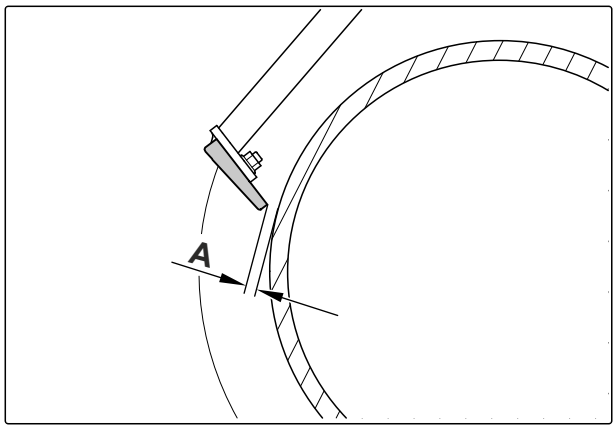
CMS-T-00000076-F.1

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

NOTE

Permitted distances A between the roller element and scraper:

- Wedge ring roller: 12 mm ± 2 mm
- Wedge ring roller with matrix tyre profile: 13 mm ± 2 mm
- Tooth packer roller: at least 1 mm



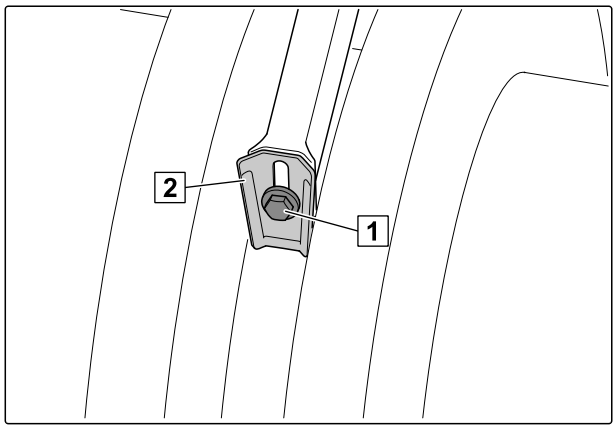
CMS-I-00002071

1. Loosen the bolt 1 on the scraper 2.

2. Move the scraper in the elongated slot.

3. Tighten the bolt 1.

4. Check the distances when the implement is lowered.

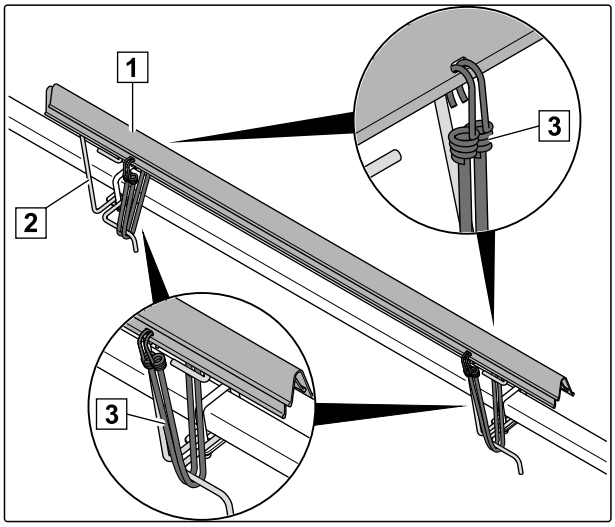


CMS-I-00000521

6.3.6 Removing the road safety bars

CMS-T-00000091-D.1

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

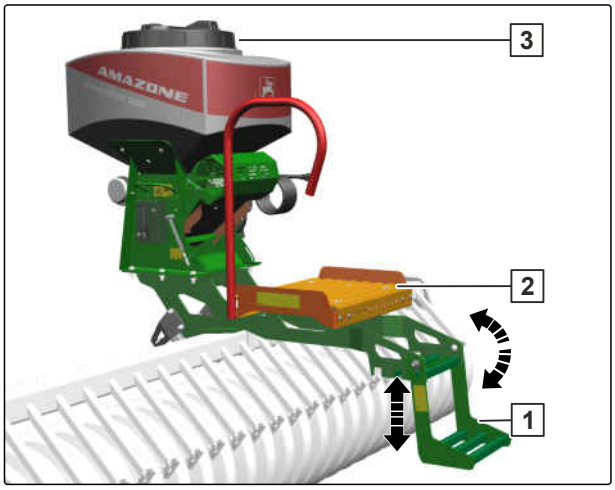


CMS-I-00000518

6.3.7 Filling the GreenDrill

CMS-T-00015706-A.1

1. Switch off the fan.
2. Switch off the control terminal.
3. Lift the folding step 1 and swivel it down.
4. Climb onto the loading board 2.
5. *To fill the hopper on the GreenDrill* 3*:*
   Refer to the GreenDrill operating manual.
6. Swivel up the folding step and lower into parking position.



