



Original operating manual

Trailed reversible plough

Tyrok 400

Tyrok 400 V



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 kg

Model Year






Year of construction



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.

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CMS-I-00000638

Safety and responsibility

2

CMS-T-00005276-G.1

2.1 Basic safety instructions

CMS-T-00005277-G.1

2.1.1 Meaning of the operating manual

CMS-T-00006180-A.1

Observe the operating manual

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

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

2.1.2 Safe operating organisation

CMS-T-00002302-D.1

2.1.2.1 Personnel qualification

CMS-T-00002306-B.1

2.1.2.1.1 Requirements for persons working with the implement

CMS-T-00002310-B.1

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

the implement must meet the following minimum requirements:

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

2.1.2.1.2 Qualification levels

CMS-T-00002311-A.1

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

- Farmer
- Agricultural helper

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

2.1.2.1.3 Farmer

CMS-T-00002312-A.1

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

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

Farmers can be e.g.:

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

Activity example:

- Safety training for agricultural helpers

2.1.2.1.4 Agricultural helpers

CMS-T-00002313-A.1

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

Agricultural helpers can be e.g.:

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

Activity examples:

- Driving the machine
- Adjusting the working depth

2.1.2.2 Workplaces and passengers

CMS-T-00002307-B.1

Passengers

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

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

2.1.2.3 Danger for children

CMS-T-00002308-A.1

Danger for children

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

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

2.1.2.4 Operational safety

CMS-T-00002309-D.1

2.1.2.4.1 Perfect technical condition

CMS-T-00002314-D.1

Only use properly prepared machines

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

- ▶ Prepare the machine according to this operating manual.

Danger due to damage to the machine

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

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

Observe the technical limit values

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

- ▶ Comply with the technical limit values.

2.1.2.4.2 Personal protective equipment

CMS-T-00002316-B.1

Personal protective equipment

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

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

Wear suitable clothing

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

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

2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

Keep warning symbols legible

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

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

2.1.3 Recognising and preventing dangers

CMS-T-00005278-C.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-00005280-A.1

Dangers areas on the implement

The following basic dangers are encountered in the danger areas:

The implement and its work tools move during operation.

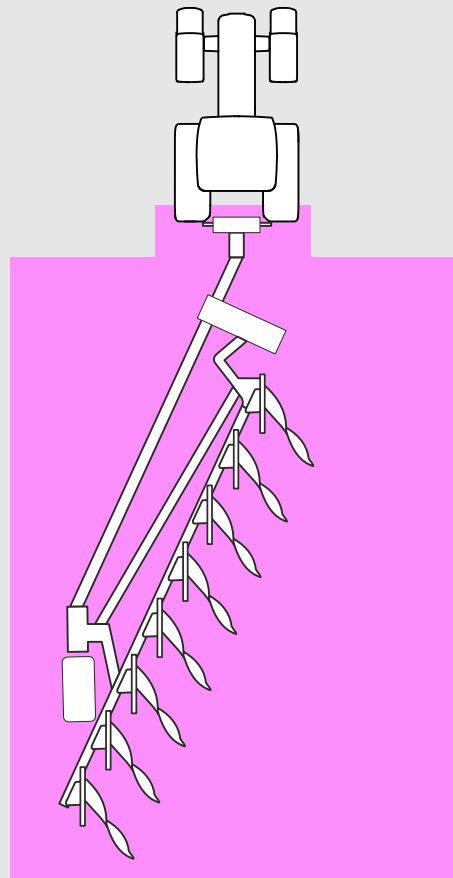
Hydraulically raised implement parts can descend unnoticed and slowly.

The machine can roll away unintentionally.

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

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

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



CMS-I-00003789

2.1.4 Safe operation and handling of the machine

CMS-T-00002304-I.1

2.1.4.1 Coupling implements

CMS-T-00002320-D.1

Coupling the implement on the tractor

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

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

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

2.1.4.2 Driving safety

CMS-T-00002321-E.1

Risk when driving on roads and fields

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

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

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

- ▶ Lock the tractor lower links for road travel.

Preparing the machine for road travel

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

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

Parking the implement

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

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

Unsupervised parking

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

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

2.1.5 Safe maintenance and modification

CMS-T-00002305-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-00006516-B.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 hitched on the three-point power lift of a tractor that meets the technical requirements.
- The implement is suitable and intended for inversion soil tillage.
- 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.

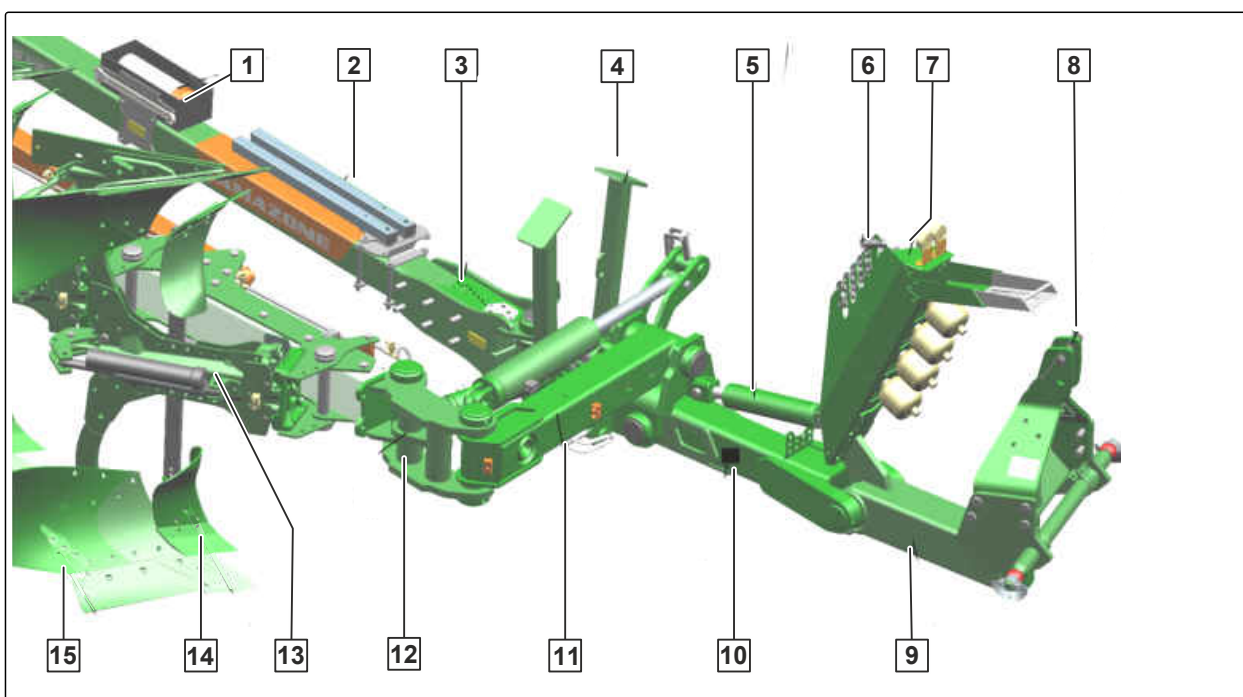
Product description

4

CMS-T-00006539-H.1

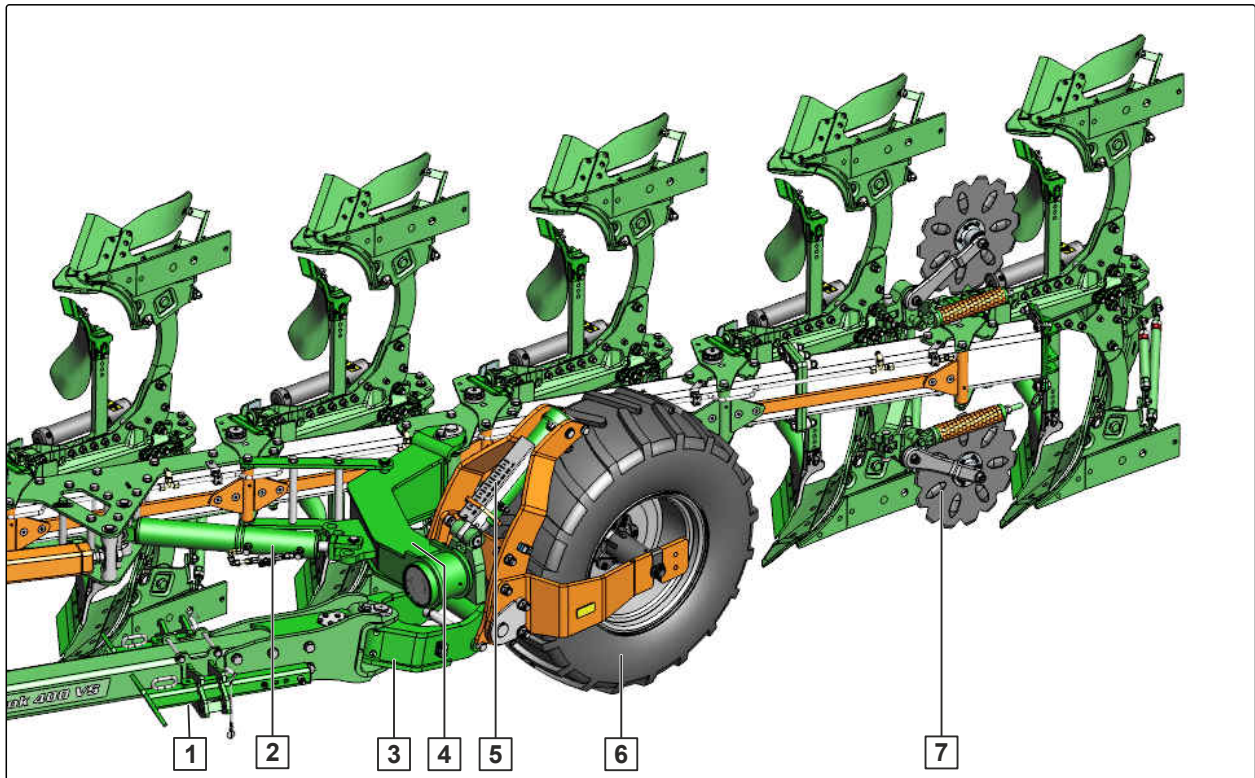
4.1 Implement overview

CMS-T-00006540-B.1



CMS-I-00004813

- | | |
|-----------------------------------|--|
| 1 Transport box | 2 Front, folding identification for road travel |
| 3 Beam | 4 Parking supports |
| 5 Traction assistance | 6 Hose cabinet |
| 7 Hydraulic operating unit | 8 Headstock |
| 9 Front universal joints | 10 Rating plate |
| 11 Front turning arm | 12 Hydraulic front furrow adjustment element |
| 13 Overload safety | 14 Skimmer |
| 15 Plough body | |



CMS-I-00004823

- | | |
|----------------------------------|---|
| 1 Parking supports | 2 Vario working width adjustment |
| 3 Rear universal joint | 4 Rear turning arm |
| 5 Running gear hydraulics | 6 Running gear |
| 7 Disc coulter | |

4.2 Function of the implement

CMS-T-00006546-A.1

The trailed reversible plough has the following functions:

- The plough is an agricultural implement for loosening and turning over arable soil in the tillage horizon area.
- A plough can turn the soil to the right or to the left.
- After turning at the end of the field, the plough is lifted out and turned to the other side, to turn the soil towards the same side when driving back.
- The front furrow width is hydraulically adjustable.
- The working width can be adjusted incrementally manually, or variably hydraulically with Tyrok V.

4.3 Special equipment

CMS-T-00006551-B.1

Special equipment is equipment that is not fitted on the implement or is only available in certain markets.

The sales documents provide information on the equipment of your implement, or consult your dealer for more detailed information.

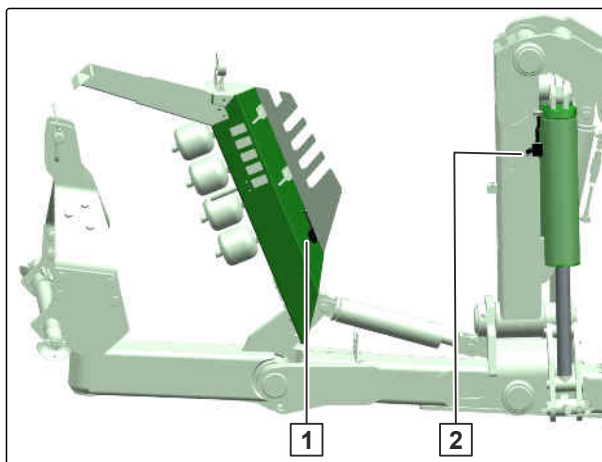
Special equipment

- Skimmer
- Trashboard
- Disc coulter
- Landside coulter
- Landside protector
- Scraper for running gear wheel
- Beam extension
- Traction assistance
- Packer arm for catch hooks
- Identification for road travel
- LED rear lighting for road travel

4.4 Protective equipment

CMS-T-00006494-A.1

- 1** Stop tap for the running gear hydraulics to prevent undesired lowering of the implement.
- 2** Stop taps of the turning hydraulics to secure the implement in transport position.



CMS-I-00004828

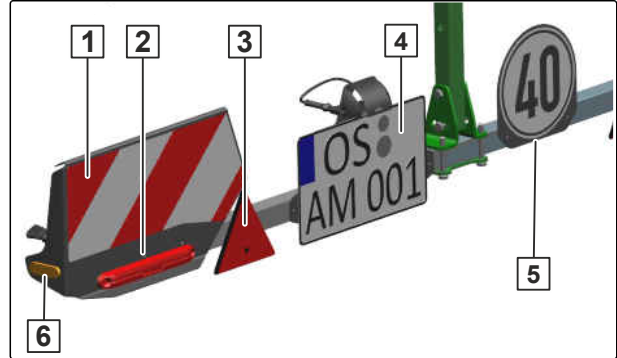
4.5 Lighting and identification for road travel

CMS-T-00006547-D.1

4.5.1 Rear lighting and identification

CMS-T-00003642-C.1

- 1 Warning sign
- 2 Rear lights, brake lights, and turn indicators
- 3 Red reflectors
- 4 Number plate holder with lighting
- 5 Speed sign
- 6 Yellow reflector



CMS-I-00004524

NOTE

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

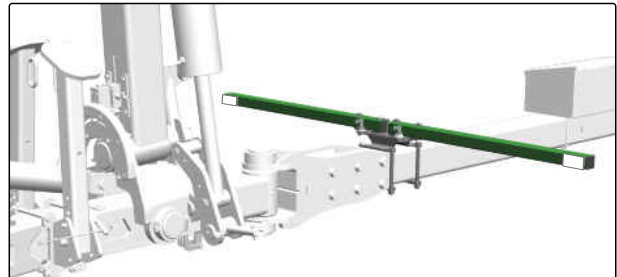
4.5.2 Front identification

CMS-T-00006549-D.1

NOTE

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

White reflector



CMS-I-00004630

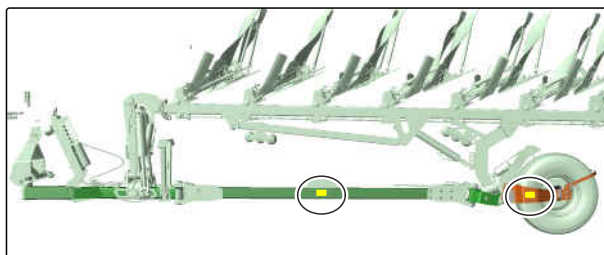
4.5.3 Lateral identification

CMS-T-00006548-B.1

NOTE

Yellow reflectors are mounted on the side at a maximum distance of 3 m.

Yellow reflector



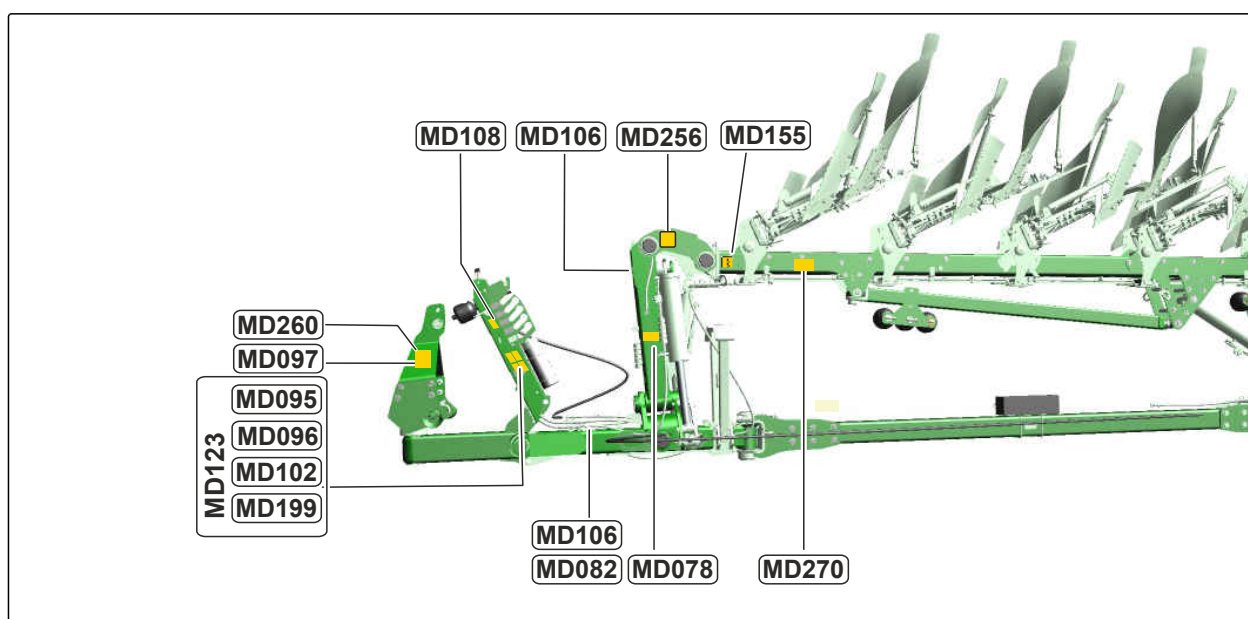
CMS-I-00004631

4.6 Warning symbols

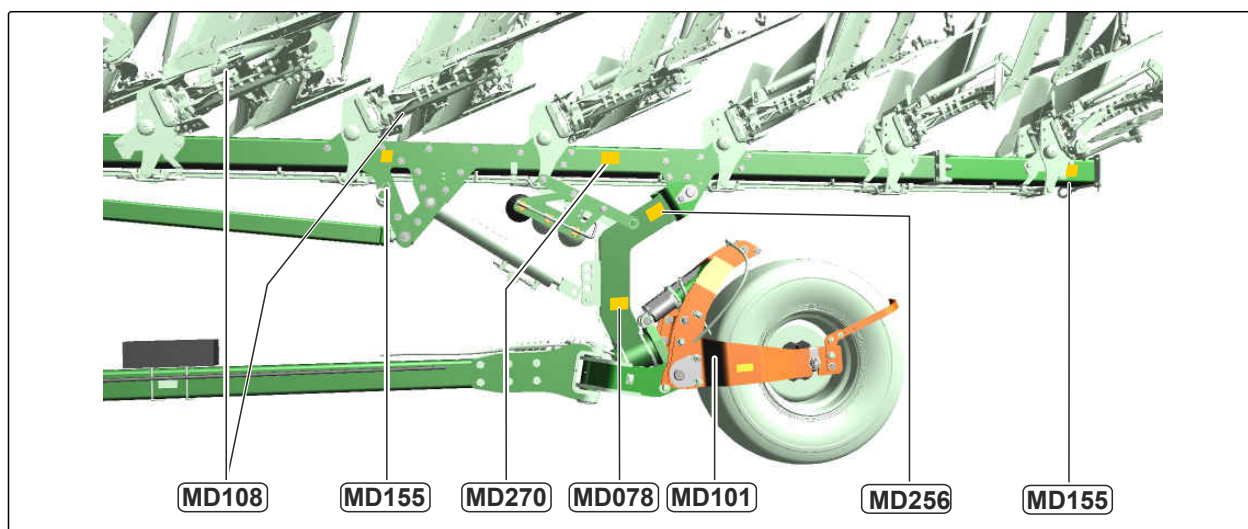
CMS-T-00006543-D.1

4.6.1 Positions of the warning symbols

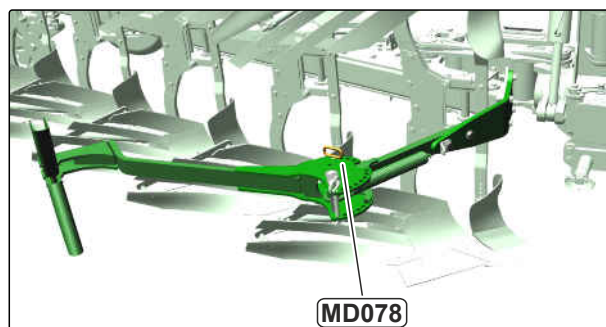
CMS-T-00006544-C.1



CMS-I-00004620



CMS-I-00004621



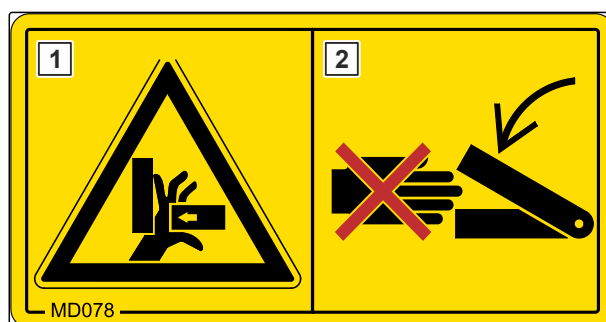
CMS-I-00005139

4.6.2 Layout of the warning symbols

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

A warning symbol consists of two fields:

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



CMS-T-000141-D.1

CMS-I-00000416

4.6.3 Description of the warning symbols

MD 078

Risk of crushing fingers or hands

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



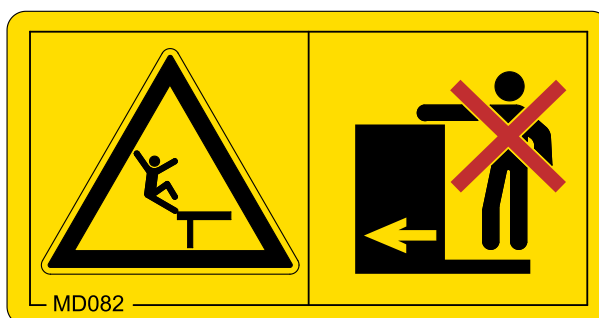
CMS-T-00006844-D.1

CMS-I-0000074

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.*

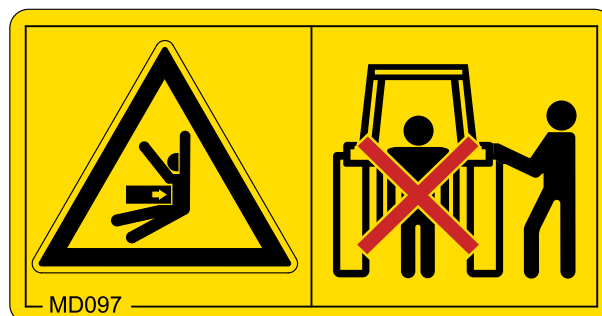


CMS-I-000216

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.

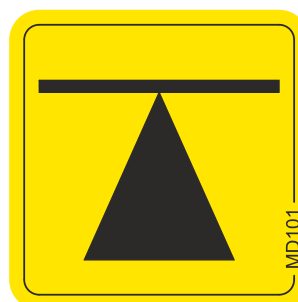


CMS-I-000139

MD 101

Risk of accidents due to improperly attached lifting equipment

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



CMS-I-00002252

MD 102

Risk due to unintentional starting and rolling away of the machine

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



CMS-I-00002253

MD 106

Risk of crushing from the machine parts unintentionally lowering

- ▶ Before entering the danger area, secure raised machine parts with a hydraulic or mechanical locking device.



CMS-I-00000427

MD 108

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.

