



Original operating manual

Trailed compact disk harrow

Catros 4003-2TS

Catros 7003-2TS

Catros 5003-2TS

Catros^{XL} 5003-2TS

Catros 6003-2TS

Catros^{XL} 6003-2TS



SmartLearning




AMAZONE

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

Machine no.

Vehicle ID no.

Product

Permissible technical implement weight lb

Made in Germany
 

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



TABLE OF CONTENTS

1	About this operating manual	1	4.4.1	Rear lighting and identification	25
1.1	Copyright	1	4.4.2	Front identification	26
1.2	Presentations used	1	4.5	Warning symbols	26
1.2.1	Warnings and signal words	1	4.5.1	Positions of the warning symbols	26
1.2.2	Additional instructions	2	4.5.2	Structure of the warning symbols	29
1.2.3	Instructions	2	4.5.3	Description of the warning symbols	29
1.2.4	Listings	3	4.6	Rating plate	34
1.2.5	Item numbers in illustrations	4	4.6.1	Rating plate on the implement	34
1.2.6	Direction information	4	4.6.2	Additional rating plate	35
1.3	Other applicable documents	4	4.7	More information concerning the implement	35
1.4	Digital operating manual	4	4.7.1	Information concerning the stop tap on the hydraulic drawbar	35
1.5	Your opinion is important	4	4.7.2	Note concerning the float position of hydraulic valves	36
			4.7.3	Note concerning the switch tap for traction assistance	36
2	Safety and responsibility	5	4.8	GewindePack	36
2.1	Basic safety instructions	5	4.9	Adjustment lever for the trailing elements	37
2.1.1	Meaning of the operating manual	5			
2.1.2	Safe operating organization	5	5	Technical data	38
2.1.3	Recognizing and avoiding dangers	10	5.1	Dimensions	38
2.1.4	Safe operation and handling of the implement	14	5.2	Soil tillage tool	38
2.1.5	Safe maintenance and modification	16	5.3	Permissible mounting categories	39
2.2	Safety routines	19	5.4	Forward speed	39
			5.5	Capacity characteristics of the tractor	39
3	Intended use	21	5.6	Tightening torques for wheels	40
			5.7	Noise emission data	40
4	Product description	22	5.8	Drivable slope inclination	40
4.1	Implement overview	22	5.9	Lubricants	41
4.1.1	Implement with leading tool	22			
4.1.2	Implement with support wheels	23	6	Preparing the implement	42
4.1.3	Implement with GreenDrill	24	6.1	Checking tractor suitability	42
4.2	Special equipment	24	6.1.1	Calculating the required tractor characteristics	42
4.3	Protective devices	25			
4.3.1	Road safety bars	25			
4.4	Lighting and identification for road travel	25			