CMS-I-00010251

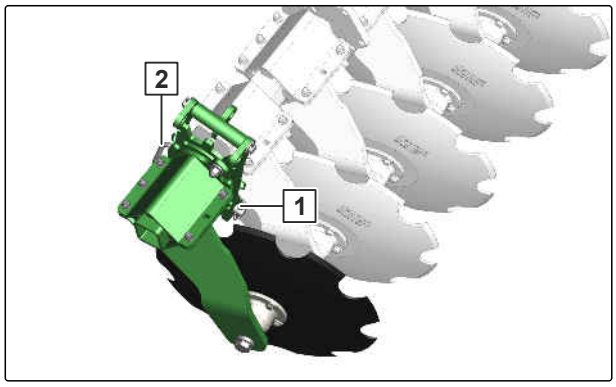
6.4 Preparing the machine for road travel

CMS-T-00002338-D.1

6.4.1 Preparing the side discs for road travel

CMS-T-00001002-B.1

1. Pull the linch pin [1] for the side discs.
2. Pull out the pin [2].



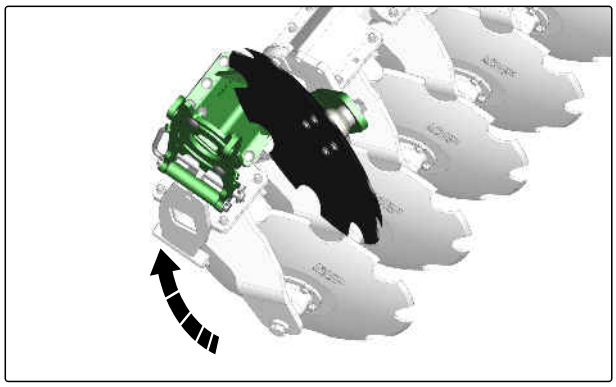
CMS-I-00000800

WARNING

Risk of crushing

- ▶ Swivel the side discs carefully to the desired position.

3. Swivel up the side discs.



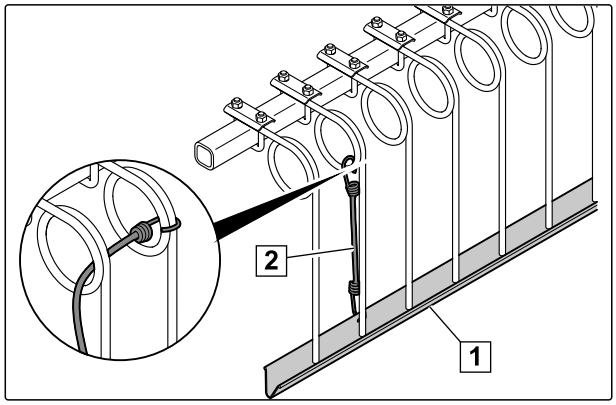
CMS-I-00000799

4. Secure the side disc with a pin.
5. Secure the pin with a linch pin.

6.4.2 Putting on the road safety bars

CMS-T-00000614-C.1

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



CMS-I-00000517

6.4.3 Moving the harrow into transport position

CMS-T-00012320-A.1

6.4.3.1 Moving harrow system 12-125 HI into transport position

CMS-T-00012324-A.1

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

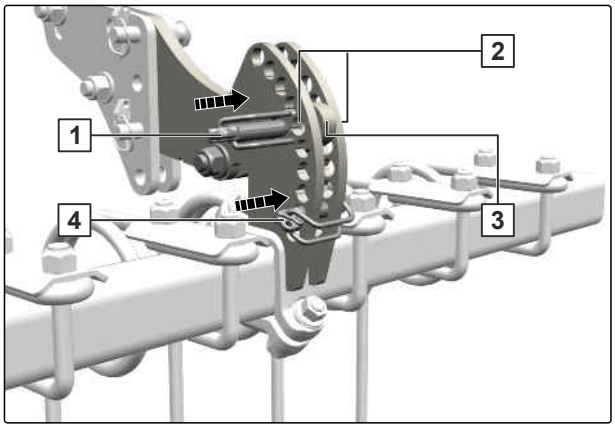
1. Pull out the both linch pins on both adjustment units.