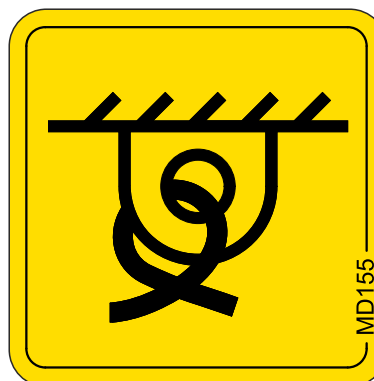


CMS-I-00004027

MD 155

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

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

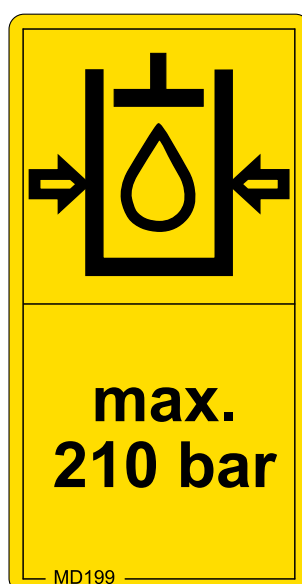


CMS-I-00000450

MD 199

Risk of accident if the hydraulic system pressure is too high

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



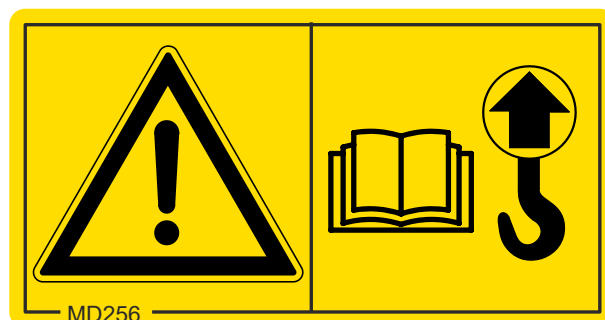
CMS-I-00000486

MD 256

Risk of accidents due to improperly attached slings for lifting

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

- ▶ Only attach the slings for lifting at the suitable lashing points.
- ▶ The suitable lashing points can be found in the operating manual, see Transporting the implement.
- ▶ *To determine the required load-bearing capacity of the slings,* observe the specifications in the following table.



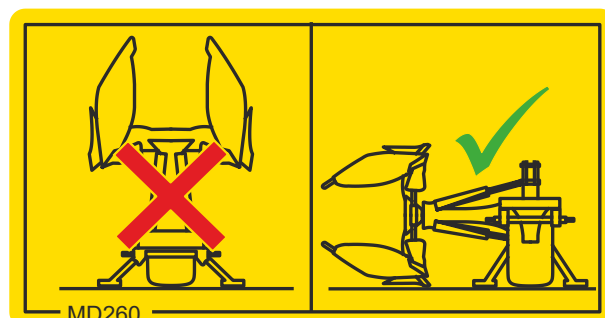
MD256

CMS-I-00005075

MD 260

Danger due to the implement tipping over

- ▶ Only park the implement in working position.



MD260

CMS-I-00004803

MD 270

Risk of injury for the whole body due to swivelling and rotating of the implement

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



MD270

CMS-I-00005828

4.7 Rating plates

CMS-T-00004498-J.1

4.7.1 Rating plate on the implement

CMS-T-00004505-L.1

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

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

Machine no. **1**

Vehicle ID no. **2**

Product **3**

Permissible technical implement weight kg **4**

Model Year **5**

Year of construction **6**

CE UK CA

AMAZONE

CMS-I-00004294

4.7.2 Additional rating plate

CMS-T-00005949-B.1

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

AMAZONEN-WERKE H. DREYER SE & Co. KG

1 **2**

3 **4**

T-1 T-2 T-3

B-2 - - - kg

B-4 **5** - - - kg

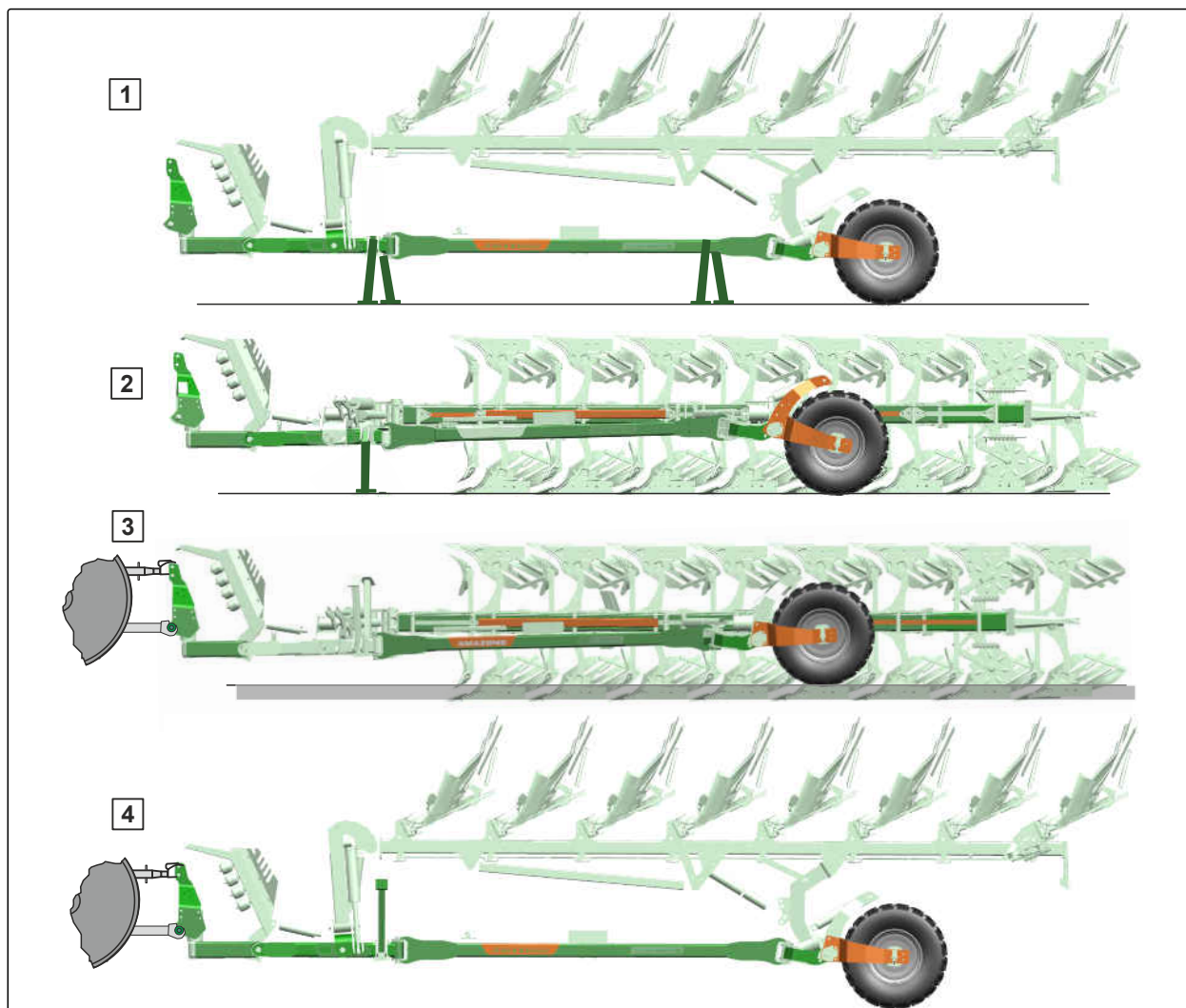
A-0: kg

A-1: kg

CMS-I-00005056

4.8 Implement positions

CMS-T-00006542-B.1



CMS-I-00004827

- | | |
|---|--|
| <p>1 Parking position for implement with 4 parking supports</p> <p>3 Working position</p> | <p>2 Parking position for implement with one parking supports</p> <p>3 Transport position / headlands position</p> |
|---|--|

4.9 Plough body

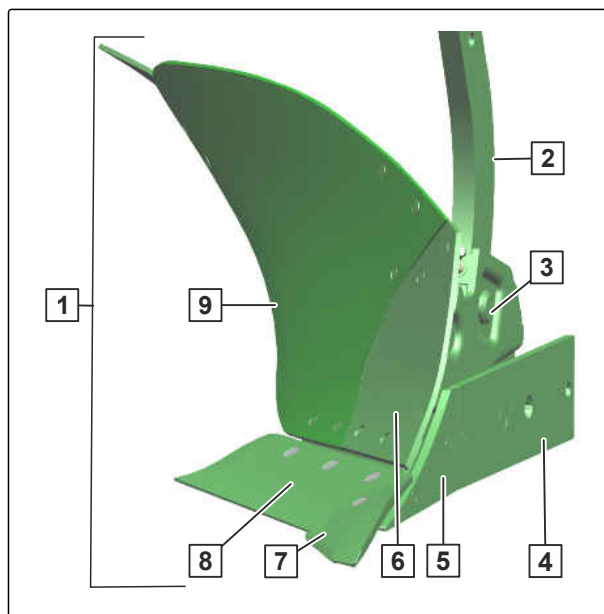
CMS-T-00006555-B.1

The plough bodies are selected depending on the soil properties and working conditions.

- The working width of the plough body is adjustable.
- The working width for all of the plough bodies must be adjusted the same.
- The sum of all working widths and the front furrow width corresponds to the working width implement.

Layout of the plough body

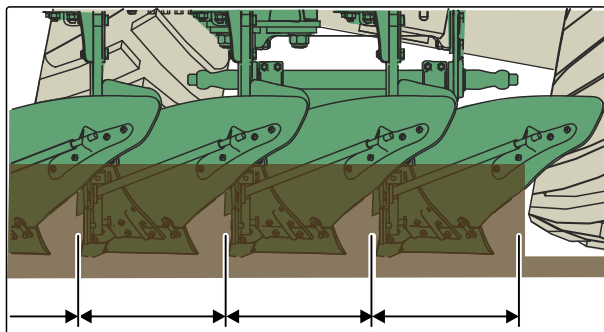
- 1** Plough body
- 2** Plough leg
- 3** Frog side section
- 4** Landside
- 5** Landside point
- 6** Mouldboard front section
- 7** Share tip
- 8** Wing
- 9** Mouldboard



CMS-I-00004826

Working width of the plough body

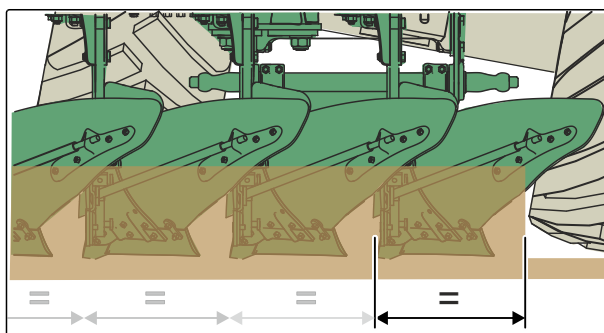
The working width is the actual cutting width of a plough body, measured at 90° to the direction of travel.



CMS-I-00002675

Front furrow width

- The front furrow width is measured from the furrow edge to the landside of the first plough body.
- The front furrow width is affected by the following factors:
 - Inner track width of the tractor
 - Working width of the plough
 - Tilt
 - Working depth



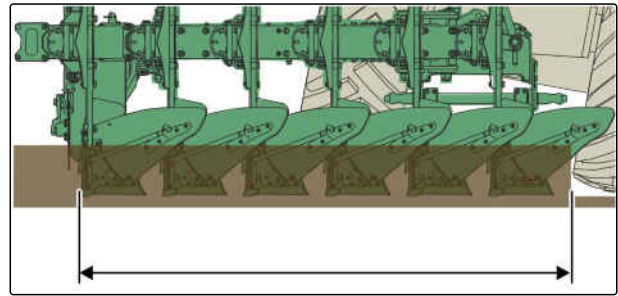
CMS-I-00002674

Working width of the plough

- The working width of the plough corresponds to the field width that is worked in one pass.

Example for 6-share plough:

Working width = 5 x working width of one plough body
+ front furrow width



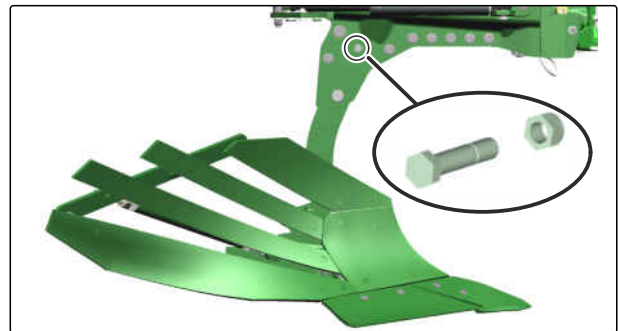
CMS-I-00002676

4.10 Shear bolt overload safety

CMS-T-00006871-B.1

Each plough body is protected against overload with a shear bolt.

In the event of an overload, the shear bolt shears off.



CMS-I-00004970

4.11 Hydraulic overload safety

CMS-T-00006507-C.1

With the overload safety, the plough bodies deflect in case of overload. Each plough body can deflect upwards or to the side individually. The pressurised hydraulic system guides the plough body back into working position.

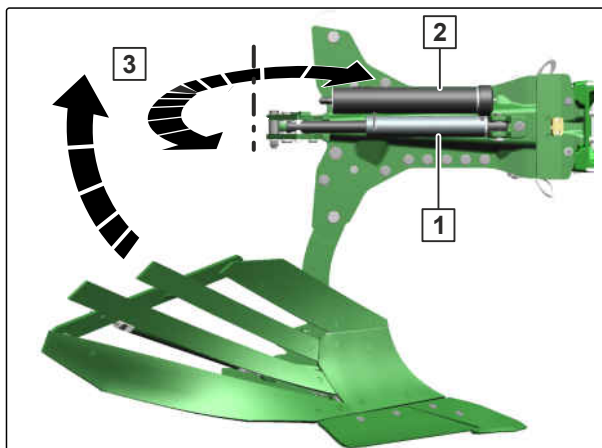
The tripping force is adjusted for different soils through the hydraulic pressure.

A shear bolt serves as an additional overload safety.

The hydraulic overload safety is available in two versions:

- The overload safety with central adjustment of the tripping force
- The overload safety with decentralised adjustment of the tripping force

- 1 Hydraulic cylinder
- 2 Hydraulic accumulator
- 3 Deflection



CMS-I-00005725

4.12 Headstock

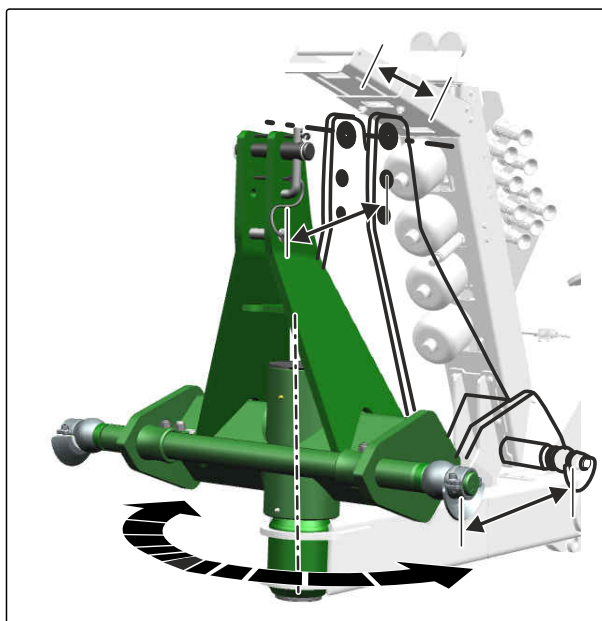
CMS-T-00007282-C.1

The headstock serves as a receptacle for the implement via the tractor lower link and tractor upper link.

The implement can be coupled in two different positions:

- Headstock turned forward for more manoeuvrability.
- Headstock turned rearward for a better pull line and less lateral pull.

Hose routing can be adapted to the position of the headstock.



CMS-I-00005119

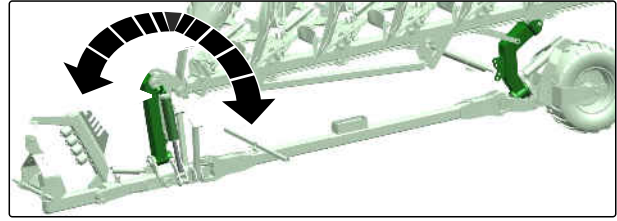
4.13 Turning arms

CMS-T-00006541-B.1

Turning arms are located front and rear on the frame.

Turning arms have the following functions:

- Turning plough bodies from one direction of travel to the other.
- Turning the plough into transport position and hydraulically locking it.



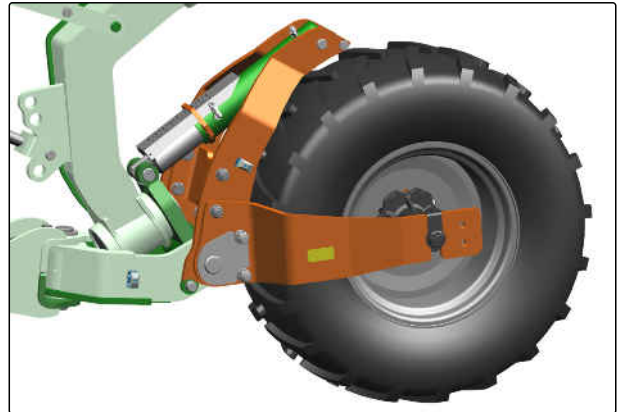
CMS-I-00004830

4.14 Running gear

CMS-T-00006502-A.1

The running gear does the following:

- Guides the implement for road transport
- Depth control of the plough bodies in operation



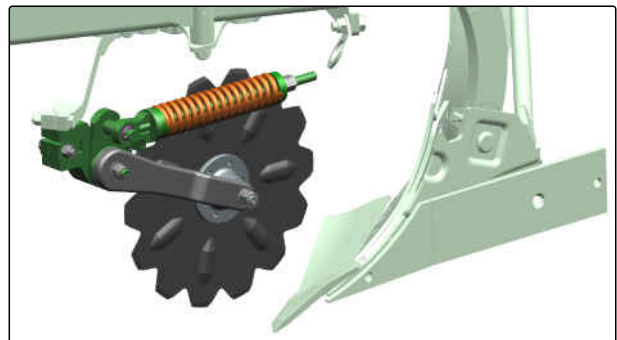
CMS-I-00004829

4.15 Disc coulters

CMS-T-00006962-A.1

The disc coulters produce a defined furrow edge.

The working depth and the distance from the plough body can be adjusted.



CMS-I-00004873

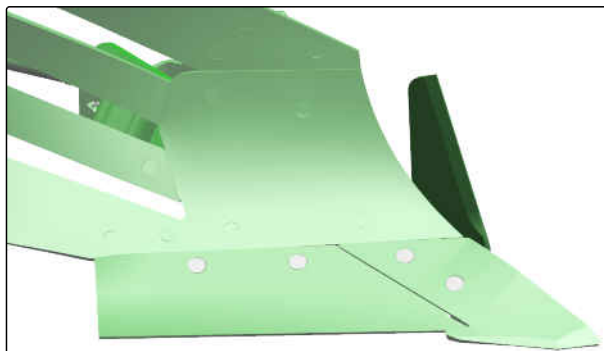
4.16 Landside coulters

CMS-T-00006963-D.1

The landside coulters can be mounted on each plough body of the plough or only on the last plough body.

The landside coulters cut a clean furrow on heavy or stony soils, and can replace the disc coulters.

The landside coulters reduce wear on the plough body.



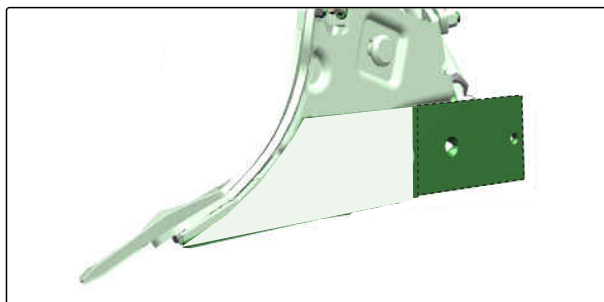
CMS-I-00004876

4.17 Landside protector

CMS-T-00006966-C.1

The landside protector is installed on the landside and increases its service life.

The landside protector gives the plough more secure lateral footing on slopes.

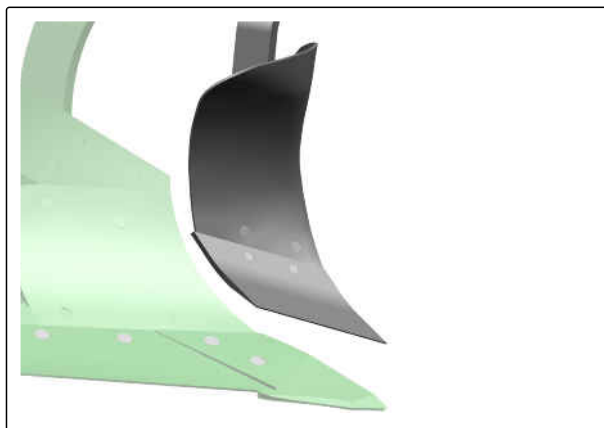


CMS-I-00004882

4.18 Skimmer

CMS-T-00006964-B.1

The skimmer is suitable for ploughing up grassland and for incorporation crop residues.



CMS-I-00004875

4.19 Trashboards

CMS-T-00006965-B.1

Trashboards prevent or reduce clogging.



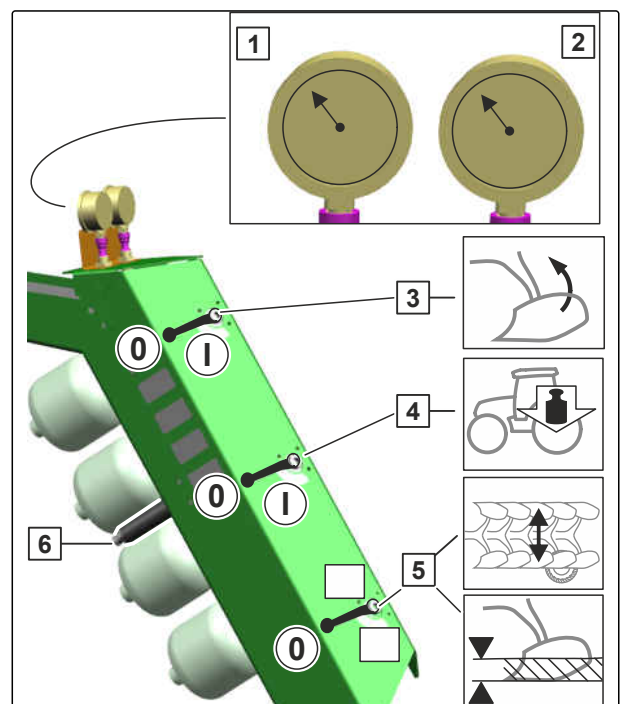
CMS-I-00004874

4.20 Hydraulic operating unit

CMS-T-00006978-A.1



The hydraulic operating unit is controlled via the "blue" hydraulic control device.

- 1** Pressure indication of the traction assistance
- 2** Tripping pressure indication of the overload safety
- 3** Switch tap for the overload safety
- 4** Switch tap for traction assistance
- 5** Switch tap for the running gear
- 6** Adjustment valve for the traction assistance



CMS-I-00004884

Switch tap	Functions	Position
Overload safety	Default setting	0
	Setting the tripping force	1
Traction assistance	De-activated, always for road travel	0
	Activated	1

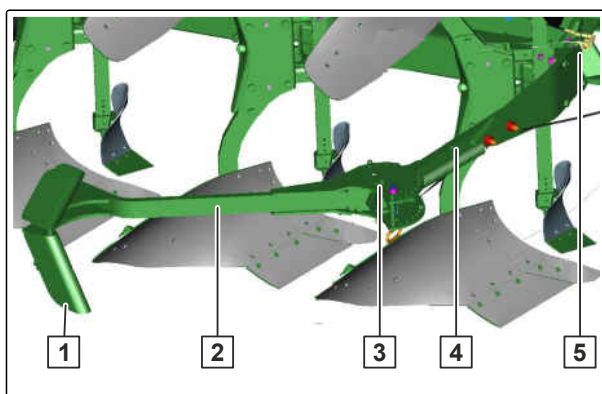
Switch tap	Functions	Position
Running gear	Lifting or lowering the implement	
	Adjusting the working depth	

4.21 Packer arm

CMS-T-00006977-B.1

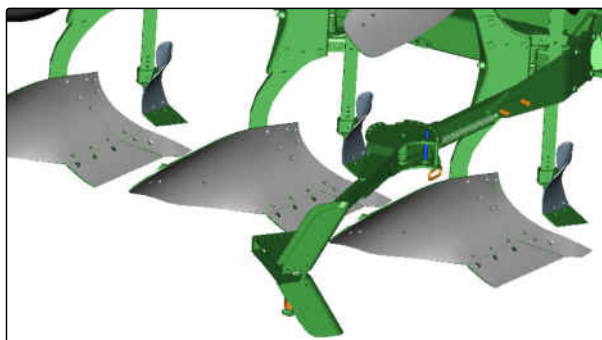
The packer arm picks up the hook linkage of the packer roller.