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

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

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

4. Park each of the second linch pins **4** below the bracket.



CMS-I-00007934

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

CMS-T-00012322-A.1

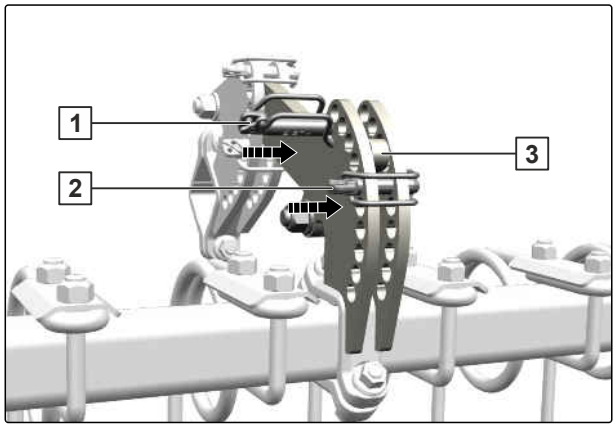
On folding implements, the harrow tines together with the road safety bars may not exceed the transport width of 3 m.

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

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

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

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



CMS-I-00007936

6.4.3.3 Moving harrow system 12-250 HI into transport position

CMS-T-00012326-A.1

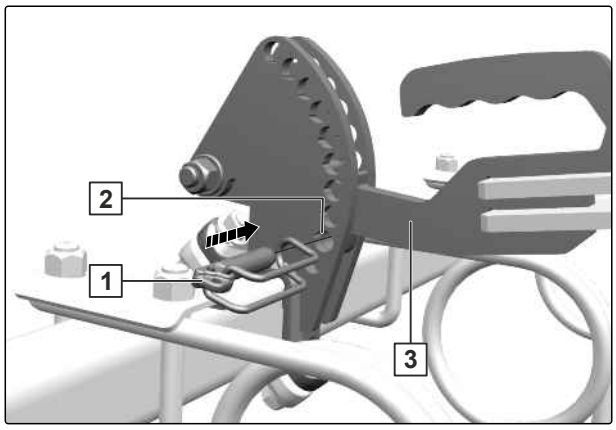
On folding implements, the harrow tines together with the road safety bars may not exceed the transport width of 3 m.

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

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

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

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



CMS-I-00007907

6.4.3.4 Moving the double harrow CXS into transport position

CMS-T-00012328-A.1

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

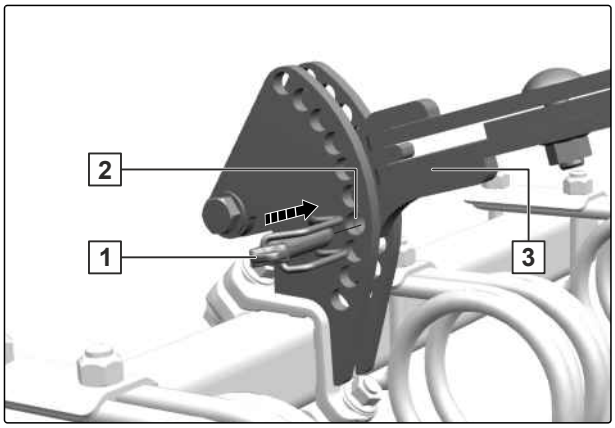
1. Pull out the linch pin on both adjustment units of a double harrow bar.

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

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

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

4. Move the second double harrow bar into transport position in the same way.



CMS-I-00007908

Using the machine 7

CMS-T-00000071-I.1

7.1 Using the implement

CMS-T-001727-G.1

1. Lower the implement on the field.

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

7.2 Lowering the cutting roller

CMS-T-00006284-C.1

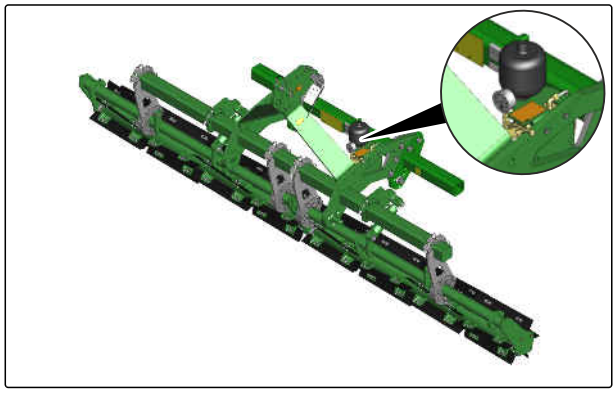
The cutting roller chops up crop residues and catch crops. The cutting roller is automatically pre-tensioned using a hydraulic pressure accumulator. A stop tap is attached to the hydraulic pressure accumulator.

1. Open the stop tap.

2. Lower the cutting roller using the *"beige"* tractor control unit.

3. *To build up the hydraulic preloading,* hold the *"beige"* tractor control unit for 20 seconds.