- 1** Packer catch hook with guidance and hydraulic release device
- 2** Packer arm in traction position
- 3** Adjustment bracket
- 4** Packer arm holder
- 5** Hydraulic coupling



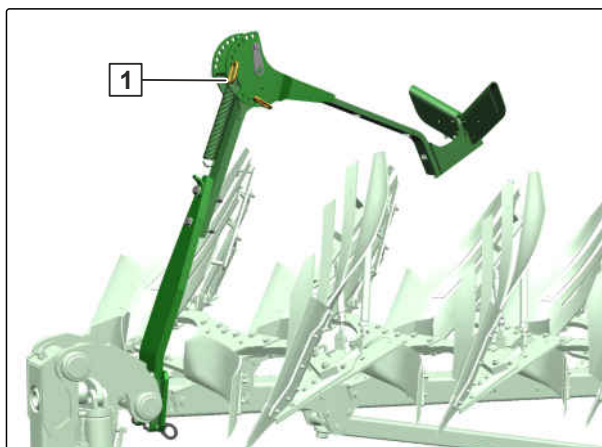
CMS-I-00004894

Packer arm in catch position



CMS-I-00004895

Packer arm in transport position, secured with pin **1**.



CMS-I-00005108

4.22 Threaded cartridge

CMS-T-00001776-E.1

The threaded cartridge contains the following items:

- Documents
- Aids



CMS-I-00002306

Technical data

5

CMS-T-00006517-E.1

5.1 Dimensions

CMS-T-00014003-A.1

	Tyrok 400 OL	Tyrok 400 OL V
Number of shares	6-9	7-9
Longitudinal interbody clearance	100 cm	
Underbeam clearance	80 cm and 85 cm	
Working width	35, 40, 45 or 50 cm per plough body	33 to 55 cm per plough body

5.2 Running gear

CMS-T-00006521-A.1

Wheel size	400/55-22.5
	500/45-22.5
	500/60-22.5 AS

5.3 Permitted mounting categories

CMS-T-00006519-A.1

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

5.4 Optimal working speed

CMS-T-00014005-A.1

6-10 km/h

5.5 Performance characteristics of the tractor

CMS-T-00007162-C.1

Engine rating
147 kW / 200 hp to 294 kW / 400 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

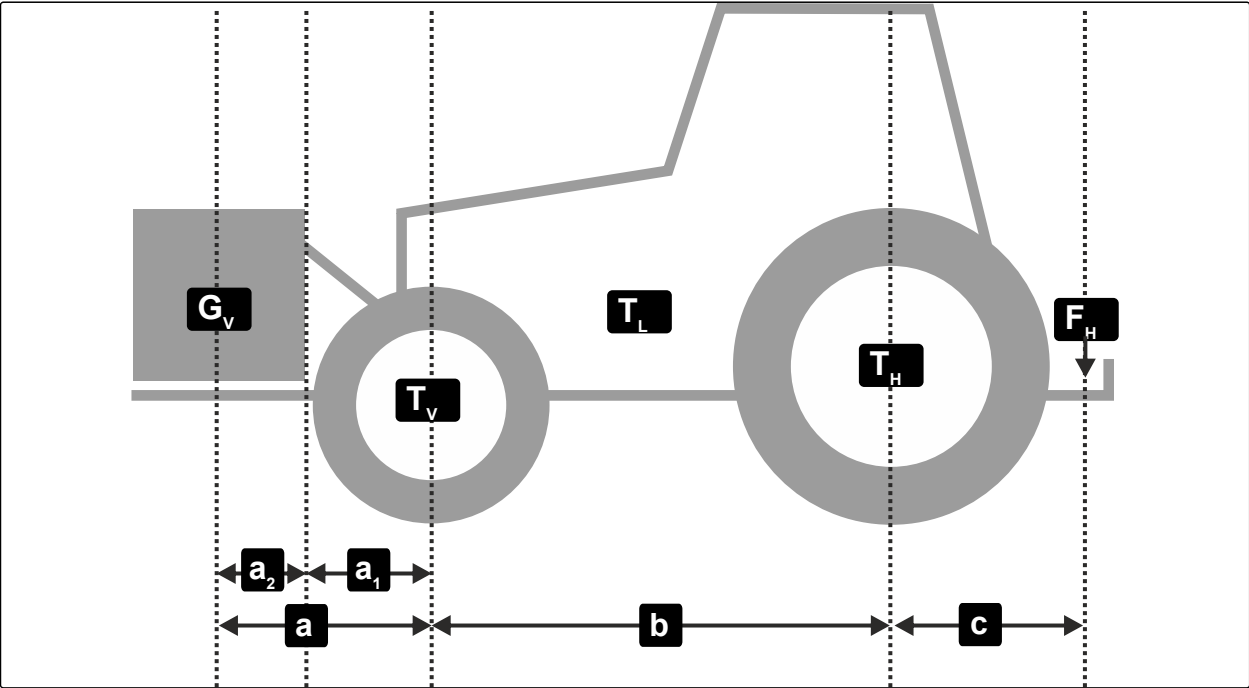
CMS-T-00006523-K.1

6.1 Preparing for initial operation

CMS-T-00009986-F.1

6.1.1 Calculating the required tractor characteristics

CMS-T-00004868-E.1



CMS-I-00000580

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

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

1. Calculate the minimum front ballasting.

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

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

$$G_{\min} = \text{[Input Field]}$$

CMS-I-00003504

2. Calculate the actual front axle load.

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

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

$$T_{Vtat} = \text{[Input Field]}$$

CMS-I-00005422

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

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

$$G_{tat} =$$

$$G_{tat} =$$

CMS-I-00006344

4. Calculate the actual rear axle load.

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

$$T_{Htat} =$$

$$T_{Htat} =$$

CMS-I-00000514

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



IMPORTANT

Danger of accident due to implement damage caused by excessive loads

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

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

6.1.2 Preparing the tractor

CMS-T-00009557-C.1

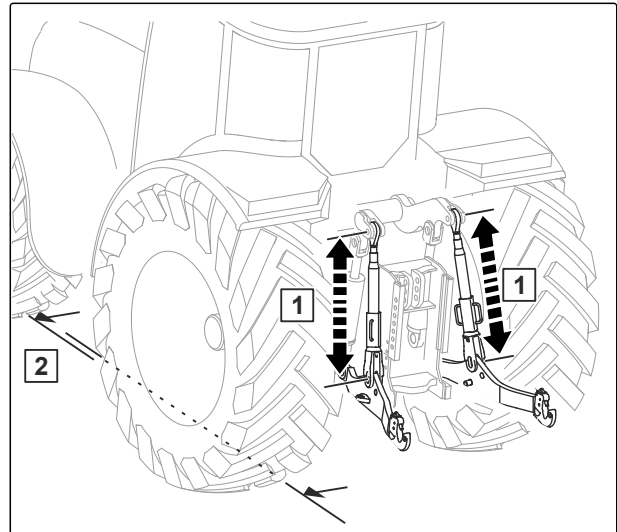
For optimum work results, prepare the tractor for plough operation.

1. Select a tractor on which the track width **2** at the front and rear differs by no more than 10 cm.
2. Select a tractor on which the lower links run apart in a V-shape when the plough is mounted.
3. Adjust the tyre inflation pressure of the front wheels equally on both sides.
4. Adjust the tyre inflation pressure of the rear wheels equally on both sides.



NOTE

The required tyre load capacity must be ensured.



CMS-I-00006537

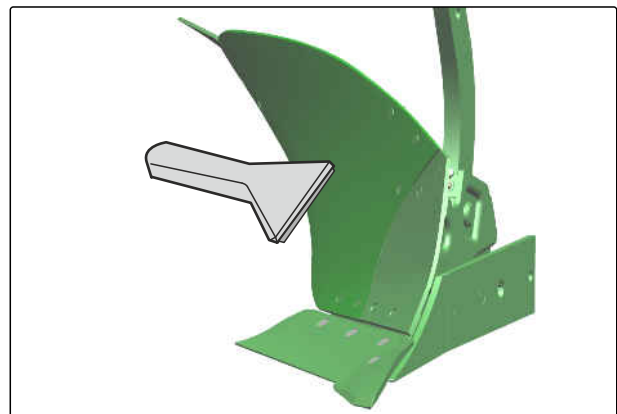
5. Adjust the lifting struts **1** to the same length.
6. Switch off the front axle suspension if possible.

6.1.3 Removing the protective varnish

CMS-T-00005238-B.1

The paint scraper can be found in the threaded cartridge.

- Before initial operation of the implement, remove the protective varnish from the plough bodies using the paint scraper.



CMS-I-00003763

6.1.4 Activating the central overload safety

CMS-T-00009190-C.1

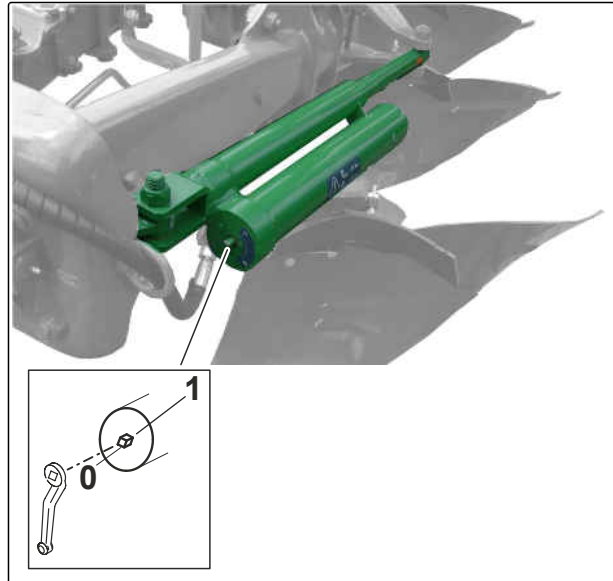


WARNING

Risk of injury due to components under high pressure being thrown

- Open the bolted connection on the hydraulic accumulator up to a maximum of 180°.

1. Take the hand lever out of the document box.
2. Put the hand lever on the hydraulic accumulator.
3. *To activate the overload safety:* turn the hand lever by 180°.
4. Put the hand lever in the document box.



CMS-I-00004743

6.1.5 Configuring the operating hours counter

CMS-T-00009558-A.1

To enter the start command "222", perform the steps within 3 seconds.

Otherwise, wait for at least 5 seconds and repeat the entry.

1. Hold the supplied magnet over the activation area until a display appears.

➔ The first digit shown will be a "2".

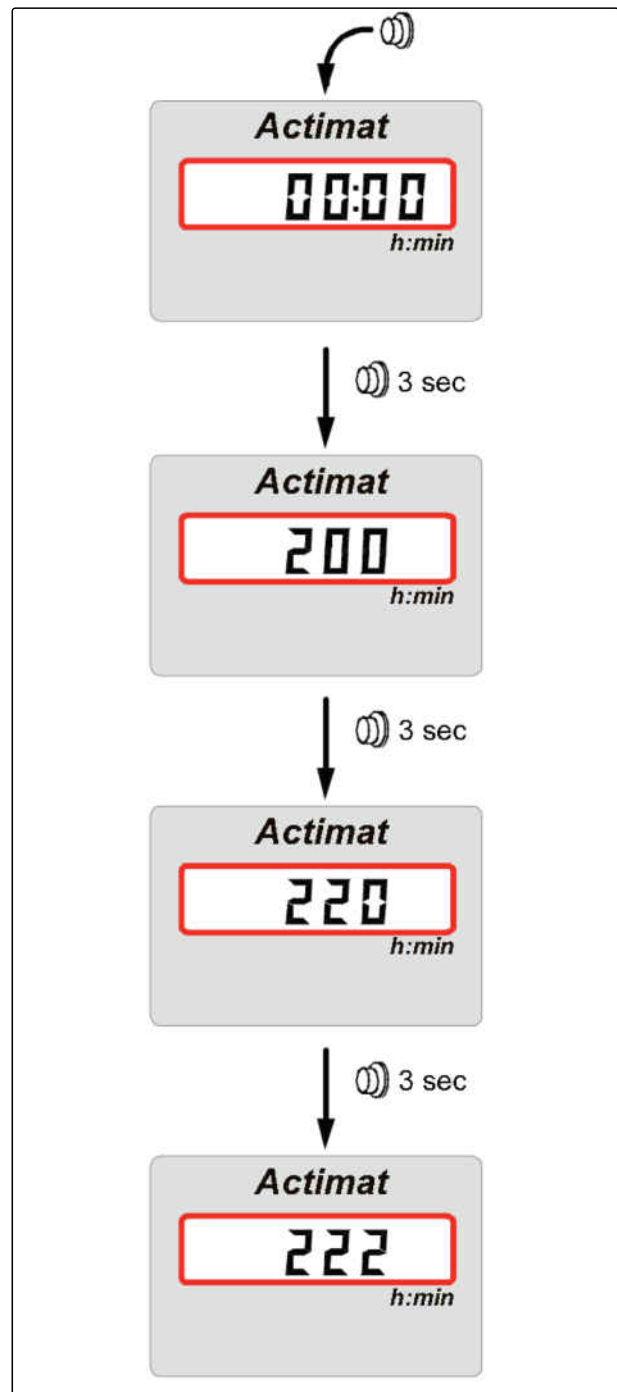
2. Briefly remove the magnet and hold it back on the area.

➔ The second digit shown will be a "2".

3. Briefly remove the magnet and hold it back on the area.

➔ The third digit shown will be a "2".

➔ The display changes to time counting mode. The device is ready for operation.



CMS-I-00006538

6.1.6 Adjusting the setting range of the front furrow width to the tractor inner track width

CMS-T-00013721-B.1

To be able to use the entire range of the possible front furrow width for tractors with large inner track widths, install the stabiliser **1** in Position A.

To be able to use the entire range of the possible front furrow width for tractors with small inner track widths,

6 | Preparing the machine

Coupling the implement

install the stabiliser **1** in Position B. Installation position B is set at the factory.



REQUIREMENTS

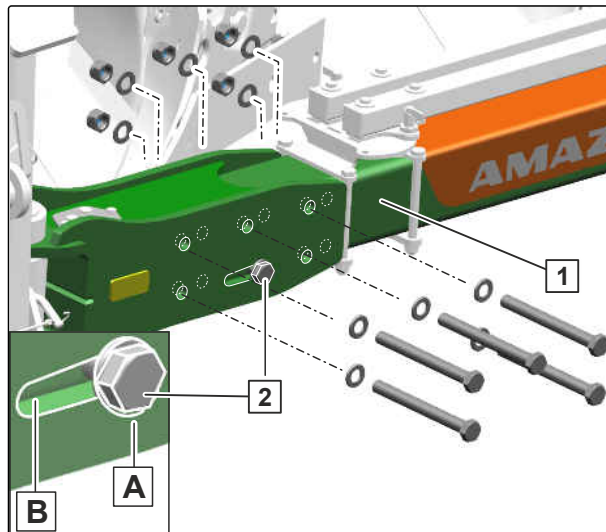
- ✓ The implement is coupled to the tractor
- ✓ The implement is parked on the shares

1. Loosen the bolt **2**.
2. Loosen and remove the 5 other bolts.
3. *To install the stabiliser in Position A:*
Carefully drive the tractor in reverse by 7 cm

or

To install the stabiliser in Position B:
Carefully drive the tractor forwards by 7 cm

4. Tighten the bolts **2** with 800 Nm.
5. Install and tighten the 5 other bolts.



CMS-I-00008542

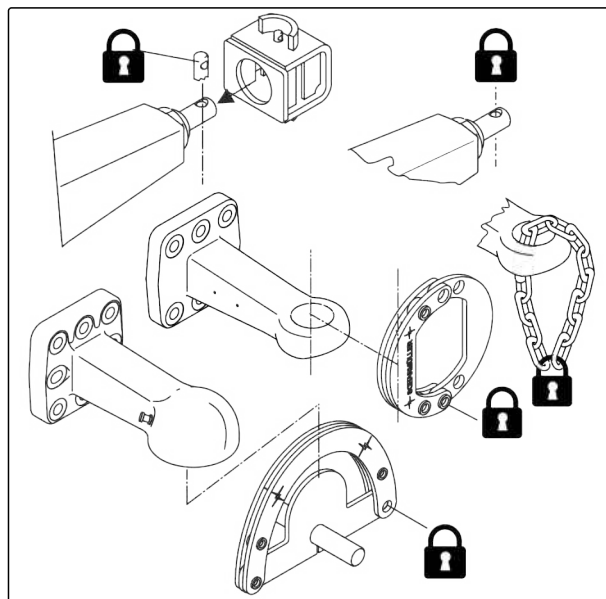
6.2 Coupling the implement

CMS-T-00006484-I.1

6.2.1 Removing the safety device against unauthorised use

CMS-T-00005089-B.1

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



CMS-I-00003534

6.2.2 Preparing the headstock

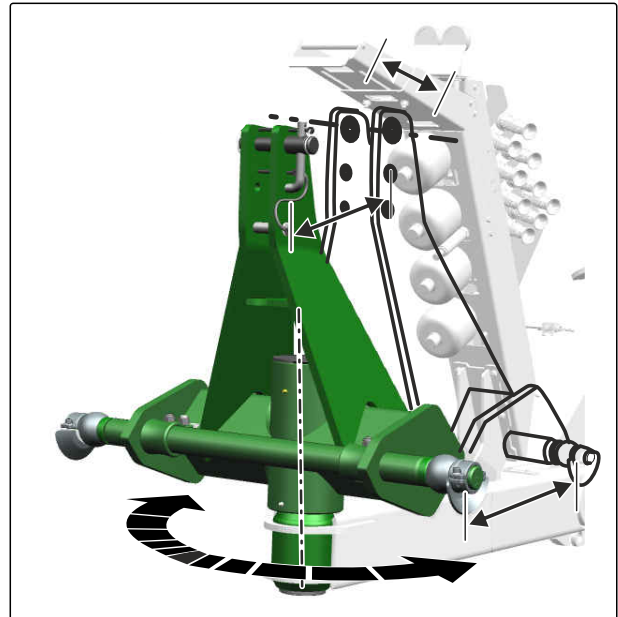
CMS-T-00007428-D.1

The machine can be coupled in two different positions.

1. *For more manoeuvrability*
turn headstock forward.

or

to improve the pull line and reduce lateral pull,
turn headstock to the rear.
2. Adapt hose routing.



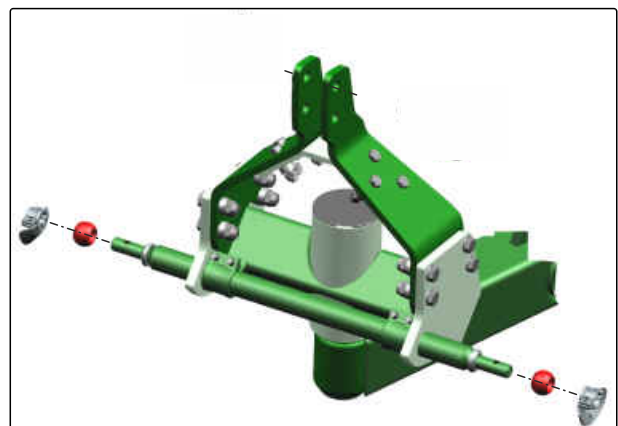
CMS-I-00005119

6.2.3 Coupling the lower link

CMS-T-00006986-B.1

REQUIREMENTS

- ✓ Lower links are laterally locked
1. Put the ball sleeve on the lower link pin.
 2. Put the catch profile on the lower link pin and secure it.

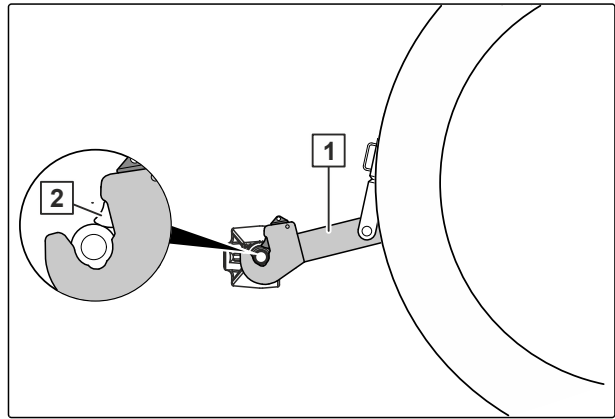


CMS-I-00004900

6 | Preparing the machine

Coupling the implement

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



CMS-I-00003346

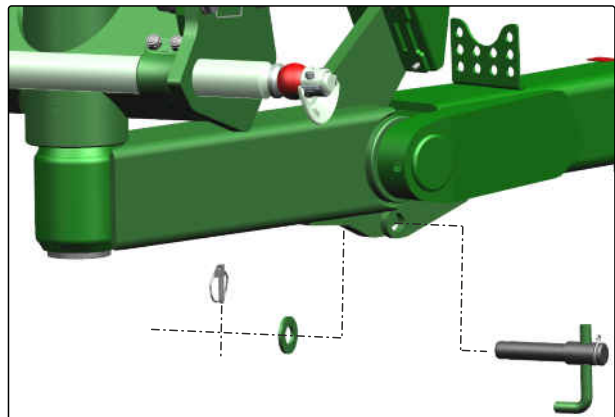
6.2.4 Coupling the top link

1. Take top link pin out of the headstock support.



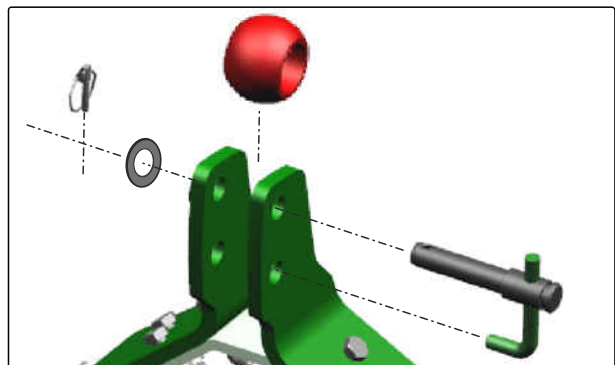
NOTE

Select the coupling point such that tractor top link and tractor lower link are as parallel as possible.



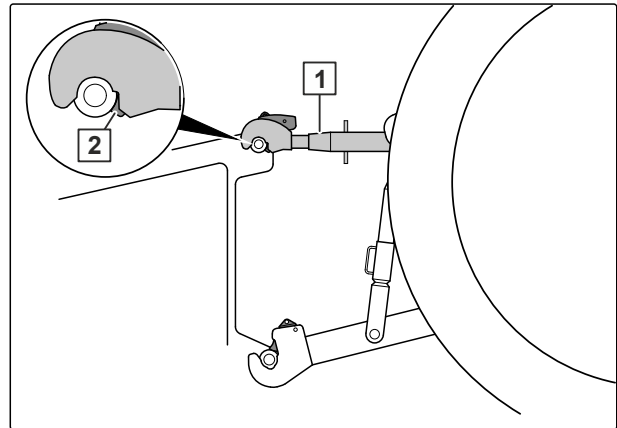
CMS-I-00004899

2. Attach top link pin with the ball sleeve on the upper coupling point.
3. Secure the top link pin with the linch pin.



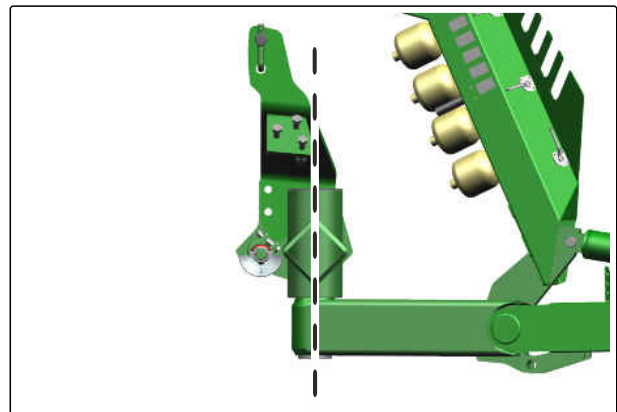
CMS-I-00004898

4. Couple the top link **1**.
5. Check whether the top link catch hooks **2** is correctly locked.



CMS-I-00003706

6. Adjust the upper link length such that the universal joint is vertical.
- ➔ Universal joint is vertical.
7. Lift the implement via the three-point mounting frame.

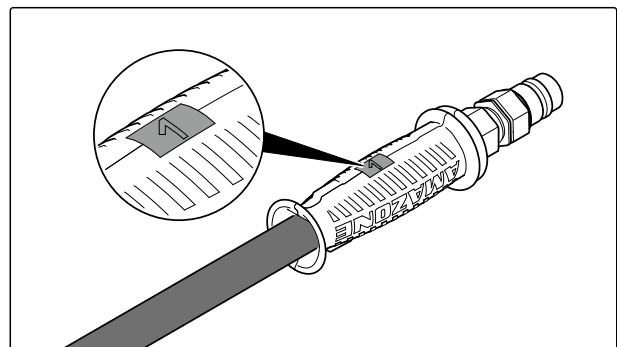


CMS-I-00004897

6.2.5 Coupling the hydraulic hose lines

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





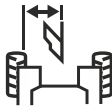










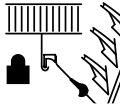

The tractor control unit is used with different types of actuation, depending on the hydraulic function:




CMS-T-00006554-F.1

CMS-I-00000121

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

Designation		Function				Tractor control unit	
Green			Plough turn-over		Right	Double-acting	
	Left						
Yellow			Front furrow width		Greater	Double-acting	
	Smaller						
Red			Working width		Greater	Double-acting	
	Smaller						
Blue						Double-acting	
		Tripping pressure of the overload safety	Adjusting the working depth	Lifting the implement			
			Adjusting the traction assistance				
Beige			Unlock the packer arm		Single-acting		



WARNING

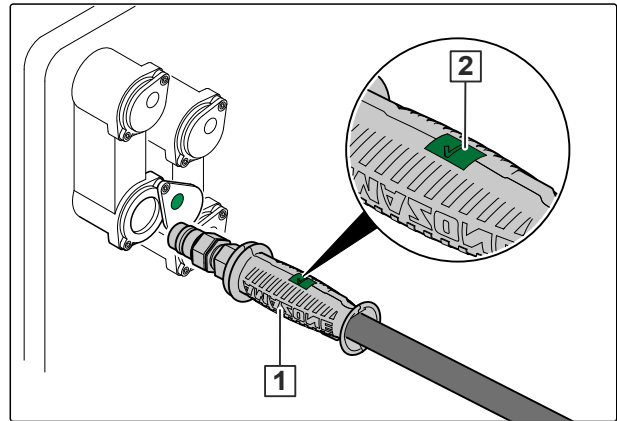
Risk of injury or even death

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

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

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

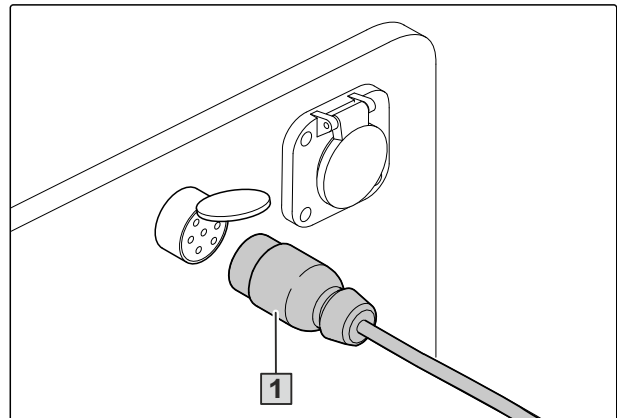
3. Couple the hydraulic hose lines **1** to the hydraulic sockets of the tractor according to the label **2**.
- ➔ The hydraulic plugs lock perceptibly.
4. Route the hydraulic hose lines with sufficient freedom of movement and without chafing points.



CMS-I-00001045

6.2.6 Coupling the power supply

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



CMS-I-00001048

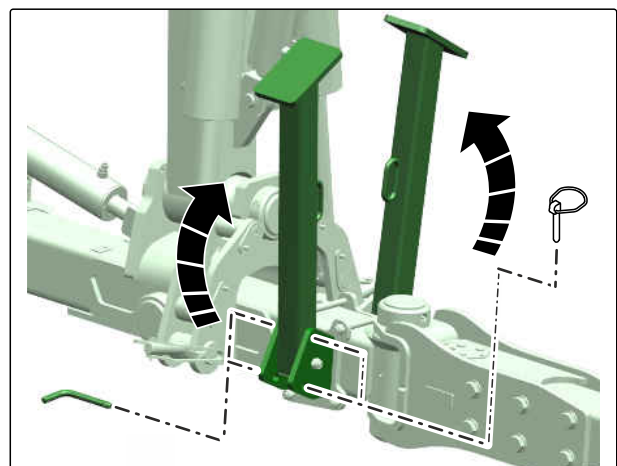
6.2.7 Moving the parking supports into parking position

CMS-T-00006486-E.1

REQUIREMENTS

- ☑ The implement is equipped with 4 parking supports.

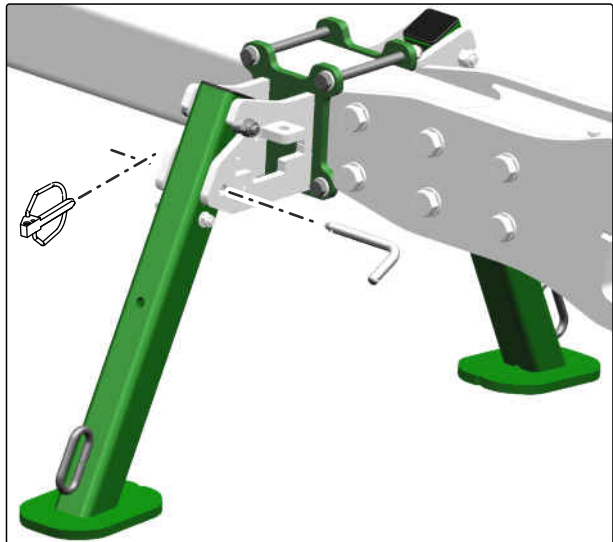
1. Hold the front parking support on the handle.
2. Pull out the pin.
3. Lift the parking support.
4. Secure the parking support with the pin.
5. Secure the pin with the linch pin.
6. Repeat the procedure on the second front parking support.



CMS-I-00004896

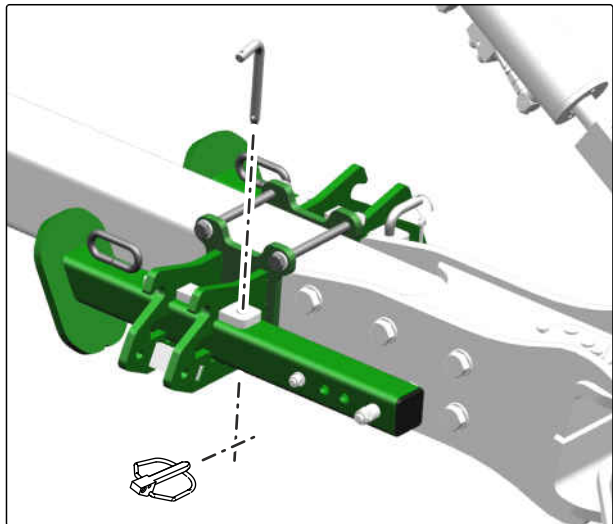
6 | Preparing the machine Coupling the implement

7. Pull out the pin.
8. Take the rear parking support out of the mount.



CMS-I-00008645

9. Slide the rear parking support into parking position from the front.
10. Secure the parking support with the pin.
11. Secure the pin with the linch pin.
12. Repeat the procedure on the second rear parking support.

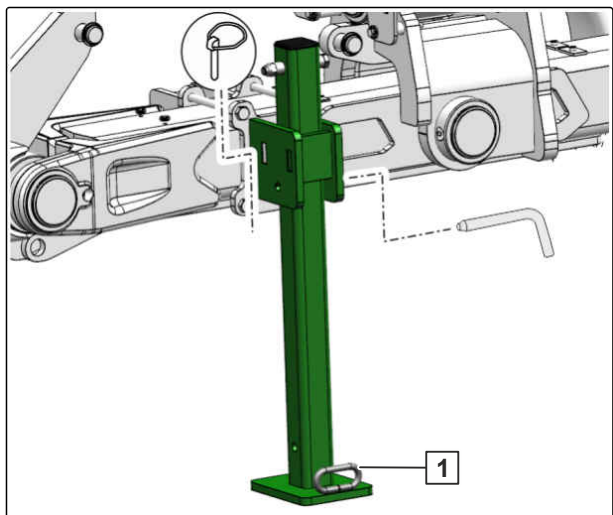


CMS-I-00008644

6.2.8 Lifting the parking support

1. Hold the parking support by the handle **1**.
2. Pull out the pin.
3. Lift the parking support.
4. Secure the parking support with the pin.
5. Secure the pin with the linch pin.

CMS-T-00013722-A.1



CMS-I-00008543

6.2.9 Swivelling the plough body into transport position

CMS-T-00006485-D.1

REQUIREMENTS

- ☉ The implement is in working position

1. Move switch tap for the running gear into position



2. *To lift the implement with the running gear,*
Actuate the "blue" tractor control unit.

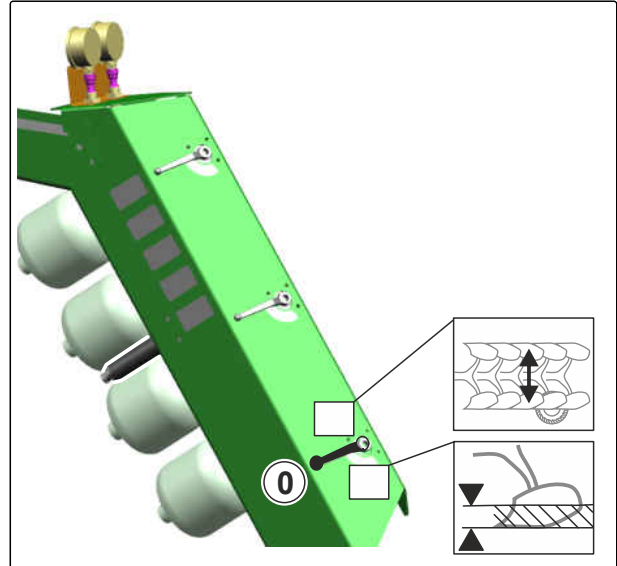
3. Lift implement via the tractor lower link.

4. *To swivel the plough bodies into transport position:*
Actuate the "green" tractor control unit.

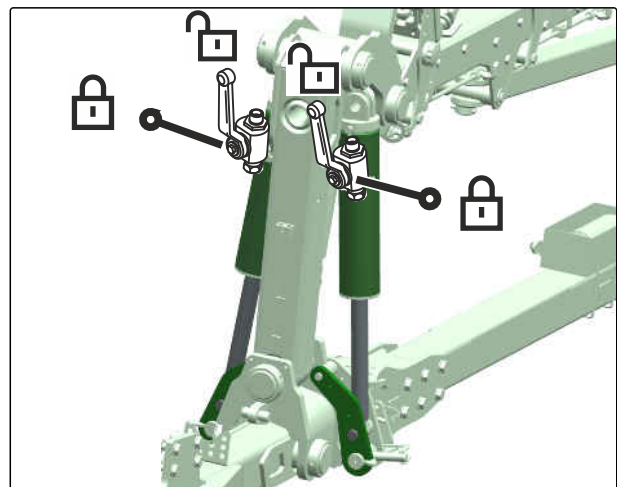
5. *To lower the implement slightly for road transport:*
Actuate the "blue" tractor control unit.

6. Bring switch tap for the running gear into position "0".

7. Close the stop taps of the turning cylinders.



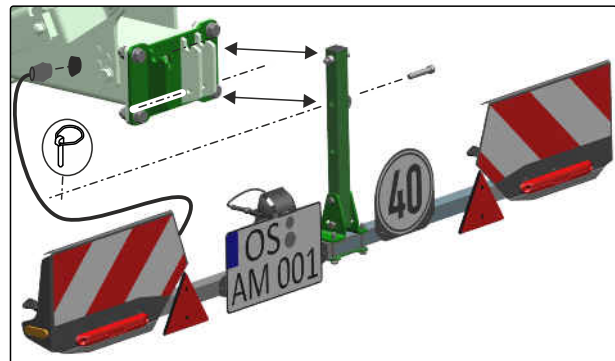
CMS-I-00004905



CMS-I-00004907

6.2.10 Installing the rear lighting

1. Place the rear lighting in the device.
2. Fix the rear lighting with the pin and secure.
3. Insert the plug for the power supply into the socket.



CMS-T-00005198-C.1

CMS-I-00003730

6.3 Preparing the implement for operation

CMS-T-00006524-J.1

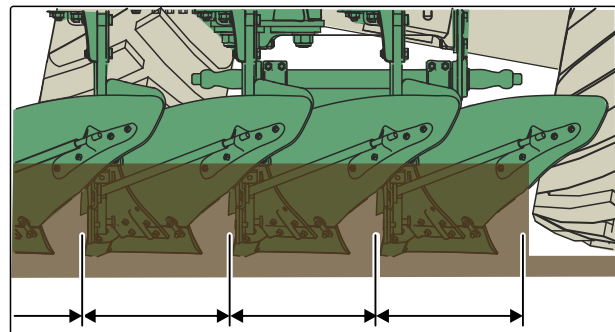
6.3.1 Manual adjustment of the working width of the plough bodies

CMS-T-00006527-C.1



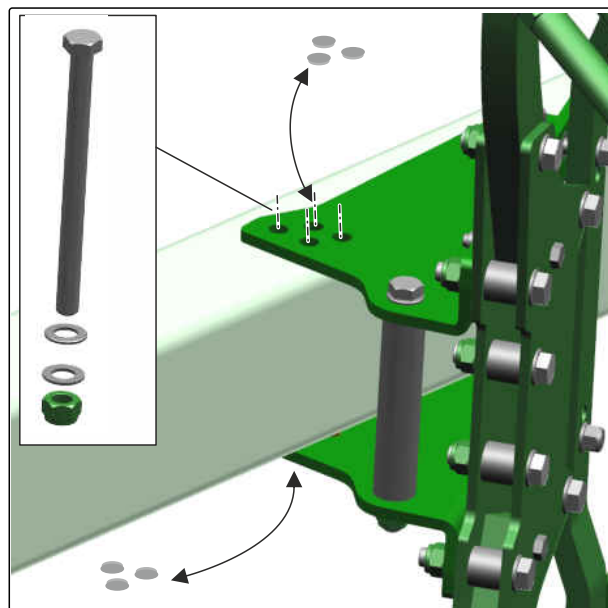
REQUIREMENTS

- ☑ The implement is in working position
1. The working width must be adjusted separately on each pair of plough bodies.



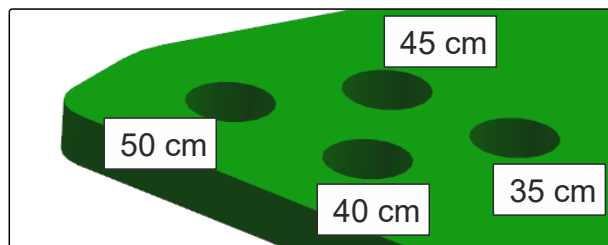
CMS-I-00002675

2. *To slightly lift the implement,*
Actuate the "blue" tractor control unit.
3. Unscrew and take out the threaded union.
4. Remove caps from the screw holes.

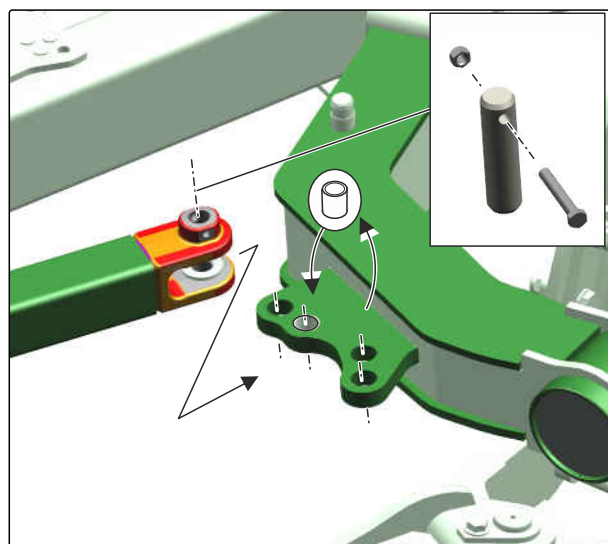


CMS-I-00004911

5. Select the working width on the plough leg carrier via the screw hole.
6. Reinsert the bolt in the selected screw hole and tighten it.
7. Re-attach the caps on the screw holes.
8. Repeat the procedure for all of the plough body pairs.
9. Take out the pin of the running gear working width adjustment element.
10. Take out the bushing.



CMS-I-00004910

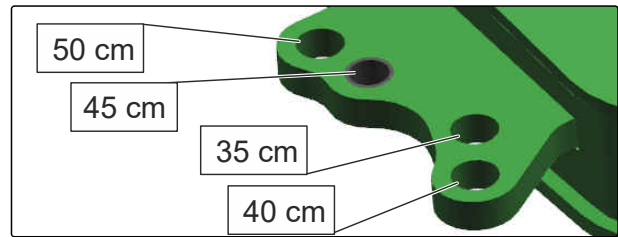


CMS-I-00004909

6 | Preparing the machine

Preparing the implement for operation

11. Select working width on the running gear via the peg hole.
12. Insert the bushing in the peg hole.
13. With the pin, peg the strut in the selected peg hole.



CMS-I-00004908



TROUBLESHOOTING

Is the peg hole visible?

1. To use the selected peg hole, if necessary move the coupled implement slightly forward or back.

14. Secure pin with threaded union.

6.3.2 Manual adjustment of the plough body working depth

CMS-T-00006525-E.1

The working depth of the plough bodies is adjusted via the height of the tractor lower link and via the running gear wheel.

Spacer elements of different thickness are available for adjustment. The set working depth can be read-out on the last spacer element. The scale values do not show the working depth in cm.

Spacer element colour	Changing of the working depth	
Green	+/- 3 cm	
Yellow	+/- 5 cm	
Black	+/- 10 cm	



REQUIREMENTS

- ☑ The implement is in working position
- ☑ Frame is aligned parallel to the ground surface with the plough bodies

1. *To lift the implement via the running gear wheel:*

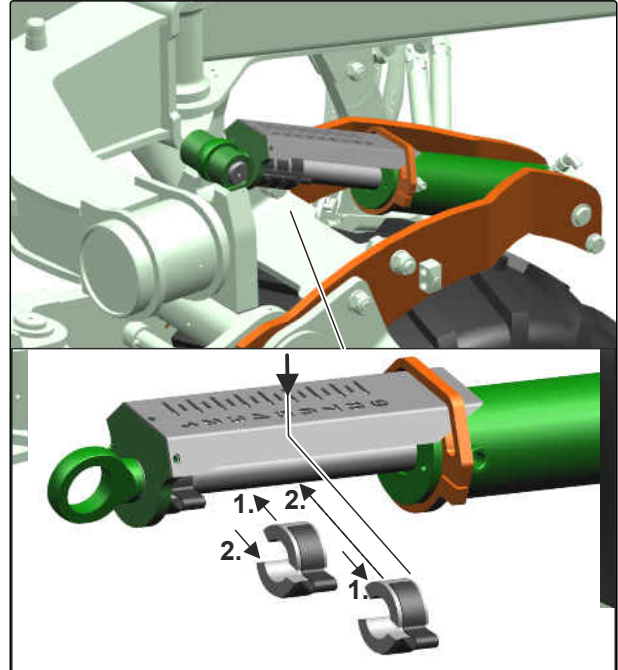
Actuate the "blue" tractor control unit.

2. Take the required spacer elements out of the transport box.
3. Put spacer elements on the piston rod, starting from the end of the piston rod

or

Take spacer elements off of the piston rod, starting from the cylinder side.

4. Check the set working depth when working.
5. Re-adjust if necessary.



CMS-I-00004913

6.3.3 Preparing the disc coultter for operation

CMS-T-00006529-D.1

6.3.3.1 Adjusting the working depth of the disc coultter

CMS-T-00007005-B.1



REQUIREMENTS

- ☑ The implement is in working position

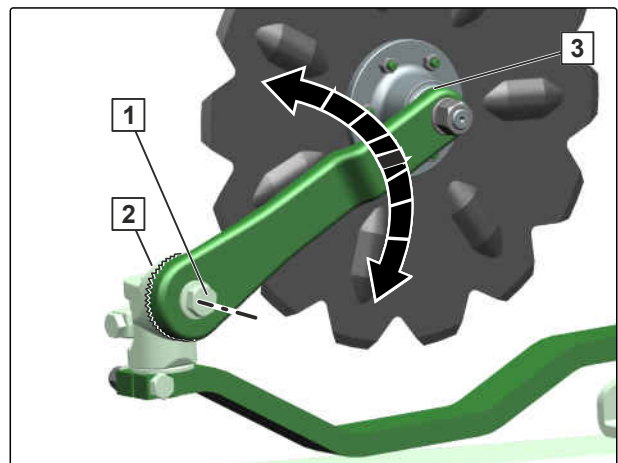


IMPORTANT

Risk of damage to the hub due to excessive working depth

- ▶ Do not allow the hub of the disc coultter to sink into the soil.

1. Loosen the bolt **1** until the teeth **2** are released. At the same time, hold the disc coultter by the bearing journal **3**.
2. Swivel the disc coultter up or down.
3. Retighten the bolted connection.



CMS-I-00004928

6 | Preparing the machine

Preparing the implement for operation

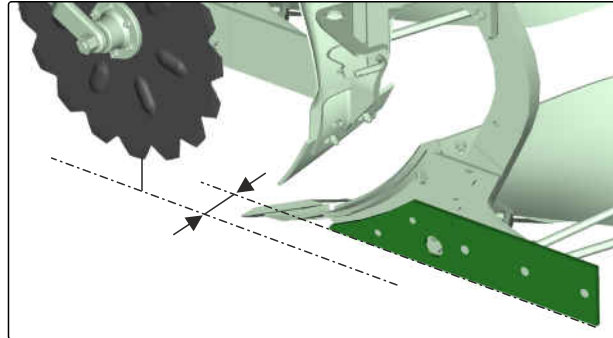
4. Check that the teeth are properly seated.
5. Adjust both disc coulters at the same working depth.

6.3.3.2 Adjusting the lateral distance of the disc coulters

The disc coulters run parallel to the plough body landside.

The lateral distance from the disc coulters to the plough body landside is 1 to 3 cm.

CMS-T-00007006-D.1

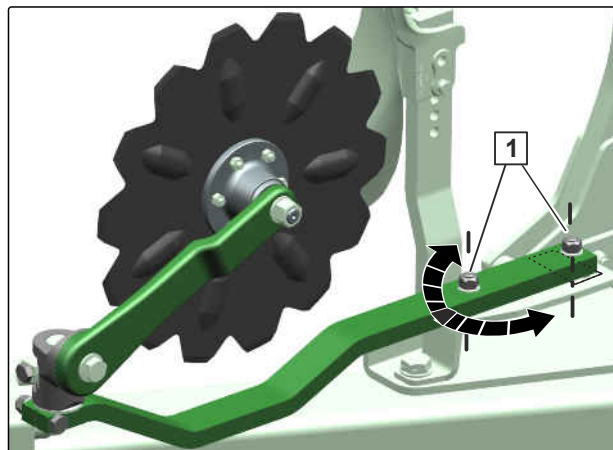


CMS-I-00003712



REQUIREMENTS

- ✓ The implement is in working position
1. Loosen the nuts **1** on the disc coulters holder.
 2. Turn the disc coulters.
 3. Retighten the nut.
 4. Adjust the disc coulters equally on both sides.