4. Put the tractor control unit in float position.



CMS-I-00004475

7.3 Turning on the headlands

CMS-T-001728-B.1

1. *To prevent lateral loads when driving in curves on the headlands,* raise the soil tillage tools.

2. *When the direction of the implement matches that of the direction of travel,* lower the soil tillage tools.

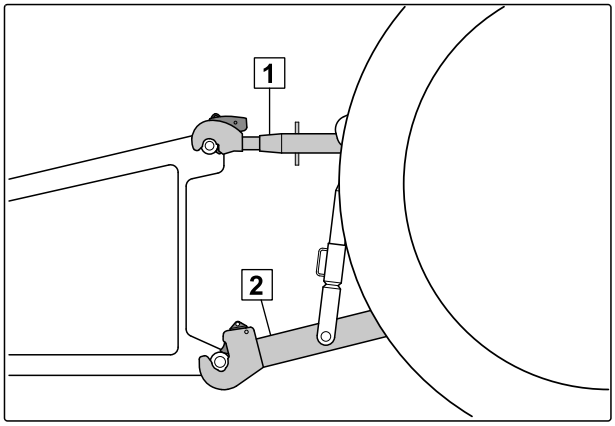
Parking the machine 8

CMS-T-00001393-G.1

8.1 Uncoupling the three-point mounting frame

CMS-T-00001401-D.1

1. Park the implement on a level surface with solid ground.
2. Release the top link 1.
3. Uncouple the top link from the implement.
4. Release the lower links 2.
5. Uncouple the lower links from the implement from the tractor seat.



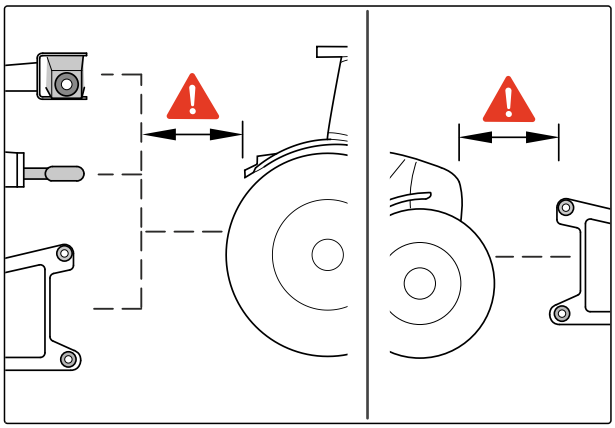
CMS-I-00001249

8.2 Driving the tractor away from the implement

CMS-T-00005795-D.1

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

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

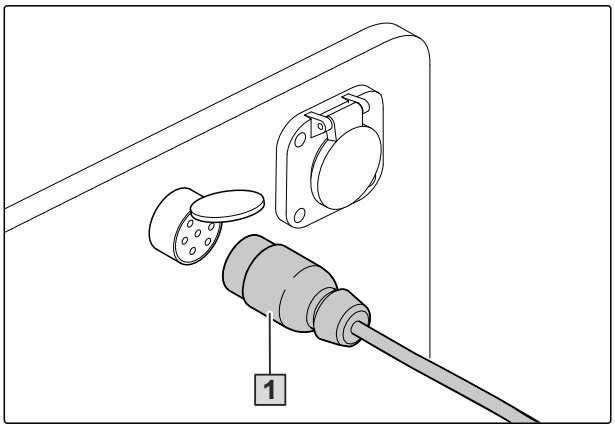


CMS-I-00004045

8.3 Uncoupling the power supply

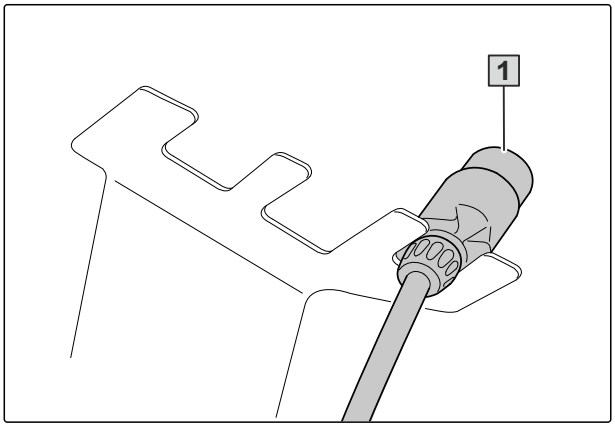
CMS-T-00001402-H.1

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



CMS-I-00001048

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

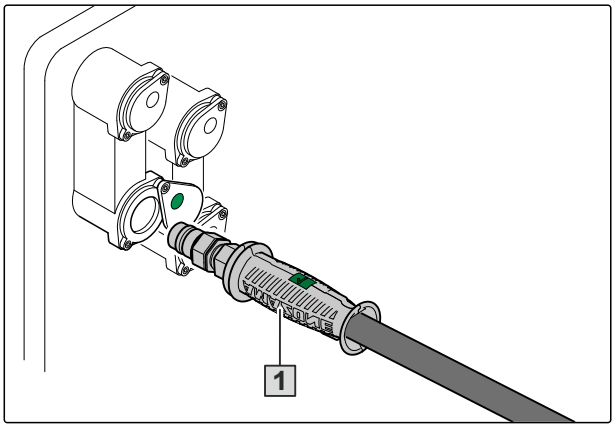


CMS-I-00001248

8.4 Disconnecting the hydraulic hose lines

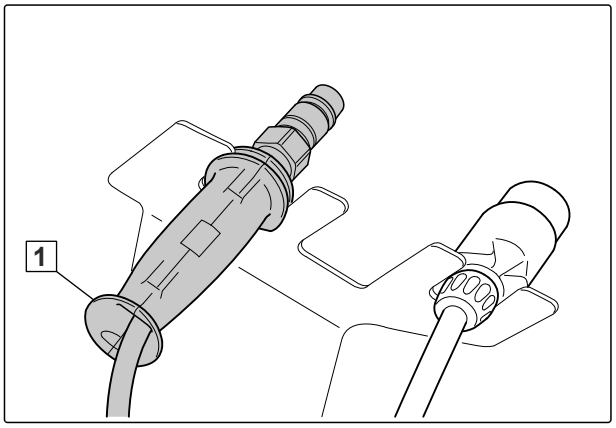
CMS-T-00000277-F.1

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



CMS-I-00001065

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



CMS-I-00001250

Repairing the implement

9

CMS-T-00000990-L.1

9.1 Maintaining the implement

CMS-T-00002326-L.1

9.1.1 Maintenance schedule

After initial operation		
Checking the disc carrier connection	see page 63	
Checking the rollers	see page 64	
Checking the hydraulic hose lines	see page 65	

As required		
Replacing the discs	see page 62	
Aligning the disc gangs relative to each other	see page 62	**WORKSHOP WORK**

Daily		
Checking the lower link pins and top link pins	see page 64	

Every 50 operating hours / Weekly		
Checking the hydraulic hose lines	see page 65	

Every 200 operating hours / Every 3 months		
Checking the rollers	see page 64	

9.1.2 Replacing the discs

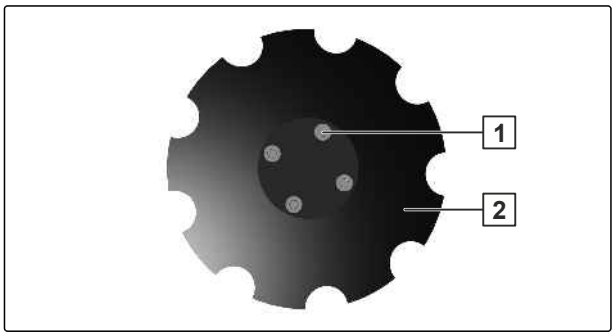
CMS-T-00002327-I.1

INTERVAL

- As required

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

1. Slightly raise the implement.



CMS-I-00002450

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

9.1.3 Aligning the disc gangs relative to each other

CMS-T-00015517-A.1

WORKSHOP WORK

- As required

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

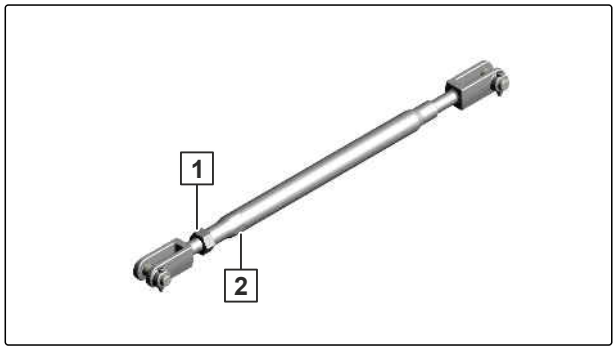
The alignment of the disc gangs is suitable for the following:

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

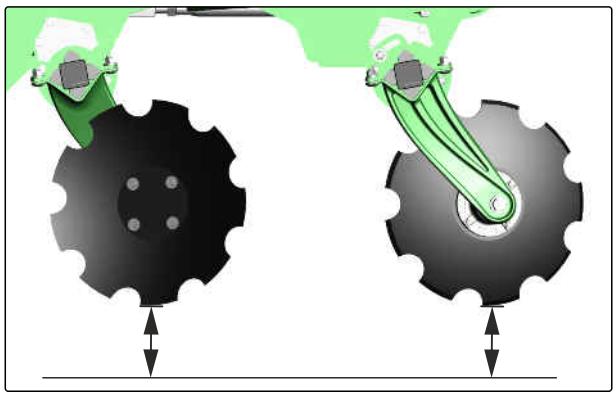
1. Align the implement horizontally.
2. Set the working depth of the disc gangs to the smallest value.