CMS-I-00004926

6.3.3.3 Adjusting the swivelling range of the disc coulters

CMS-T-00007007-B.1

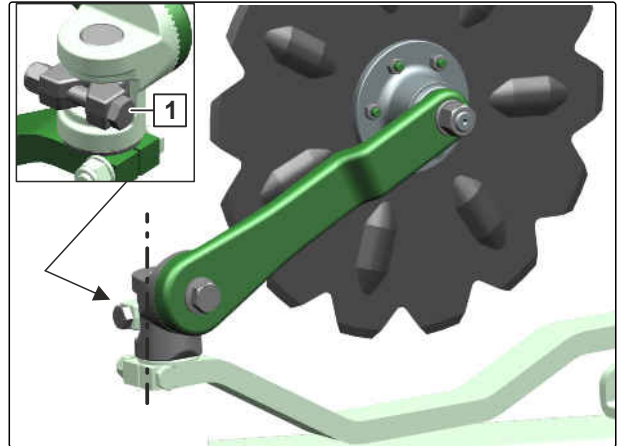
The disc coulters can turn freely around its vertical axis within the adjusted range.



REQUIREMENTS

- ☑ The implement is in working position

1. Loosen the bolt **1**.
 2. Turn the stop so that the disc couler runs parallel to the plough body landside.
- ➔ The disc couler can deflect and does not collide with the skimmer.
3. Tighten the bolt.



CMS-I-00004925

6.3.4 Preparing the skimmers for operation

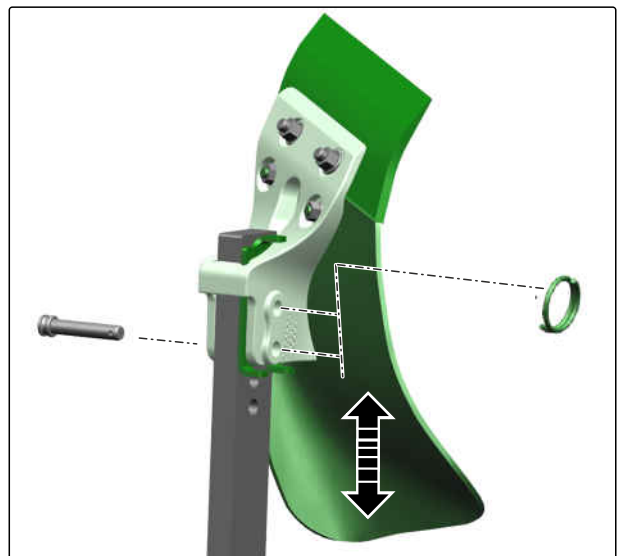
CMS-T-00006526-D.1

6.3.4.1 Adjusting the working depth of the skimmers

CMS-T-00007384-B.1

The working depth of the skimmers is 1/3 of the working depth of the plough bodies.

1. Pull the pin and hold the skimmer.
2. Adjust the working depth.
3. Insert the pin and secure with a locking ring.
4. Adjust all skimmers to the same working depth.



CMS-I-00005160

6.3.4.2 Adjusting the overlap of the skimmers

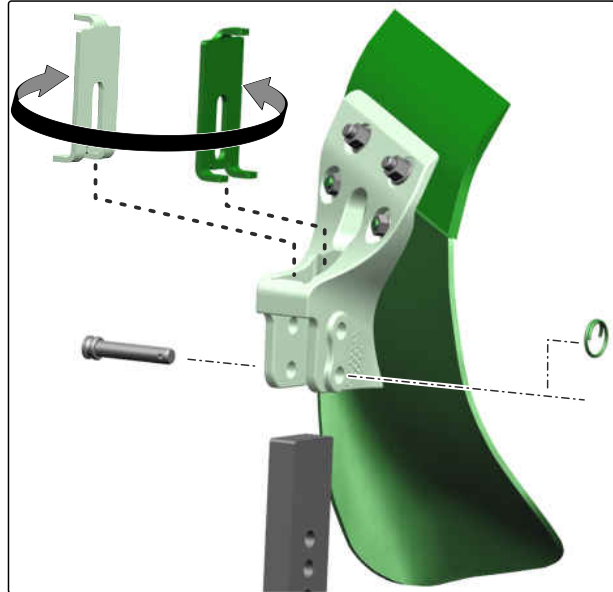
CMS-T-00007385-C.1

The overlap is a measurement with which the skimmer works in front of the plough body.

6 | Preparing the machine

Preparing the implement for operation

1. Pull the pin and hold the skimmer.
 2. Remove the skimmer upwards.
 3. Turn the setting plate by 180° and place it on the other side of the skimmer bracket.
- ➔ The overlap increases or decreases by 6 mm.
4. Fasten the skimmer with the pin and secure with the locking ring.



CMS-I-00005159

6.3.5 Setting the tripping force for the central overload safety

CMS-T-00007001-D.1



REQUIREMENTS

- ✓ The implement is coupled.
- ✓ "Blue" hydraulic connection is coupled.



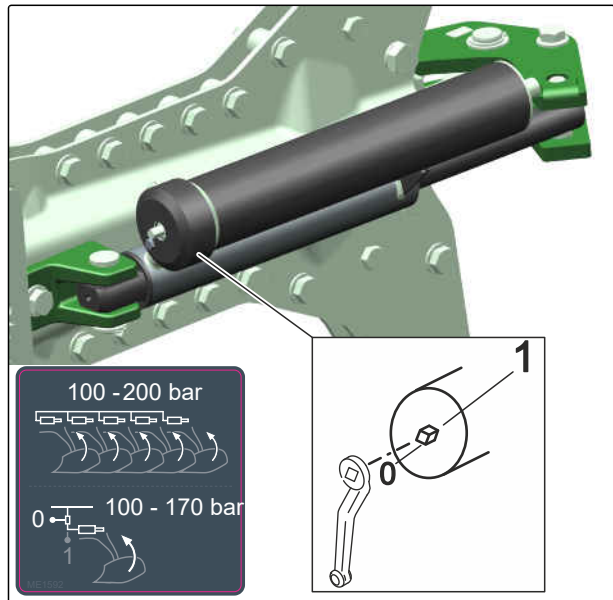
WARNING

Risk of accident due to the plough bodies with overload safety falling down

When you depressurise the hydraulic overload safety, the plough bodies fall out of their mount.

- ▶ Select a preload of at least 100 bar for the overload safety.
- ▶ Always maintain pressure on the overload safety.

1. Ensure that all hydraulic accumulators on the plough bodies are opened in position "1".



CMS-I-00004923

2. Move the switch tap of the running gear to position "0".
3. Move the switch tap of the overload safety to position "1".
4. *To set the tripping force of the hydraulic overload safety simultaneously for all plough bodies,*
Actuate the "blue" tractor control unit.
5. Select preload between 100 bar and 200 bar.
➔ Default value: 120 bar.
6. Move the switch tap of the overload safety to position "0".

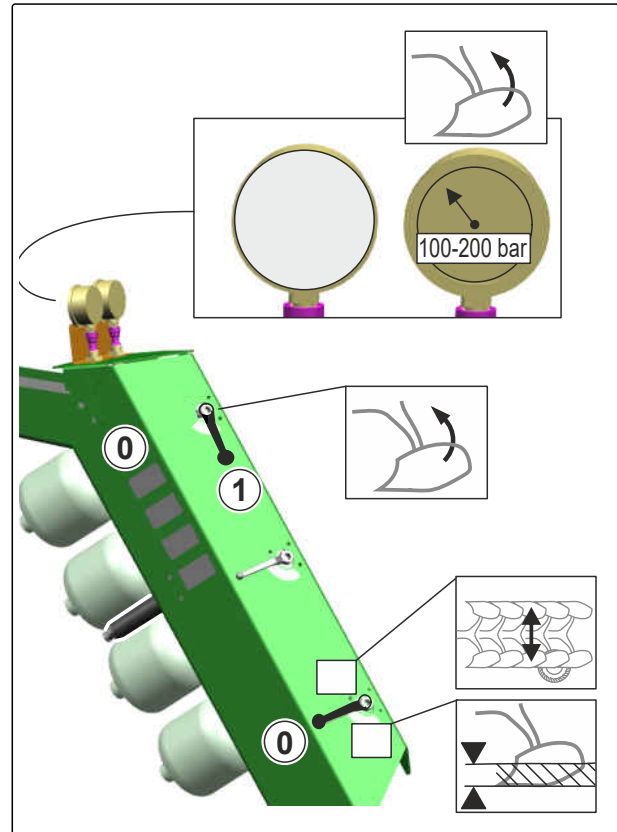
NOTE

To increase operational reliability, the hydraulic accumulator on each coulter body can be closed with the hand lever. Central adjustment of the preload is then no longer possible.

By closing individual hydraulic accumulators, the tripping force can be adjusted differently on the coulter bodies.

Preload individual closed hydraulic accumulators with a maximum of 170 bar.

The hand lever is in the transport box.



CMS-I-00004924

6.3.6 Adjusting the tripping force of the decentralised overload safety



REQUIREMENTS

- ✓ The implement is coupled.
- ✓ "Blue" hydraulic connection is coupled.



WARNING

Risk of injury due to components under high pressure being thrown

- ▶ Open the bolted connection on the hydraulic accumulator up to a maximum of 180°.

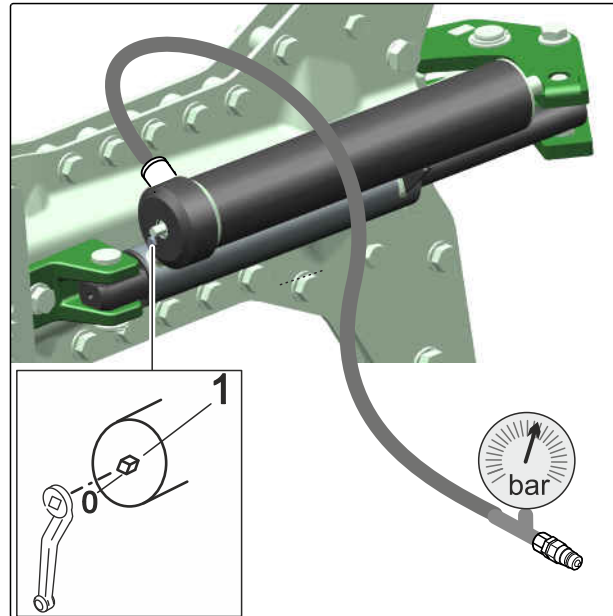


WARNING

Risk of accident due to the plough bodies with overload safety falling down

When you depressurise the hydraulic overload safety, the plough bodies fall out of their mount.

- ▶ Select a preload of at least 100 bar for the overload safety.
- ▶ Always maintain pressure on the overload safety.



CMS-I-00004922

1. Couple hydraulic operating unit **1** on tractor control unit.
2. Connect the hydraulic operating unit to the hydraulic accumulator of the overload safety.
3. Take hand lever out of the tool box and fit it on the hydraulic accumulator.
4. Open the hydraulic accumulator with the hand lever.
5. *To adjust the tripping force of the overload safety for the respective plough body,*
Actuate the "blue" tractor control unit.
6. Select preload between 100 bar and 170 bar.

➔ Default value: 120 bar
7. Close the hydraulic accumulator with the hand lever.

8. Depressurise hydraulic operating unit.
9. Disconnect the hydraulic operating unit from the hydraulic accumulator.
10. Adjust all hydraulic accumulators of the overload safety the same way.
11. Then return the hand lever to the transport box.

6.3.7 Adjusting traction assistance

CMS-T-00007008-B.1

The higher the pressure that is set at activated traction assistance, the more implement weight will be shifted to the tractor's rear axle.

The traction assistance is connected to the running gear hydraulics. Lowering the implement automatically switches on the traction assistance. Lifting the implement switches off the traction assistance.

Traction assistance is switched on when the switch tap is in position "1".

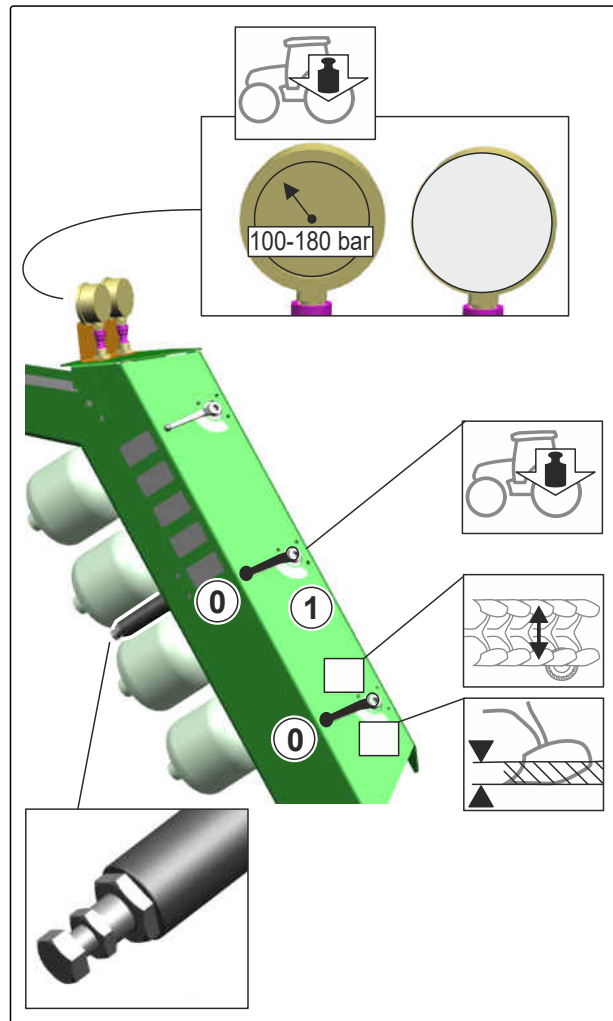
6 | Preparing the machine

Preparing the implement for operation

1. Move the switch tap of the traction assistance to position "1".
2. Unscrew lock nut on the pressure relief valve.
3. *To increase traction assistance,*
further screw in the screw on the pressure relief valve

or

to reduce traction assistance,
further unscrew the screw on the pressure relief valve.
4. *To secure the adjustment,*
Tighten the lock nut.



CMS-I-00004933

Check traction assistance pressure:

5. Move the switch tap of the running gear to



position .

6. *To lift the implement using the running gear,*
Actuate the "blue" tractor control unit.

or

to lower the implement via the running gear,
Actuate the "blue" tractor control unit.

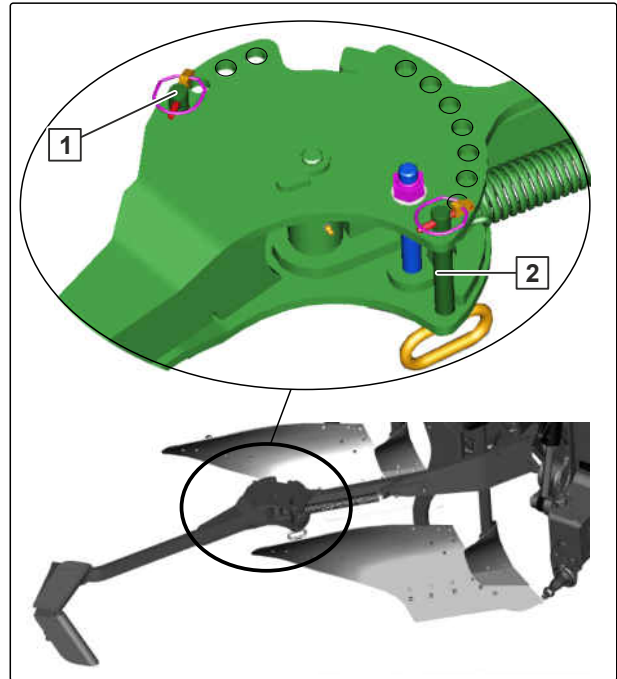
7. Then read-off the set pressure of the traction assistance on the pressure gauge.
8. *To correct the pressure if necessary,*
repeat the adjustments.

6.3.8 Adjusting the packer arm with packer catch hooks

CMS-T-00007009-C.1

On the packer arm, a pin **1** limits the distance of the packer to the plough. Adjustment depends on the width of the packer.

A bolt connection **2** brings the packer catch arm into an optimal position to mount the packer.



CMS-I-00004934

1. Hold packer arm on boom.
2. Pull out the pin.
3. Peg pin at a different position in the hole group.
4. Secure the pin with the linch pin.

6.4 Preparing the machine for road travel

CMS-T-00006475-H.1

6.4.1 Checking the pre-tension of the overload safety

CMS-T-00007469-A.1



WARNING

Risk of accident due to the plough bodies with overload safety falling down

When you depressurise the hydraulic overload safety, the plough bodies fall out of their mount.

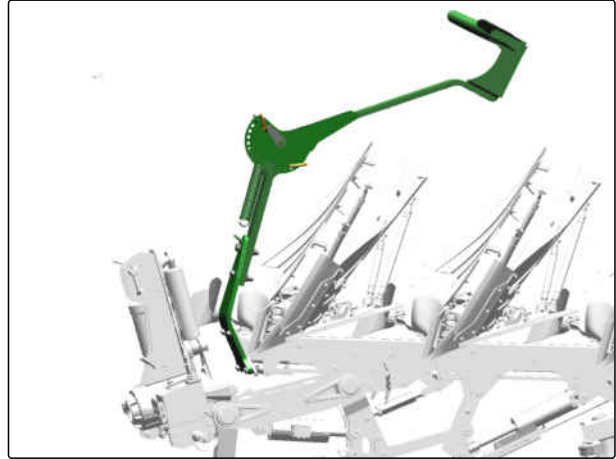
- ▶ Select a pre-tension of at least 100 bar for the overload safety.
- ▶ Always maintain pressure on the overload safety.
- ▶ Keep the stop tap of the hydraulic overload safety closed.

- Maintain the pre-tension on the plough body unit of the overload safety.

6.4.2 Moving the packer arm into transport position

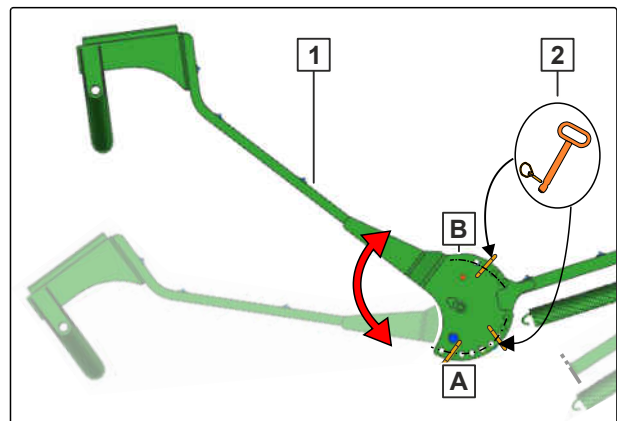
CMS-T-00010177-D.1

Transport position



CMS-I-00006947

1. Take the pin **2** out of the group of holes **B**.
2. Swivel in the packer arm **1** completely.
3. Secure the packer arm free of play with the pin **2** in the hole group **A**.
4. Secure the pin with the linch pin.



CMS-I-00004937

6.4.3 Swivelling the plough body into transport position

CMS-T-00006476-C.1

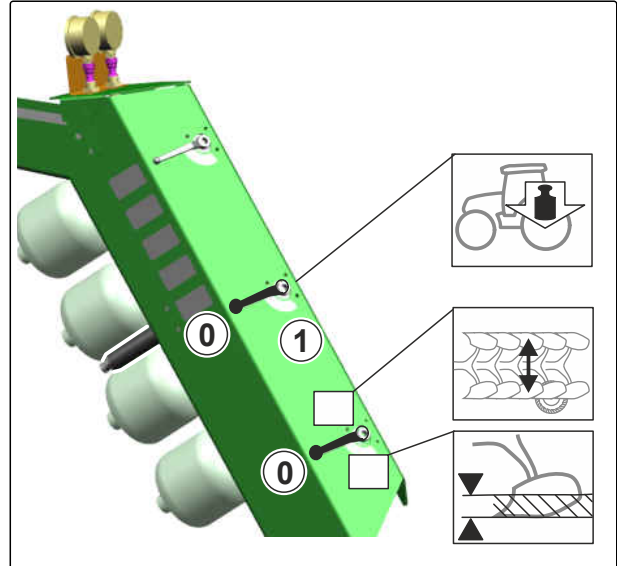
REQUIREMENTS

- ☑ The implement is in working position

1. Move the switch tap of the running gear into



2. Lift the implement via the tractor lower link.
3. *To completely lift the implement via the running gear,*
Actuate the "blue" tractor control unit.
4. Move the switch tap of the traction assistance to position "0".
5. *Tyrok V: To set the smallest working width,*
actuate the "red" tractor control unit.
6. *To set the smallest front furrow width,*
actuate the "yellow" tractor control unit.
7. *To swing the plough bodies into transport position,*
Actuate the "green" tractor control unit.
8. *To lower the implement slightly for road travel,*
Actuate the "blue" tractor control unit.



CMS-I-00005155

NOTE

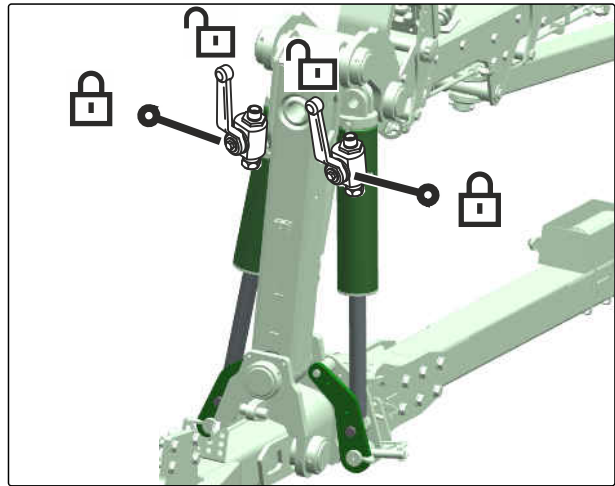
To keep running gear damping active, do not completely lower the implement.

9. Move the switch tap of the running gear to position "0".

6 | Preparing the machine

Preparing the machine for road travel

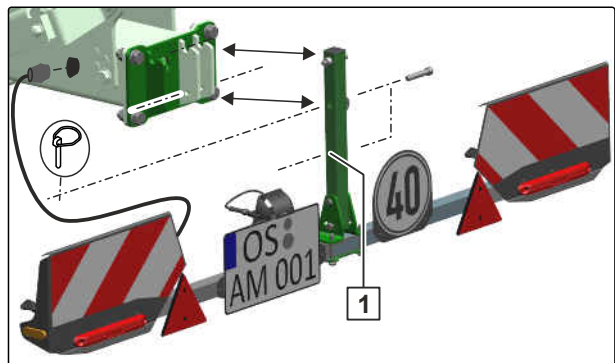
10. Close the stop taps of the turning cylinders.
11. Ensure that the pressure indicator of the traction assistance shows less than 70 bar.



CMS-I-00004907

6.4.4 Installing the rear lighting

1. Place the rear lighting in the device.
2. Take the pin from the parking position **1**.
3. Fix the rear lighting with the pin and secure.
4. Insert the plug for the power supply into the socket.