➡ The discs are not standing on the ground.

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



CMS-I-00003204



CMS-I-00003385

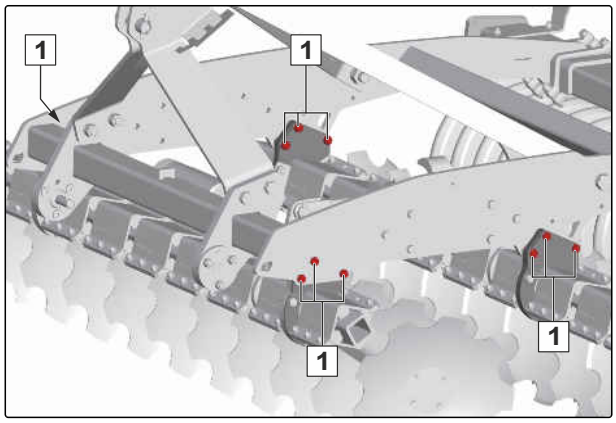
9.1.4 Checking the disc carrier connection

CMS-T-00002328-E.1

INTERVAL

- After initial operation

▶ Check the bolts for tightness.



CMS-I-00000531

9.1.5 Checking the rollers

CMS-T-00002329-D.1

INTERVAL

- After initial operation
- Every 200 operating hours

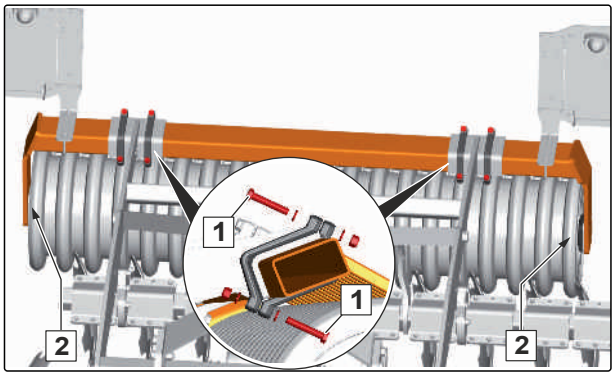
  or

  Every 3 months

► Check the bolts 1 for tightness.

► *If the bolts need to be replaced,*
pay attention to the alignment of the bolts.

► Check the roller bearing 2 for ease of movement.



CMS-I-00000099

9.1.6 Checking the lower link pins and top link pins

CMS-T-00011936-A.1

INTERVAL

- Daily

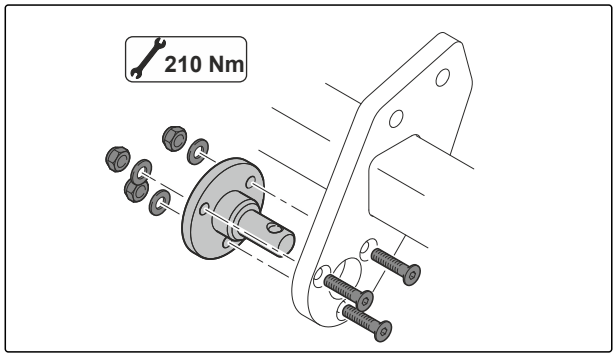
Criteria for visual inspection of lower link pins and top link pins:

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

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

2. Replace worn pins.

3. Check the fastening bolts for tightness.



CMS-I-00007687

9.1.7 Checking the hydraulic hose lines

CMS-T-00002331-G.1

INTERVAL

- After initial operation
- Every 50 operating hours

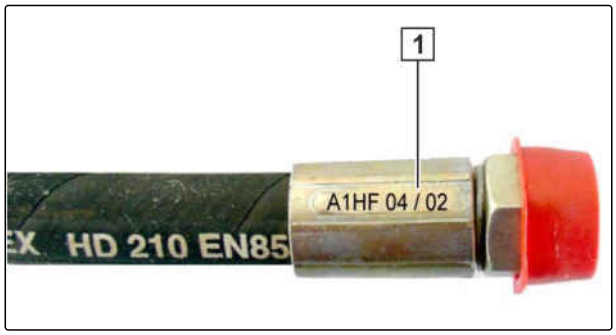
  or

  Weekly

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

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

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



CMS-I-00000532

WORKSHOP WORK

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

9.2 Cleaning the implement

CMS-T-00000593-F.1

IMPORTANT

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

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

CMS-I-00002692

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

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.