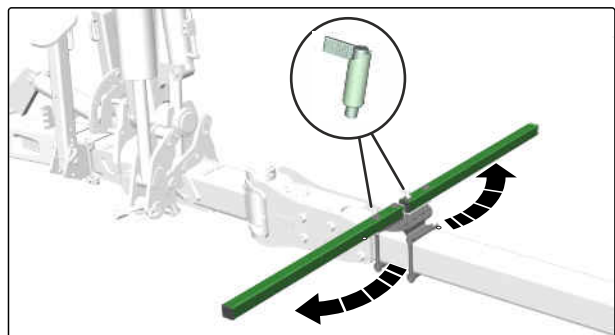


CMS-T-00007402-D.1

CMS-I-00004936

6.4.5 Move front identification into transport position

1. Pull locking pin.
2. Swing front identification to the outside.
3. Ensure locking pin is engaged.



CMS-T-00005199-E.1

CMS-I-00003729

Using the implement

7

CMS-T-00007284-F.1

7.1 Removing the rear lighting

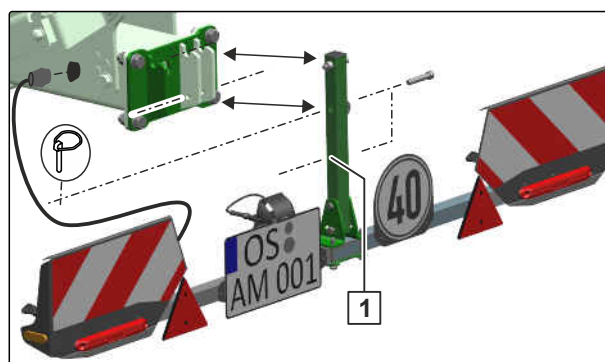
CMS-T-00007026-D.1



IMPORTANT

Risk of implement damage due to collision of components

- *Before you swivel the plough bodies into working position, remove the rear lighting for road travel.*



CMS-I-00004936

1. Pull out the plug for the power supply.
2. Pull out the pin.
3. Insert the pin in parking position **1**.
4. Take the rear lighting out of the device.
5. Store the rear lighting in a suitable place.

7.2 Bring front identification into parking position

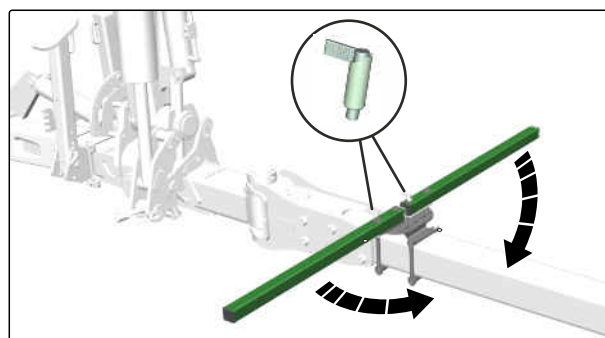
CMS-T-00005194-G.1

1. Pull locking pin.
2. Swing in front identification into parking position.



IMPORTANT Risk of implement damage due to collision of components

- *Before you swivel the plough bodies into working position, remove the rear lighting for road travel.*



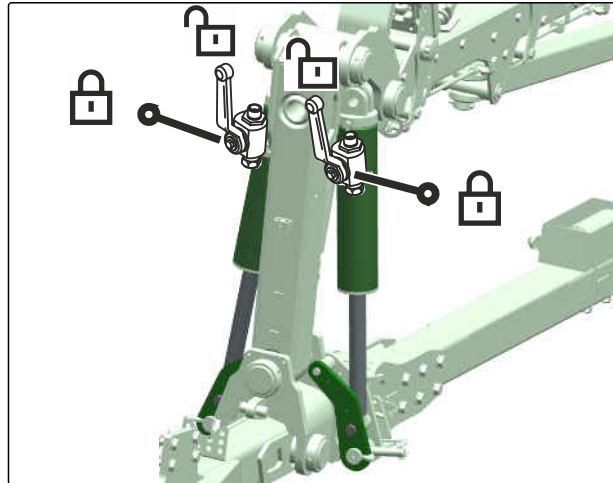
CMS-I-00008697

3. Ensure locking pin is engaged.

7.3 Moving the plough bodies into working position

CMS-T-00006474-D.1

1. Open stop tap of the turning cylinders.



CMS-I-00004907

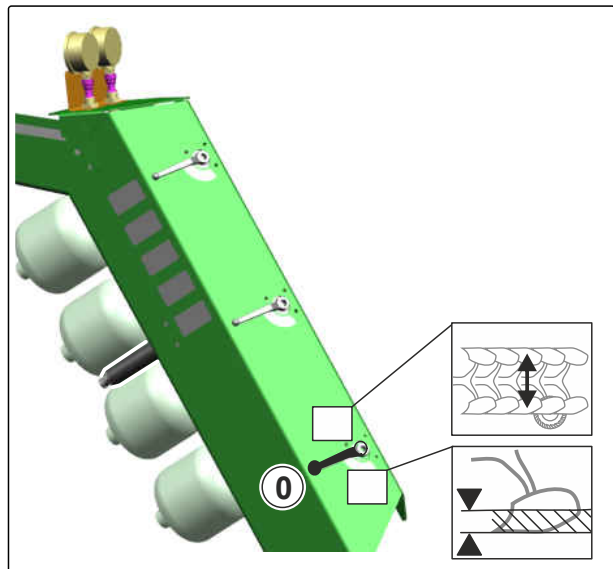
2. Move the switch tap of the running gear into



3. Lift implement via the tractor lower link.
4. *To lift the implement using the running gear:* actuate and hold "blue" tractor control unit.

➔ Pressure of the traction assistance will be dissipated.

5. Observe the pressure display.
6. Actuate the "blue" tractor control unit.
7. *To turn the plough bodies into working position:* Actuate the "green" tractor control unit.



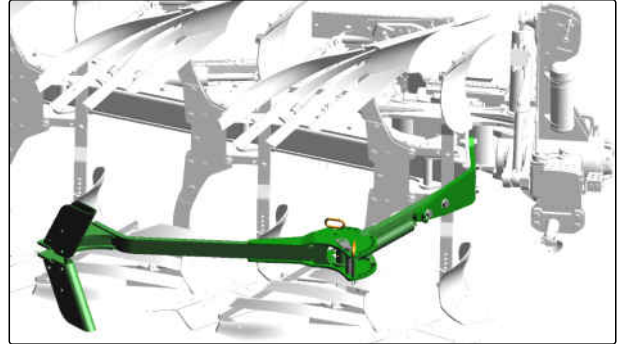
CMS-I-00004905

8. Lower the implement using the tractor's lower links.
9. Bring the tractor control unit "blue" into float position.
10. Align the implement horizontally relative to the ground using the tractor lower link.

7.4 Bring packer arm into working position

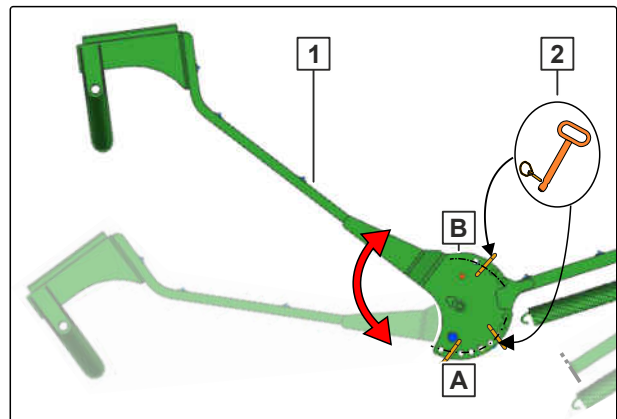
CMS-T-00010178-D.1

Working position



CMS-I-00006946

1. Take the pin **2** out of the group of holes **A**.
2. Completely swivel out the packer arm **1**.
3. Secure the packer arm free of play with the pin **2** in the hole group **B**.
4. Secure the pin with the linch pin.



CMS-I-00004937

7.5 Hydraulic adjustment of the plough body working width

CMS-T-00007383-C.1

The scale provides orientation when adjusting the working width.



REQUIREMENTS

- ☉ The implement is slightly lifted in working position or during operation

1. Slightly lift implement and align it horizontally.
2. *To adjust the working width of the plough bodies,*
actuate the "red" tractor control unit.



CMS-I-00005158

7.6 Adjusting the front furrow width

CMS-T-00005167-D.1

The scale serves as orientation during adjustment of the front furrow width.



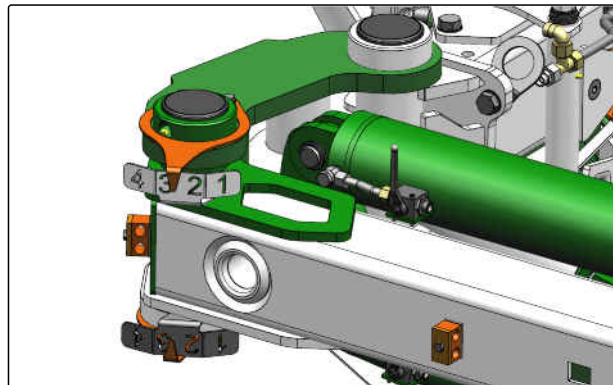
REQUIREMENTS

- ✓ The implement is in working position

1. Slightly lift implement and align it horizontally.
2. *To adjust the front furrow width:*
actuate the "yellow" tractor control unit.
3. Plough the first furrow.
4. Turn around at the end off the field.
5. Turn the plough.
6. Drive with the tractor wheels in the furrow.

➔ The tractor is now slanted.

7. Check the working depth of the plough bodies and tilt angle.
8. *To correct the front furrow width in operation:*
actuate the "yellow" tractor control unit.



CMS-I-00008611

7.7 Hydraulic adjustment of the plough body working depth

CMS-T-00006997-B.1

The working depth of the plough bodies is adjusted via the height of the tractor lower link and via the running gear wheel.



REQUIREMENTS

- ☑ The implement is in working position
- ☑ Frame is aligned parallel to the ground surface with the plough bodies

1. Move the switch tap of the running gear into

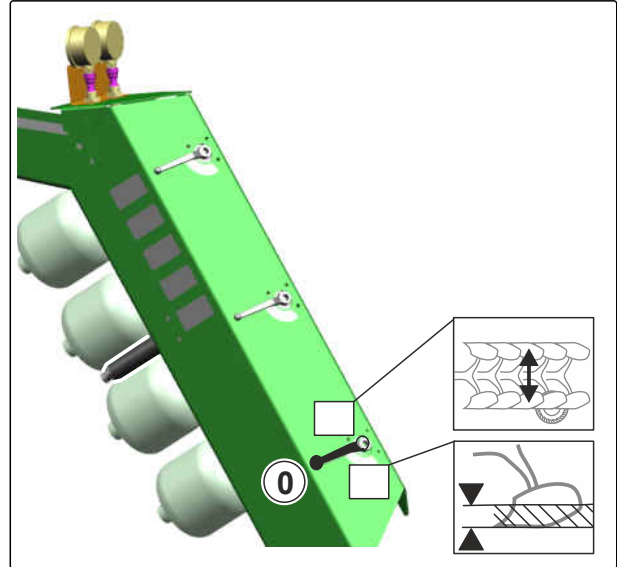


2. To prepare for depth adjustment, completely lower the implement. To do so, actuate the "blue" tractor control unit.

3. Move the switch tap of the running gear into



4. Start driving with the implement and lower the tractor lower link at the same time.
5. First set the maximum working depth. To do so, actuate the "blue" tractor control unit.
6. Then set the desired working depth. To do so, actuate the "blue" tractor control unit.
7. Align the implement horizontally using the tractor lower link.



CMS-I-00004905




NOTE

When the implement is lowered, the scale shows the working depth that is set.

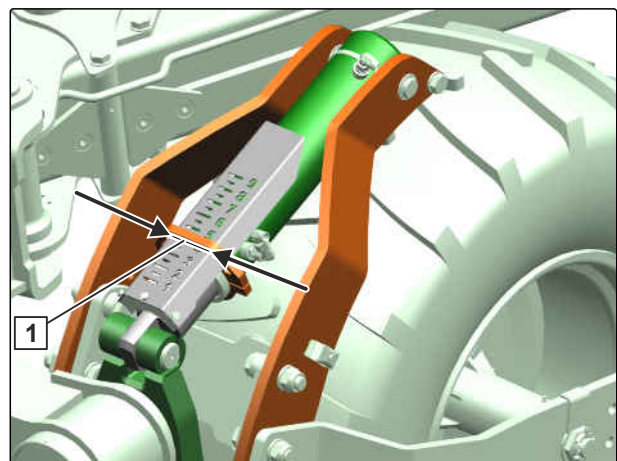
The scale value only serves for orientation. The scale value does not represent the working depth in centimetres.

Read edge **1** on the scale

8. Check the tilt angle of the implement.
9. Before reaching the headland, move the switch

tap of the running gear into  position.

10. Check the set working depth when working.
11. If necessary, correct the adjustment in operation.




CMS-I-00004912

**NOTE**

If the working depth varies frequently: leave the



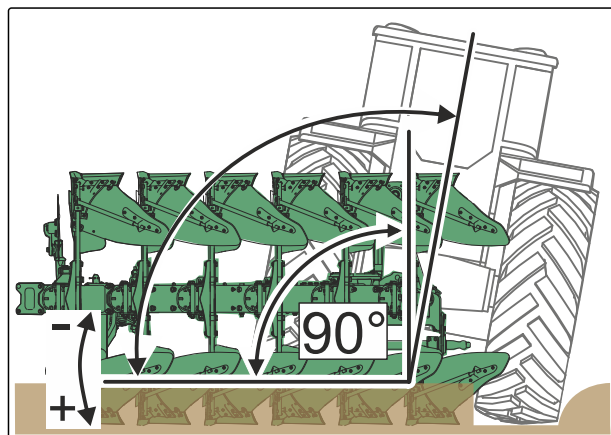
switch tap for the running gear in  position. Then the desired working depth must be set again after the headland.

7.8 Adjusting the tilt angle of the plough relative to the tractor

CMS-T-00006530-C.1

During operation, the plough runs perpendicular to the unploughed soil. To do so, the tilt of the plough to the tractor must be adjusted.

- The spindles serve as a stop for the plough in working position.
- Adjust the tilt angle with the spindle on both sides consecutively.
- The tilt angle depends on the adjusted working depth.



CMS-I-00003708

**REQUIREMENTS**

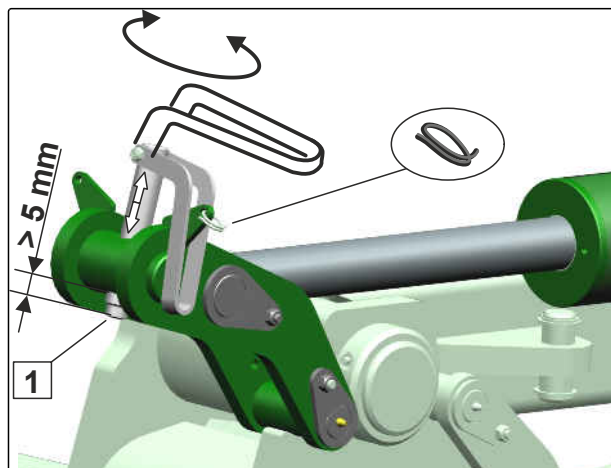
- ☑ Implement is parked or in working position

First adjust the exposed tilt adjustment element as follows:

1. Lift adjustment bracket.
2. *To increase the tilt angle:*
Turn the stop **1** upward via the adjustment bracket

or

To reduce the tilt angle:
Turn the stop downward via the adjustment bracket.

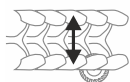


CMS-I-00004914

3. Secure the adjustment bracket in parking position with the locking ring.

For tilt adjustment on the other side, turn the plough bodies as follows:

4. Move the switch tap of the running gear into



position.

5. *To lift the implement using the running gear:*
Actuate the "blue" tractor control unit.

6. Lift implement via the tractor lower link.

7. *To turn the plough bodies:*
Actuate the "green" tractor control unit.

8. Lower the implement again.

9. Adjust the tilt angle in the same way on both sides.



NOTE

The stop must be very slightly unscrewed out of the thread.

7.9 Using the implement

CMS-T-00005202-D.1



CAUTION

Risk due to loosening of the bolted connections

After a short period of operation, the bolted connections lose preload force and can become loose.

- Tighten the bolts once after 2 hours and then according to the specifications on the sticker.



CMS-I-00003762

1. Start driving with the implement and lower the tractor lower link at the same time.
2. *To lower the implement via the running gear,*
Actuate the "blue" tractor control unit.

3. Align the implement horizontally using the tractor lower link.
4. Correct the settings.



IMPORTANT

Risk of damage to the skimmer

- ▶ Do not use the skimmer when driving in curves.
- ▶ Do not use the skimmer on stony soils.

7.10 Turning on the headlands

CMS-T-00007285-B.1

The turning radius can be reduced on headlands through optimal cornering.

When turning, the running gear of the plough is also steered. To do this, use the "green" tractor control unit.

1. First, lift the front plough body via the tractor lower link.
2. *To completely lift the implement via the running gear,*
Actuate the "blue" tractor control unit.
3. *To turn the plough bodies,*
Actuate the "green" tractor control unit.
4. Move implement into the furrow.
5. First, lower the front plough body via the tractor lower link.
6. *To completely lower the implement via the running gear,*
Actuate the "blue" tractor control unit.
7. Align the implement horizontally using the tractor lower link.

Eliminating faults

8

CMS-T-00007179-F.1

Errors	Cause	Solution
The implement does not reach the desired working depth	The soil is too hard.	► Draw transverse furrows at the ends of the field.
	The working depth is incorrectly adjusted.	► Adjust the working depth.
	The plough bodies are worn.	► Replace the plough bodies.
	The wrong plough body is being used.	► Use an interchangeable tip.
	The disc coulter is set too deep.	► Set the disc coulter shallower.
	The pitch is set too flat.	► see page 80
Plough body not working	The shear bolt of the overload safety is broken.	► see page 80

The implement does not reach the desired working depth

CMS-T-00007296-F.1

Not possible for all plough bodies

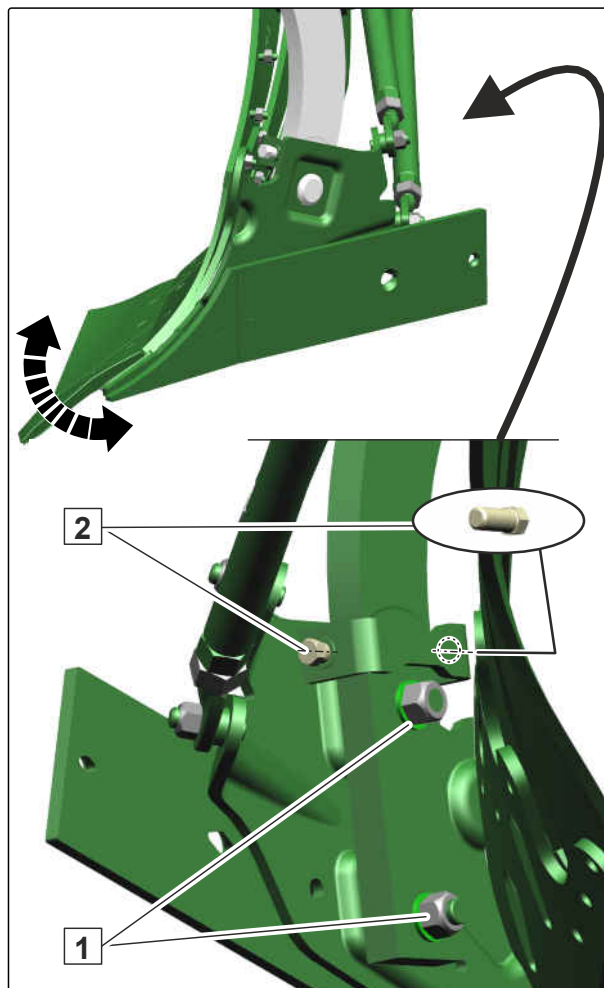
1. Park the implement on a level surface in working position.
2. Lift the implement out of the working position until the plough bodies are lifted from the ground.
3. Loosen the plough leg bolts **1** on the lower plough body.
4. If necessary, set a steeper pitch on the plough bodies using the bolts **2**.



NOTE

The steeper the plough body, the better the penetration behaviour and the higher the pulling force requirement and wear.

5. Check that all plough bodies have the same distance from the plough beam.
6. Tighten the plough leg bolts **1** with 580 Nm.
7. After turning, set the plough bodies on the other side steeper to the same degree.



CMS-I-00007933

Plough body not working

CMS-T-00007183-B.1

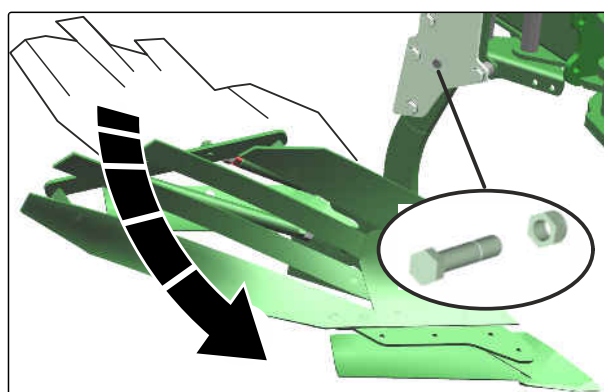


WARNING

Risk of injury due to the plough body suddenly swivelling down

- Only approach the plough bodies from the rear.
- Maintain a safe distance from the plough body.

1. Swivel the plough body back into working position.
2. Tighten the bolt on the pivot point.
3. Insert and tighten the shear bolt and self-locking nut.



CMS-I-00005021

**NOTE**

Additional shear bolts and nuts can be found in the transport box.

Parking the implement

9

CMS-T-00006536-F.1

9.1 Parking the implement in working position with the parking support

CMS-T-00013724-B.1

9.1.1 Removing the rear lighting

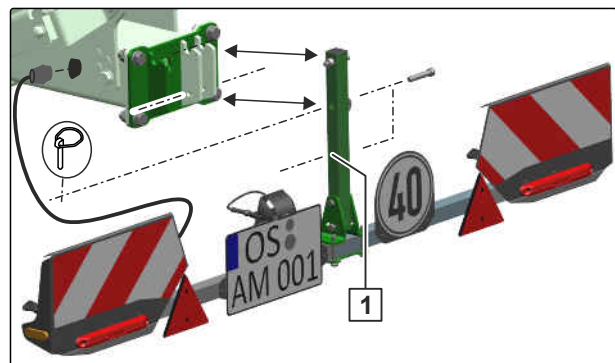
CMS-T-00007026-D.1



IMPORTANT

Risk of implement damage due to collision of components

- Before you swivel the plough bodies into working position, remove the rear lighting for road travel.



CMS-I-00004936

1. Pull out the plug for the power supply.
2. Pull out the pin.
3. Insert the pin in parking position **1**.
4. Take the rear lighting out of the device.
5. Store the rear lighting in a suitable place.

9.1.2 Bring front identification into parking position

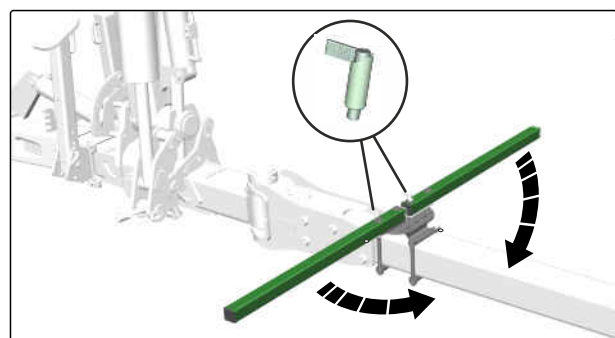
CMS-T-00005194-G.1

1. Pull locking pin.
2. Swing in front identification into parking position.



IMPORTANT Risk of implement damage due to collision of components

- Before you swivel the plough bodies into working position, remove the rear lighting for road travel.

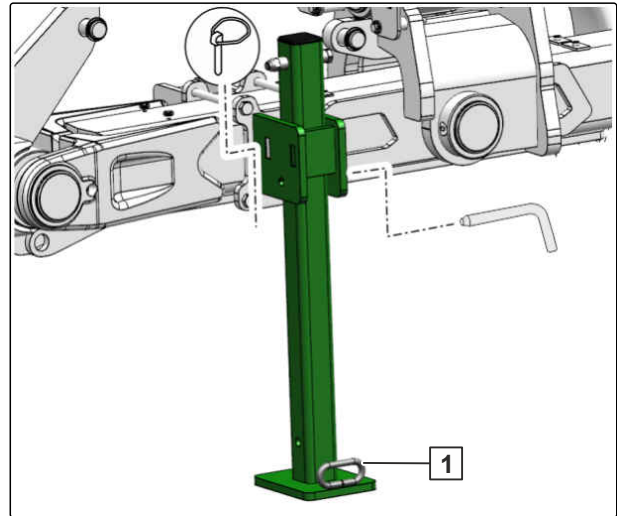


CMS-I-00008697

3. Ensure locking pin is engaged.

9.1.3 Lowering the parking support

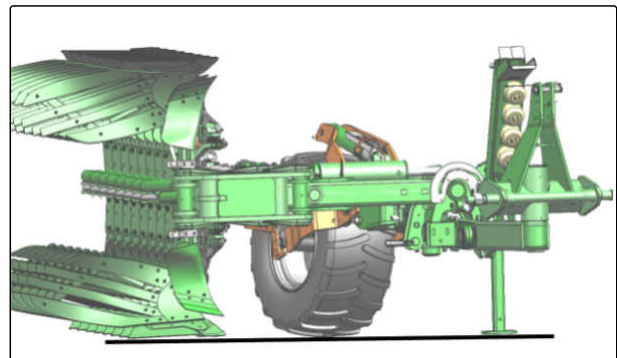
1. Hold the parking support by the handle **1**.
2. Pull out the pin.
3. Lower the parking support.
4. Secure the parking support with the pin.
5. Secure the pin with the linch pin.