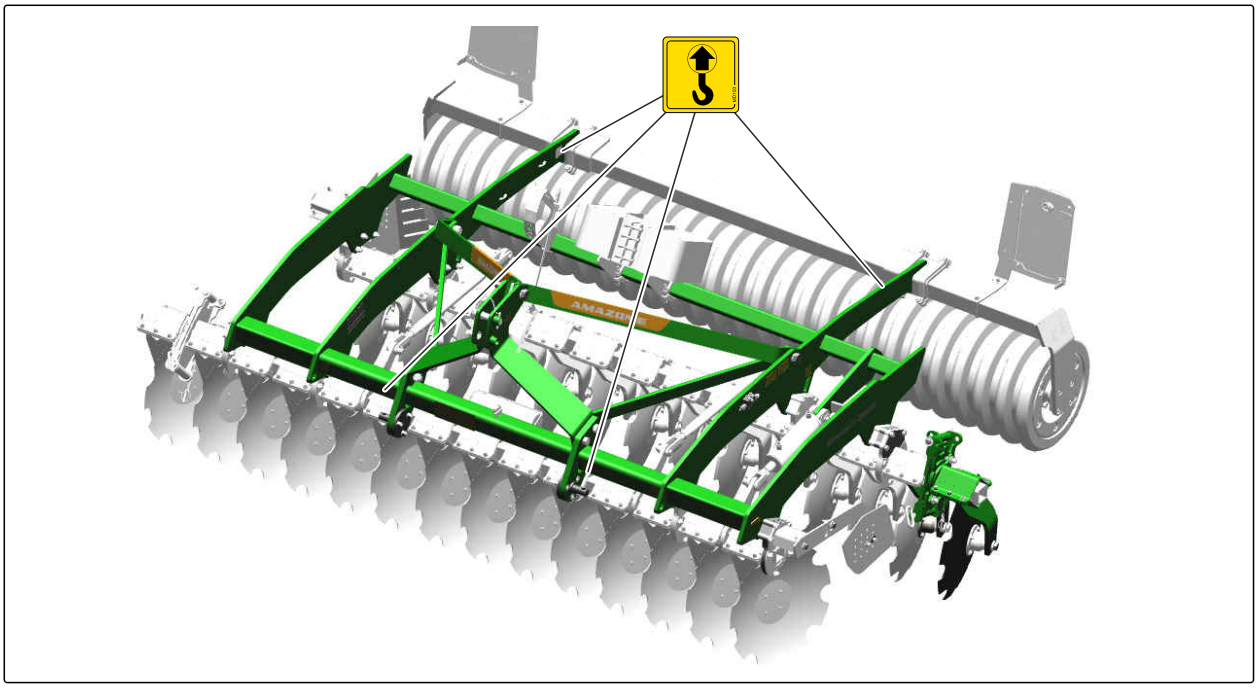
1. Clean the machine.
2. Protect unpainted components from corrosion using a suitable corrosion inhibitor.
3. Grease all lubrication points. Remove excess grease.
4. Park the implement in a sheltered place.

Loading the implement 10

CMS-T-00002443-E.1

10.1 Loading the implement with a crane

CMS-T-00002444-D.1



CMS-I-00002254

The implement has 4 lashing points for slings for lifting.