CMS-I-00008543

9.1.4 Parking the implement on the plough bodies

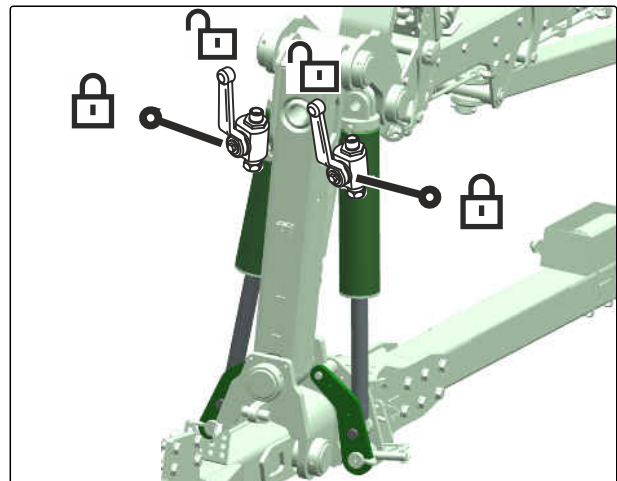
The implement is parked in working position on the plough bodies and the parking support.



CMS-I-00007039

REQUIREMENTS

- ☑ Implement in transport position
1. Open stop taps of the turning cylinders.



CMS-I-00004907

9 | Parking the implement

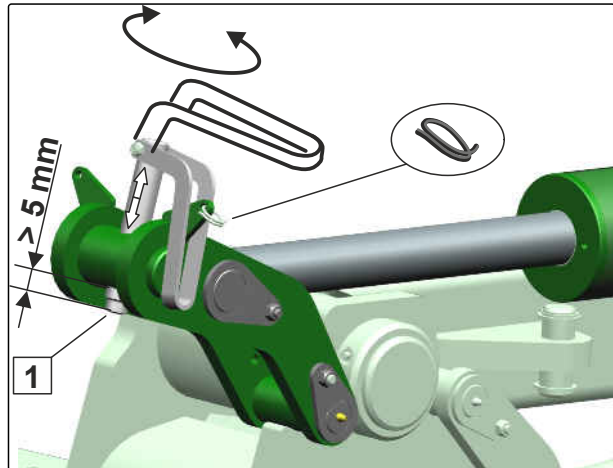
Parking the implement in transport position with parking supports

2. To align the lower link axle horizontally to the ground in a parked state:
reset the inclination on the side, on which the plough bodies are placed.



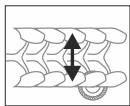
NOTE

In this process turn back the spindle of the tilt adjustment element just far enough that the plough can rest on the spindle.



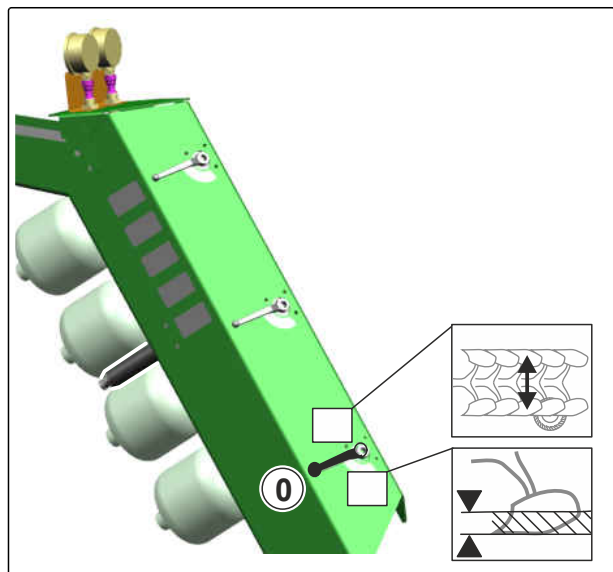
CMS-I-00004914

3. Move the switch tap of the running gear into



position.

4. Lift implement via the tractor lower link.
5. To lift the implement using the running gear:
Actuate the "blue" tractor control unit.
6. To swivel the plough bodies into working position:
Actuate the "green" tractor control unit.
7. Lower the implement using the tractor's lower links.
8. To park the implement on the share bodies and align the headstock horizontally:
Actuate the "blue" tractor control unit.



CMS-I-00004905

9.2 Parking the implement in transport position with parking supports

CMS-T-00006538-D.1



WARNING

Risk of injury due to implement tipping over.

The parking supports sink into soft soil and the implement tips over.

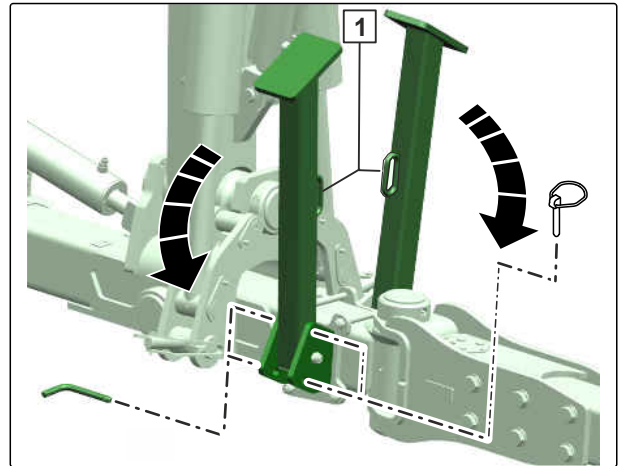
- Park the implement with the parking supports only on solid ground.
- If the soil is soft:
Park the implement in working position.



REQUIREMENTS

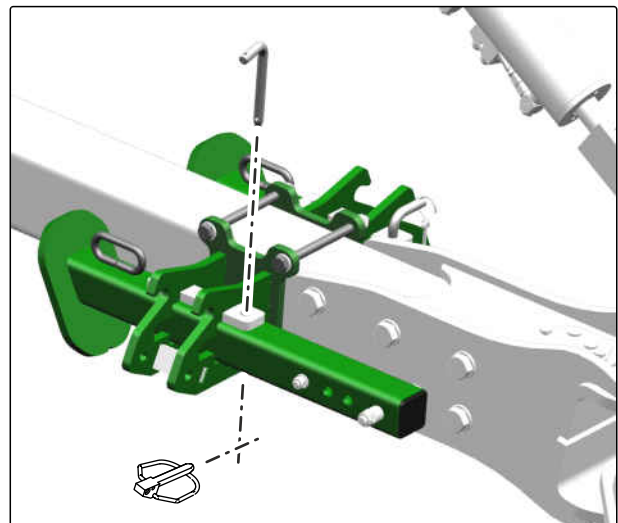
- ☑ The implement is equipped with 4 parking supports.

1. Hold the front parking support on the handle.
2. Pull out the pin.
3. Lower the parking support.
4. Secure the parking support with the pin.
5. Secure the pin with the linch pin.
6. Repeat the procedure on the second front parking support.



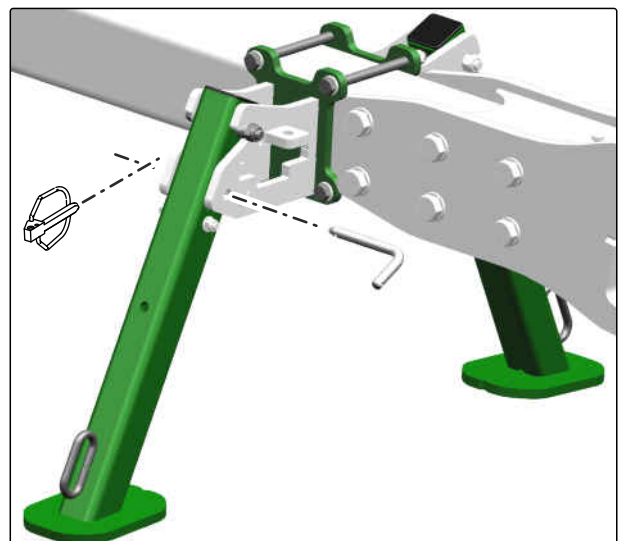
CMS-I-00008579

7. Pull out the pin.
8. Pull the rear parking support out towards the front.



CMS-I-00008644

9. Put the parking support in the mount and secure with the pin.
10. Secure the pin with the linch pin.
11. Repeat the procedure on the second rear parking support.
12. *To park the implement in transport position:*
Actuate the "blue" tractor control unit and lower the tractor lower links.



CMS-I-00008645

9.3 Uncoupling the implement

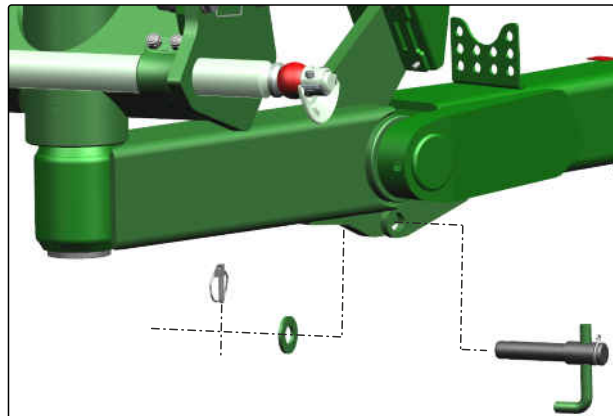
CMS-T-00006489-B.1



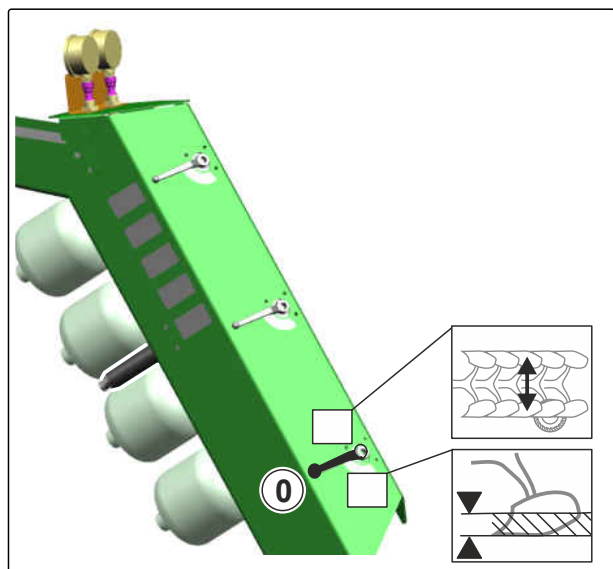
REQUIREMENTS

- ✓ The switch tap of the traction assistance is in position "0".
- ✓ Depressurise the traction assistance.
Maximum pressure: 70 bar

1. Park the implement on a level surface with solid ground.
2. Offload the top link.
3. Uncouple the top link from the implement.
4. Remove the top link pin from the upper coupling point, then insert it into the headstock and secure it.
5. Relieve the tractor's lower link.
6. Uncouple the tractor lower links from the implement from the tractor seat.
7. Drive the tractor forward.
8. *To lock the running gear hydraulic system:*
Move the switch tap of the running gear to position "0".



CMS-I-00004899

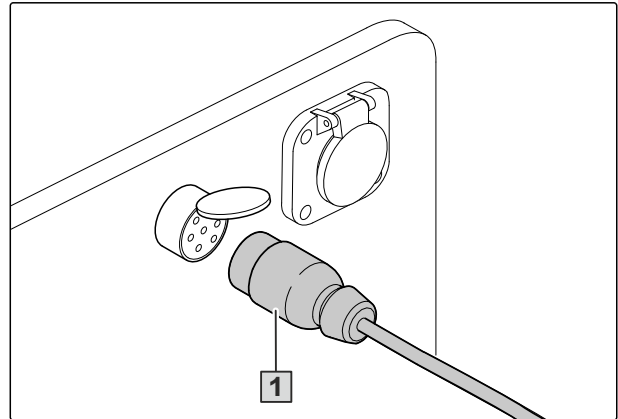


CMS-I-00004905

9.4 Uncoupling the power supply

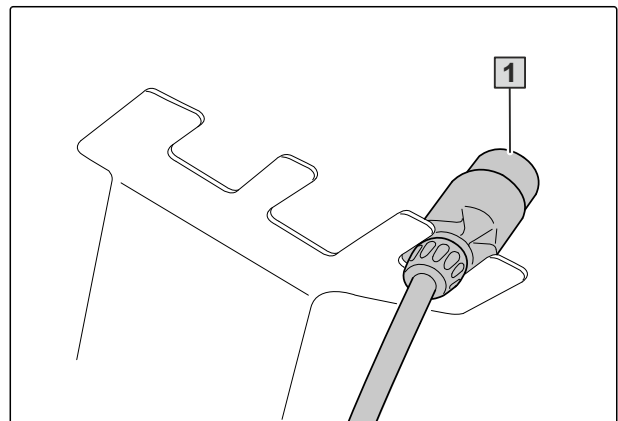
CMS-T-00001402-H.1

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



CMS-I-00001048

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

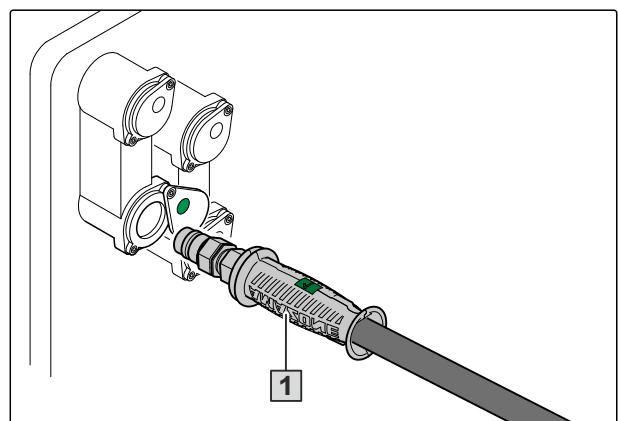


CMS-I-00001248

9.5 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.

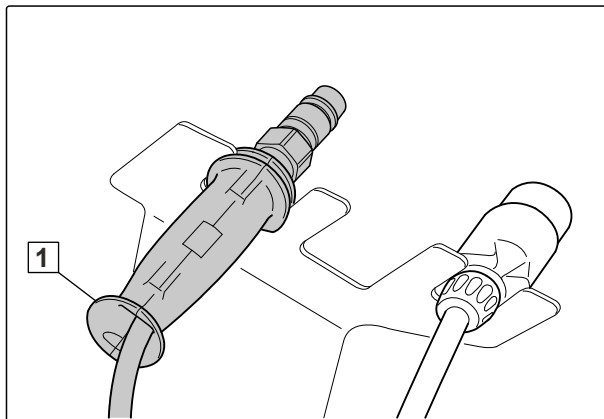


CMS-I-00001065

9 | Parking the implement

Putting on the safety device against unauthorised use

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

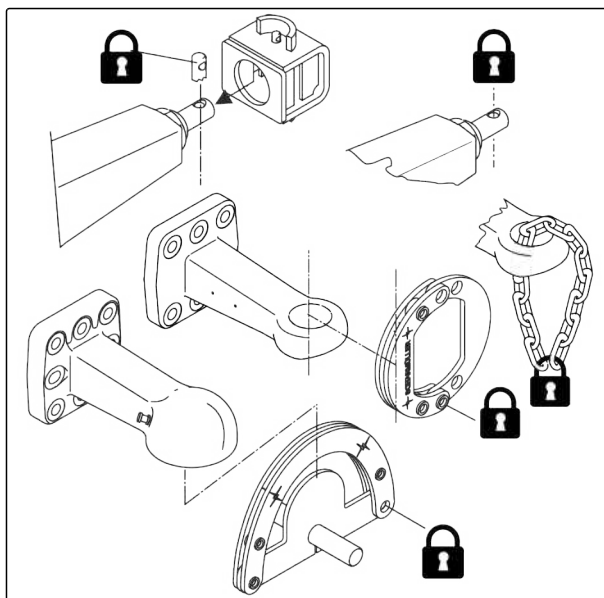


CMS-I-00001250

9.6 Putting on the safety device against unauthorised use

CMS-T-00005090-B.1

1. Put the safety device against unauthorised use on the hitch device.
2. Put on the padlock.



CMS-I-00003534

Repairing the machine

10

CMS-T-00006531-G.1

10.1 Maintaining the machine

CMS-T-00006534-G.1

10.1.1 Maintenance schedule

After initial operation		
Checking the hydraulic hose lines	see page 90	
Checking the bolted connections	see page 92	
As required		
Changing the tyres	see page 94	
Daily		
Checking the condition of wear parts	see page 91	
Checking the lower link pins and top link pins	see page 94	
Every 50 operating hours / Weekly		
Checking the hydraulic hose lines	see page 90	
Checking the bolted connections	see page 92	
Checking the wheels	see page 93	
Every 1000 operating hours / Every 12 months		
Checking the wheel bearing	see page 93	WORKSHOP WORK

10.1.2 Checking the hydraulic hose lines

CMS-T-00002331-F.1



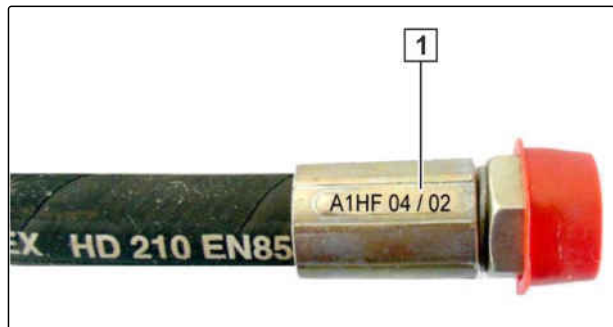
INTERVAL

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

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

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

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



CMS-I-00000532



WORKSHOP WORK

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

10.1.3 Checking the condition of wear parts

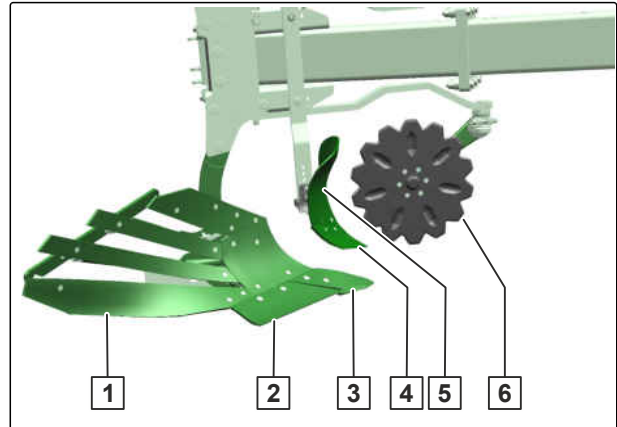
CMS-T-00006535-B.1

INTERVAL

- Daily

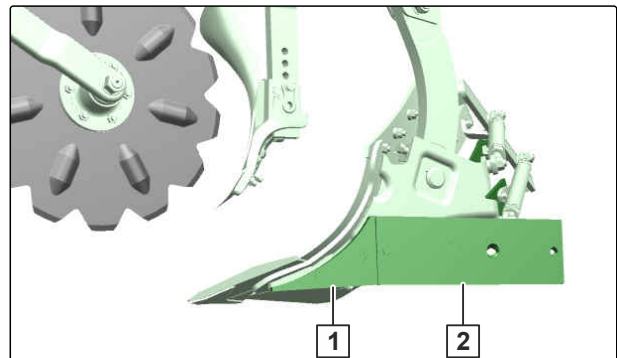
Wear parts include:

- 1** Mouldboard slats
- 2** Wing
- 3** Share tip
- 4** Skimmer share
- 5** Skimmer mouldboard
- 6** Disc coultter



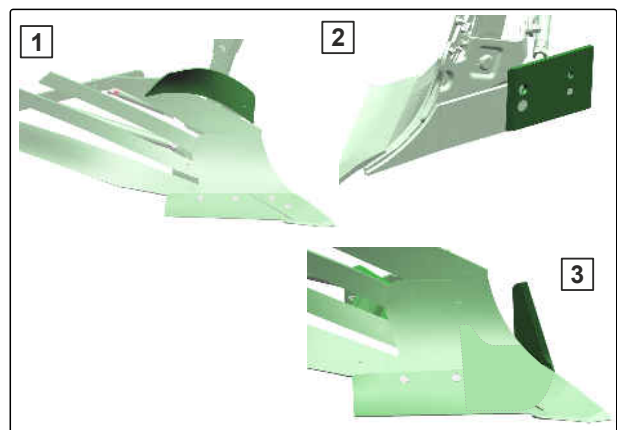
CMS-I-00005065

- 1** Landside point
- 2** Landside



CMS-I-00005066

- 1** Trashboard
- 2** Landside protector
- 3** Landside coultter



CMS-I-00005068

1. Check the condition of wear parts.
2. Replace wear parts that are worn.

10.1.4 Checking the bolted connections

CMS-T-00007182-A.1



INTERVAL

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



CAUTION

Risk due to loosening of the bolted connections

After a short period of operation, the bolted connections lose preload force and can become loose.

- Tighten the bolts once after 2 hours and then according to the specifications on the sticker.

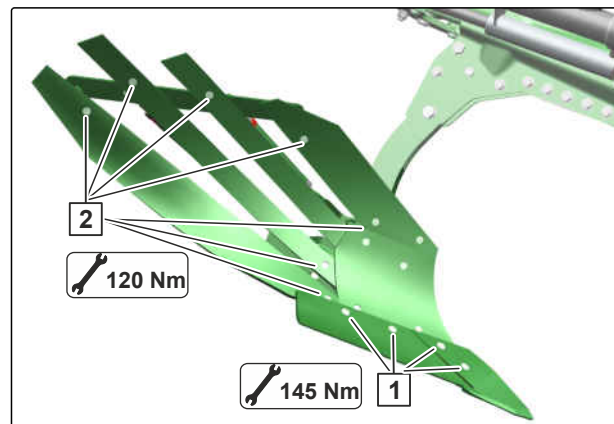


CMS-I-00003762

Bolted connections on the plough body:

1	M12x35 12.9
2	M12 x 35 10.9

- Check all bolts for tight fit.



CMS-I-00005063

10.1.5 Checking the wheels

CMS-T-00007193-B.1



INTERVAL

- Every 50 operating hours
- or
- Weekly

Tyres	Tyre inflation pressure	Tightening torque
500/45-22.5	3.5 bar	600 Nm
400/55-22.5	4 bar	600 Nm
500/60-22.5	3 bar	600 Nm

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

10.1.6 Checking the wheel bearing

CMS-T-00014967-A.1



WORKSHOP WORK

- Every 1000 operating hours
- or
- Every 12 months

1. Check bearing clearance.
2. Replace the grease in the wheel bearings.

10.1.7 Changing the tyres

CMS-T-00007195-A.1



INTERVAL

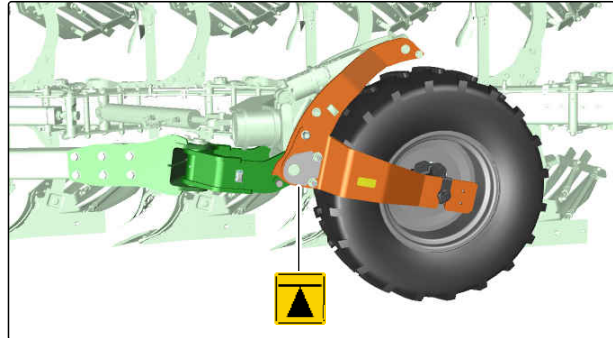
- As required



REQUIREMENTS

- ☑ In working position, the implement rests on the plough bodies and parking supports

1. Lift running gear wheel slightly off the ground with lifting jack.
2. Unscrew axle fastening bolts on both sides.
3. Remove running gear wheel from the fork.
4. Unscrew bolts that connect the rim to the running axle.
5. Changing the tyres.
6. Mounting the running gear wheel.