WARNING

Risk of accidents due to improperly attached slings for lifting

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

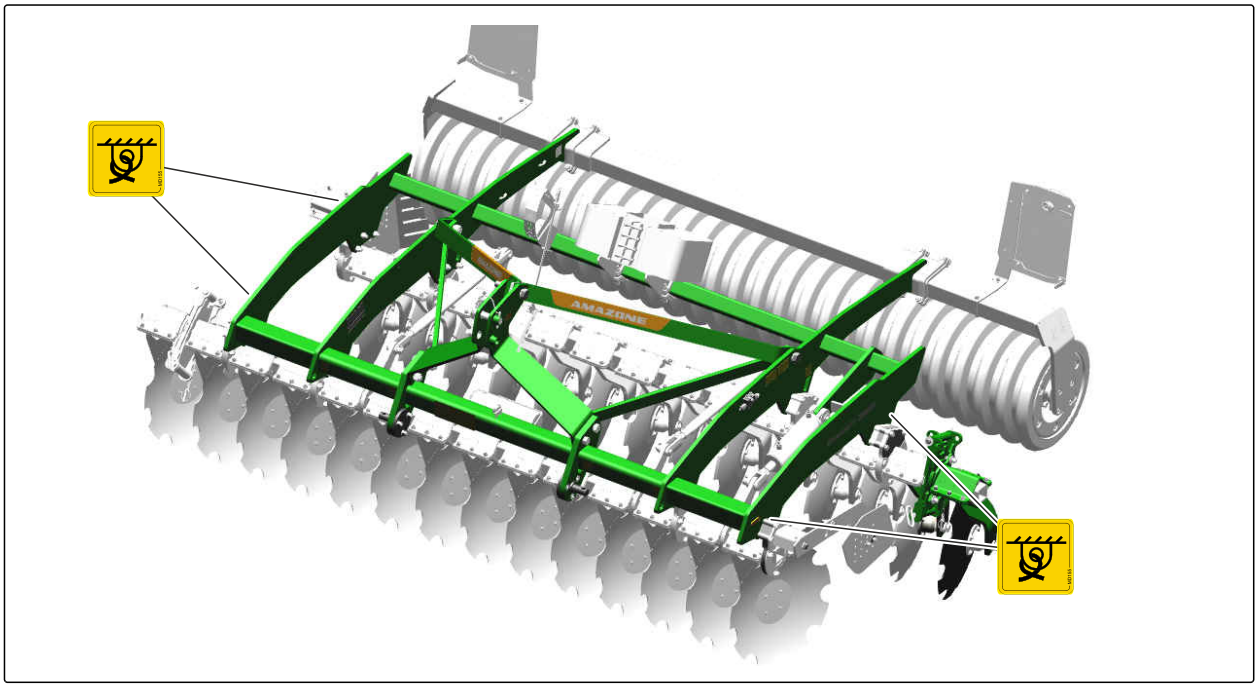
- ▶ Only attach the slings for lifting at the marked lashing points.

1. Attach the slings for lifting on the intended lashing points.

2. Slowly lift the implement.

10.2 Lashing the implement

CMS-T-00012674-A.1



CMS-I-00008078

The implement has 4 lashing points for lashing straps.

WARNING

Risk of accidents due to improperly attached lashing straps

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

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

1. Put the implement on the transport vehicle.

2. Attach the lashing straps at the marked points.

3. Lash down the implement in compliance with the national regulations for load securing.

Disposing of the implement 11

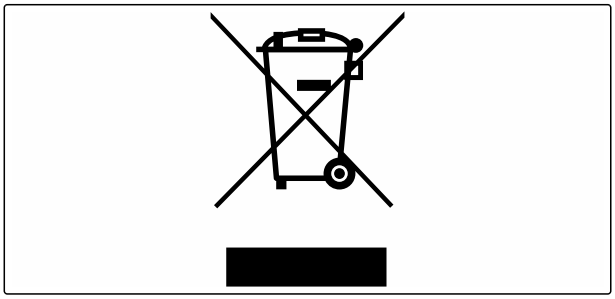
CMS-T-00010906-B.1

ENVIRONMENTAL INFORMATION

Environmental damage due to improper disposal

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

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



CMS-I-00007999

2. Return batteries to the distributor

   or

   Dispose of batteries at a collection point.

3. Put recyclable materials in the recycling.

4. Treat operating materials like hazardous waste.

WORKSHOP WORK

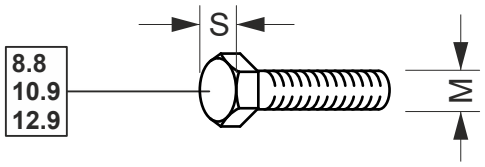
5. Dispose of the coolant.

Appendix 12

CMS-T-00000372-D.1

12.1 Bolt tightening torques

CMS-T-00000373-E.1



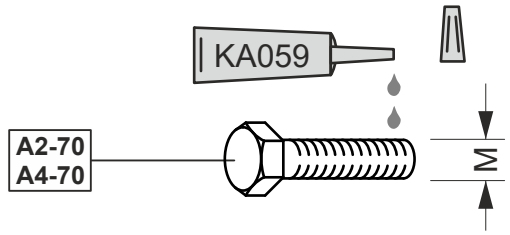
CMS-I-000260

NOTE

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

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

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



CMS-I-00000065

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

12.2 Other applicable documents

CMS-T-00000615-A.1

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

Directories 13

13.1 Glossary

CMS-T-00000513-B.1

M

Machine

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

O

Operating materials

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

T

Tractor

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

13.2 Index

L

M

O

P

R

S

T

U

W

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

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