CMS-I-00005067

10.1.8 Checking the lower link pins and top link pins

CMS-T-00002330-J.1



INTERVAL

- Daily

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

- Cracks
 - Fractures
 - Permanent deformations
 - Permissible wear: 2 mm
1. Check the lower link pins and top link pins for the listed criteria.
 2. Replace worn pins.

10.2 Cleaning the implement

CMS-T-00005229-B.1



ENVIRONMENTAL INFORMATION

Risk of environmental contamination due to improper use of oil

- ▶ Clean the implement in a cleaning area with oil separator.



IMPORTANT

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

- ▶ Do not clean the implement with a high-pressure cleaner during the first 6 weeks.
 - ▶ *To prevent paint damage*, observe the instructions for cleaning and care.
 - ▶ 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 500 mm between the high-pressure nozzle and the implement.
 - ▶ Do not exceed a water pressure of 100 bar.
-
- ▶ Clean the machine with a high-pressure cleaner or a hot water high-pressure cleaner.



CMS-I-00002692

10.3 Lubricating the implement

CMS-T-00006532-B.1



IMPORTANT

Implement damage due to improper lubrication

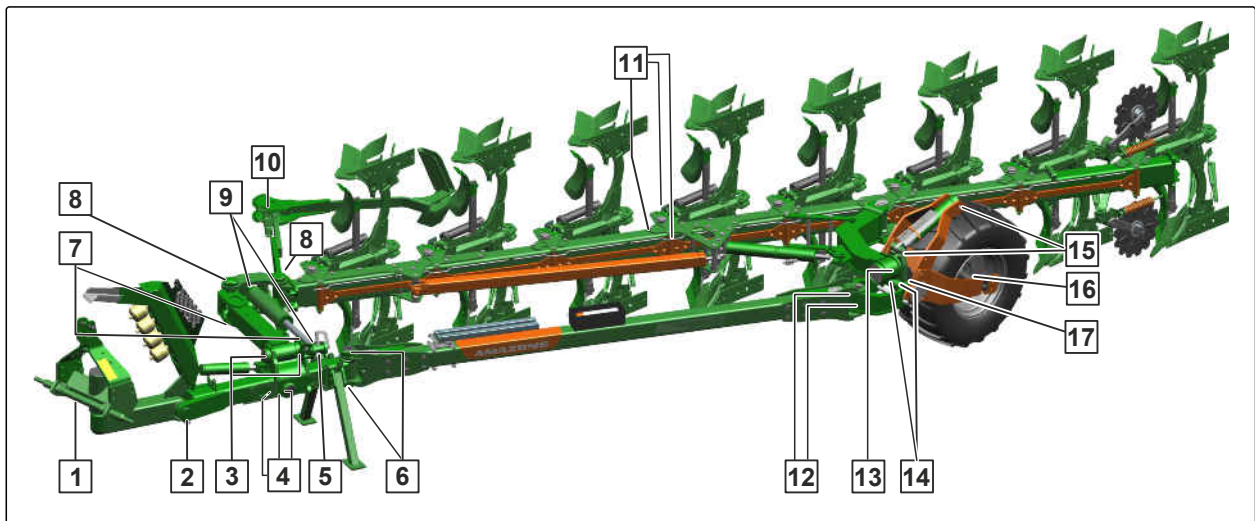
- ▶ Grease the implement at the marked lubrication points according to the lubrication schedule.
- ▶ *To ensure that dirt is not pressed into the lubrication points,* thoroughly clean the grease nipples and the grease gun.
- ▶ Only grease the implement with the lubricants listed in the technical data.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



CMS-I-00002270

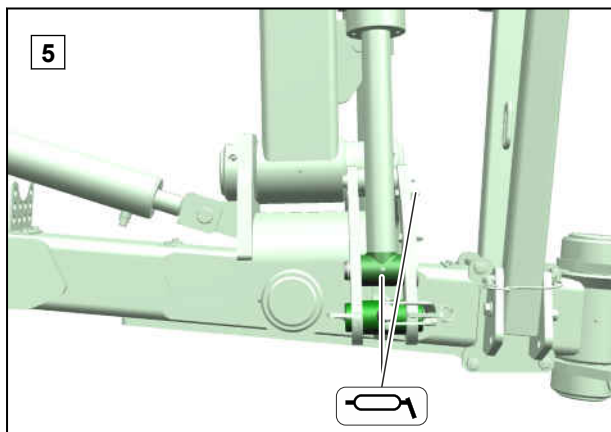
10.3.1 Overview of lubrication points

CMS-T-00006533-B.1

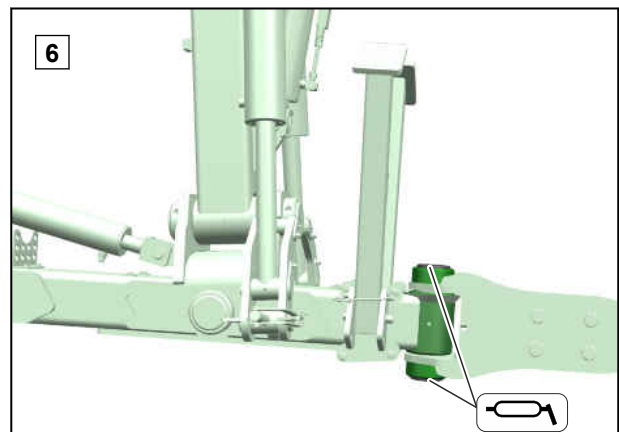


CMS-I-00005004

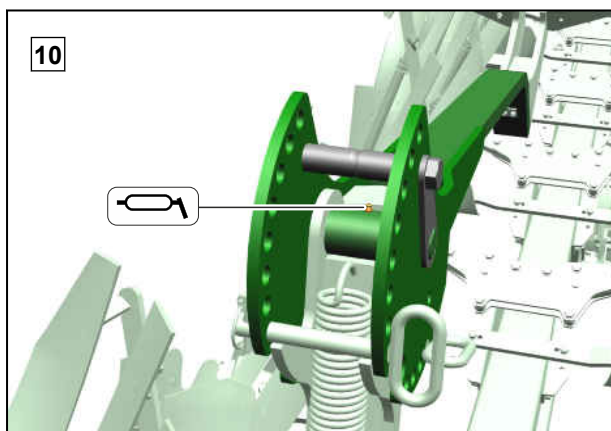
Every 10 operating hours



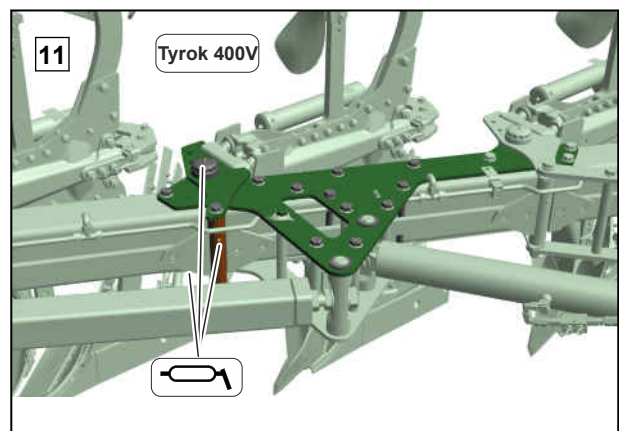
CMS-I-00004999



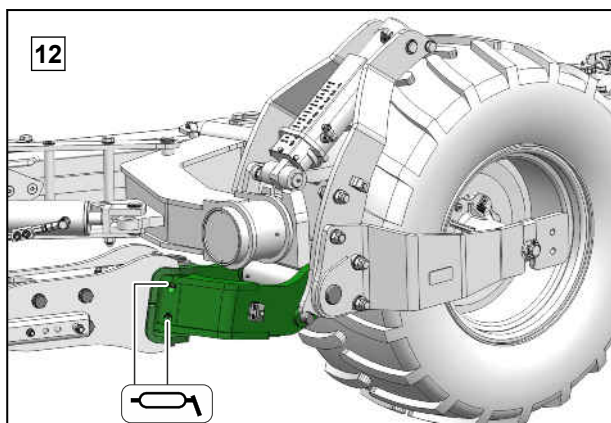
CMS-I-00004998



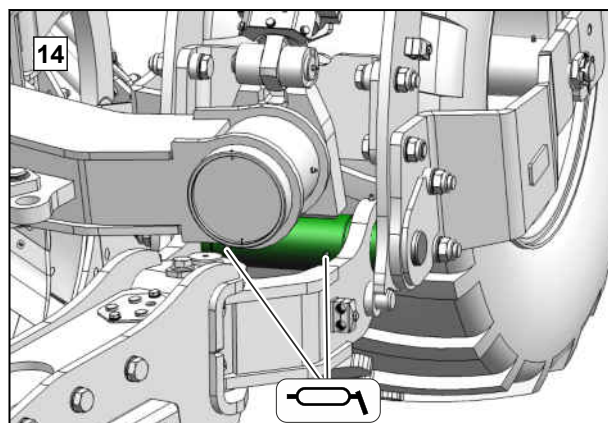
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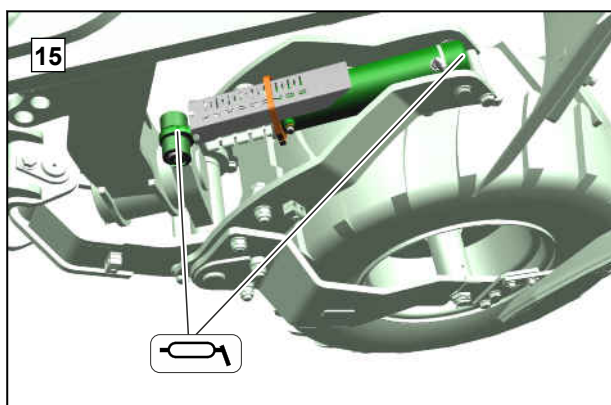
CMS-I-00004993



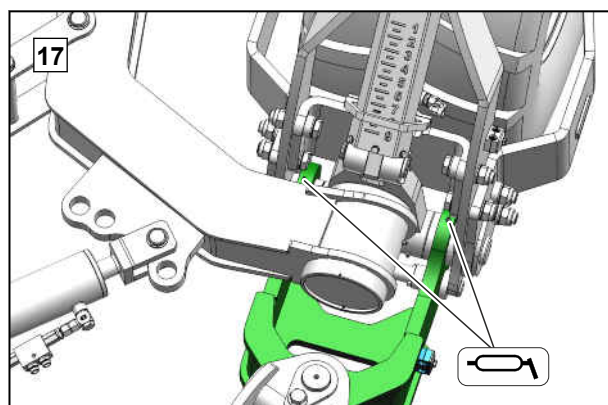
CMS-I-00004992



CMS-I-00004990

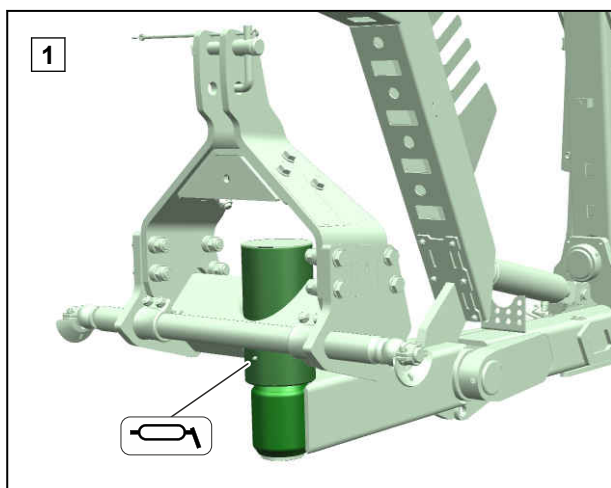


CMS-I-00004989

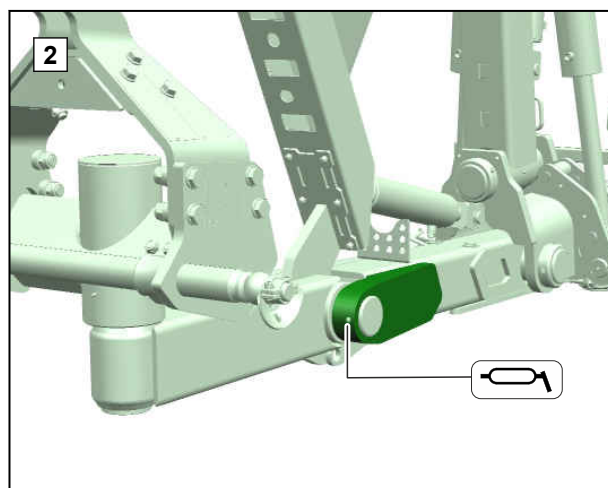


CMS-I-00008578

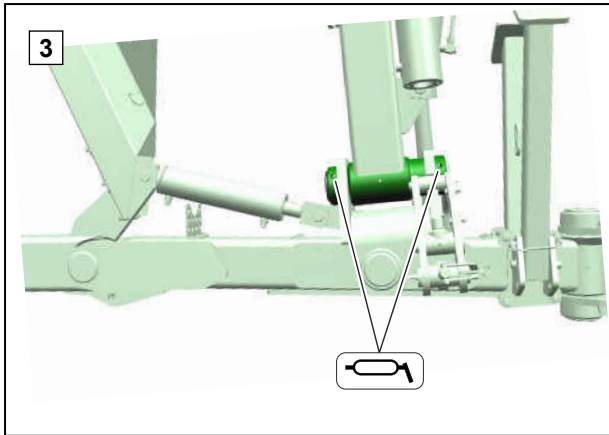
Every 50 operating hours



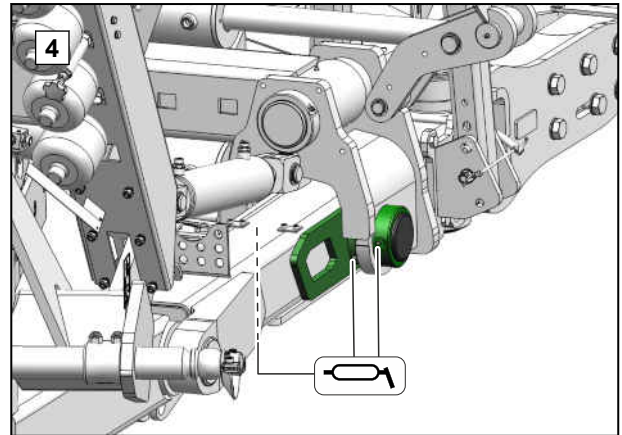
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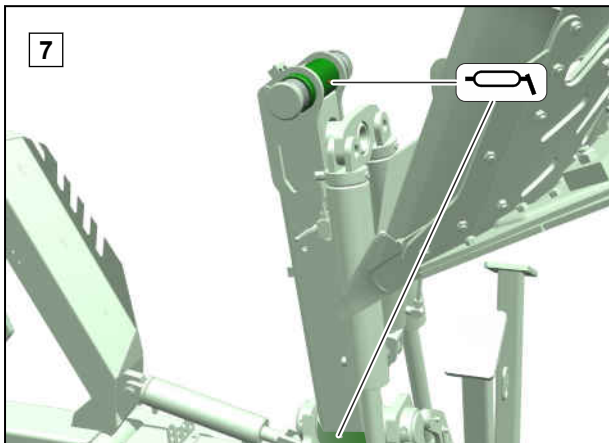
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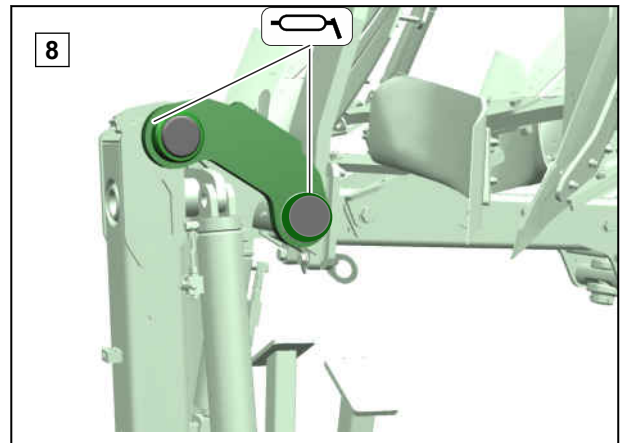
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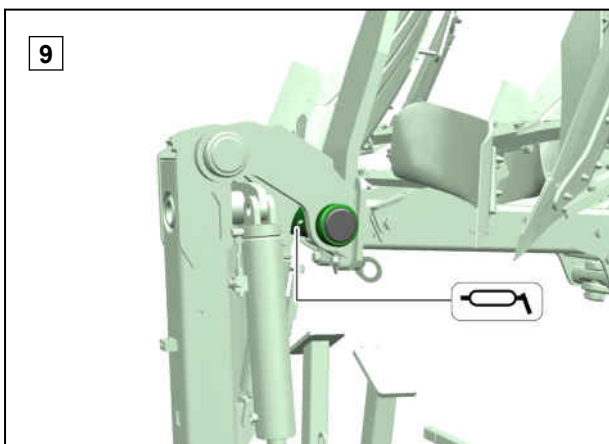
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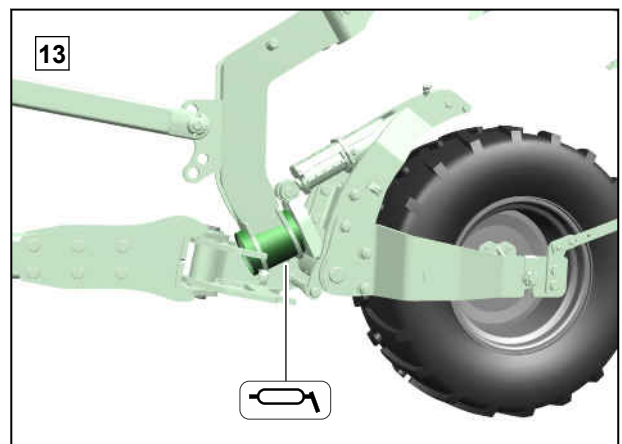
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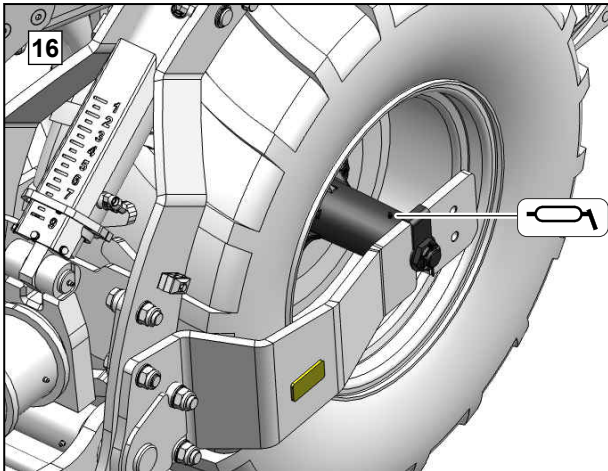
CMS-I-00004997



CMS-I-00004995



CMS-I-00004991



CMS-I-00004988

10.4 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.

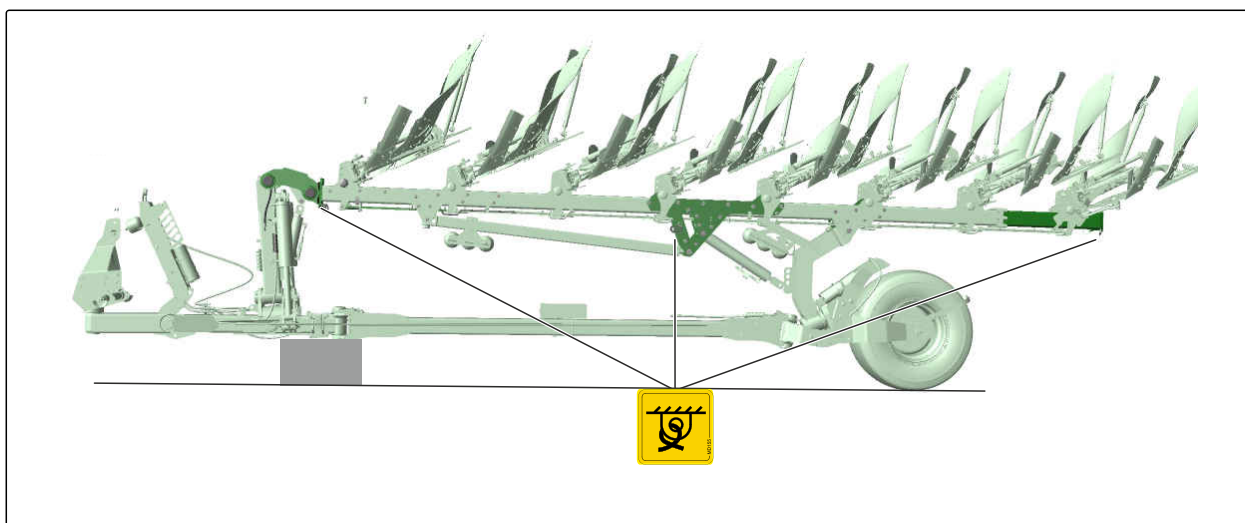
Loading the machine

11

CMS-T-00006553-F.1

11.1 Lashing the implement

CMS-T-00006559-B.1



CMS-I-00004628

The implement has 3 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

12

CMS-T-00010906-B.1

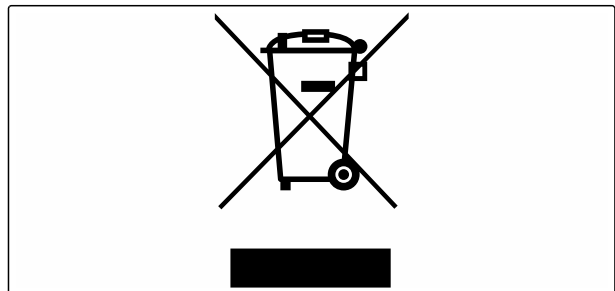


ENVIRONMENTAL INFORMATION

Environmental damage due to improper disposal

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

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



CMS-I-00007999

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



WORKSHOP WORK

5. Dispose of the coolant.

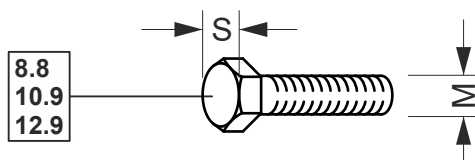
Appendix

13

CMS-T-00006212-C.1

13.1 Bolt tightening torques

CMS-T-00000373-E.1



CMS-I-000260

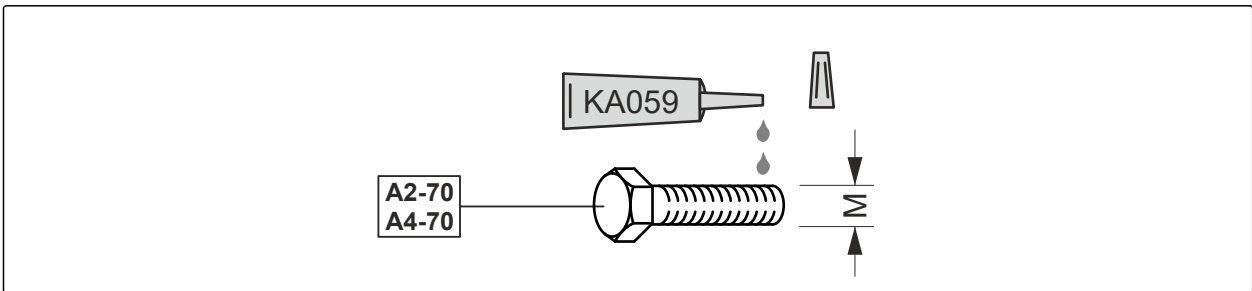


NOTE

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

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

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



CMS-I-00000065

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

13.2 Other applicable documents

CMS-T-00006213-A.1

- Tractor operating manual

Directories

14

14.1 Glossary

CMS-T-00000513-B.1

M

Machine

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

O

Operating materials

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

T

Tractor

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

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