TABLE OF CONTENTS

6.1.2	Determining the required coupling devices	45	7.3.3	Adjusting the working depth of the side guide plates	71
6.1.3	Comparing the permissible DC value with the actual DC value	46	7.4	Lifting the running gear and using vibration compensation	72
6.2	Coupling the implement	46	7.5	Lifting the running gear and not using vibration compensation	73
6.2.1	Remove safeguard against unauthorized use	46	7.6	Aligning the implement horizontally	73
6.2.2	Moving the tractor towards the implement	47	7.6.1	Aligning the implement horizontally with support wheels	73
6.2.3	Fastening the safety chain	47	7.6.2	Aligning the implement horizontally with lower link hitch	74
6.2.4	Coupling hydraulic hose lines	47	7.6.3	Aligning the implement horizontally with hydraulic drawbar	74
6.2.5	Coupling the power supply	49	7.7	Using the cutter roller	75
6.2.6	Connecting the power supply for the central lubrication	49	7.8	Driving on headlands	75
6.2.7	Connecting the brake system	50	7.8.1	Turning on the roller in headlands	75
6.2.8	Coupling the coupling device	52	7.8.2	turning on the running gear on the headlands	76
6.2.9	Removing wheel chocks	54			
6.2.10	Releasing the parking brake	54			
6.3	Preparing the implement for operation	54	8	Rectifying faults	77
6.3.1	Unfolding sections	54			
6.3.2	Adjusting the trailing elements	55	9	Parking the implement	79
6.3.3	Mounting ballast weights	60	9.1	Tightening the parking brake	79
6.3.4	Adjusting the scraper to the roller	60	9.2	Placing the wheel chocks	79
6.3.5	Filling the GreenDrill	61	9.3	Uncoupling the coupling device	80
6.4	Preparing the implement for road travel	62	9.3.1	Uncoupling the lower link hitch	80
6.4.1	Securing the cutter roller	62	9.3.2	Disconnecting the ball hitch coupling or drawbar eye	81
6.4.2	Bringing the harrow into transport position	62	9.4	Moving the tractor away from the implement	82
6.4.3	Attaching the road safety bars	65	9.5	Disconnecting the brake system	82
6.4.4	Folding sections	65	9.5.1	Uncoupling the dual circuit compressed air system	82
6.4.5	Aligning the implement to transport height	66	9.5.2	Uncoupling the single-circuit hydraulic brake system	83
6.4.6	Locking tractor control units	67	9.6	Uncoupling the power supply	83
7	Using the implement	68	9.7	Uncoupling the hydraulic hose lines	84
7.1	Unfolding sections	68	9.8	Detaching the safety chain	84
7.2	Removing the road safety bars	68			
7.3	Adjusting the working depth	69			
7.3.1	Adjusting the working depth of disks	69			
7.3.2	Hydraulically adjusting the working depth of the crushboard	71			

9.9	Attaching safeguard against unauthorized use	85	11.2	Maneuvering implement with single-circuit hydraulic brake system	104
10	Maintaining the implement	86	12	Loading the implement	105
10.1	Maintaining the implement	86	12.1	Lashing the implement	105
10.1.1	Maintenance schedule	86	13	Disposing of the implement	107
10.1.2	Replacing the disks	87	14	Appendix	108
10.1.3	Checking the disk carrier connection	88	14.1	Bolt tightening torques	108
10.1.4	Aligning the disk gangs relative to each other	88	14.2	Other applicable documents	110
10.1.5	Checking the rollers	89	15	Lists	111
10.1.6	Checking lower link pins	89	15.1	Glossary	111
10.1.7	Checking the hydraulic hose lines	90	15.2	Index	112
10.1.8	Checking wheels and tires	91			
10.1.9	Checking the wheel bearings	91			
10.1.10	Checking the brake pads	92			
10.1.11	Checking the dual-circuit pneumatic brake system	92			
10.1.12	Dewatering the compressed air tank	93			
10.1.13	Checking the compressed air tank	93			
10.1.14	Cleaning the compressed air line filter on the coupling head	94			
10.1.15	Checking the axle bolts	95			
10.1.16	Checking the lower link hitch	95			
10.1.17	Checking the ball hitch coupling	96			
10.1.18	Checking the drawbar eye	96			
10.2	Cleaning the implement	97			
10.3	Lubricating the implement	99			
10.3.1	Overview of lubrication points	100			
10.3.2	Lubricating wheel hubs	102			
10.4	Storing the implement	102			
11	Maneuvering the implement	103			
11.1	Maneuvering the implement with dual-circuit pneumatic brake system	103			

About this operating manual

1

CMS-T-00000081-J.1

1.1 Copyright

CMS-T-00012308-A.1

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

1.2 Presentations used

CMS-T-005676-G.1

1.2.1 Warnings and signal words

CMS-T-00002415-A.1

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



DANGER

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



WARNING

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



CAUTION

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

1.2.2 Additional instructions

CMS-T-00002416-A.1



IMPORTANT

- Indicates a risk of implement damage.



ENVIRONMENTAL INFORMATION

- Indicates a risk of environmental damage.



NOTE

Indicates application tips and instructions for optimal use.

1.2.3 Instructions

CMS-T-00000473-E.1

1.2.3.1 Numbered instructions

CMS-T-005217-B.1

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

Example:

1. Instruction 1
2. Instruction 2

1.2.3.2 Instructions and responses

CMS-T-005678-B.1

Responses to instructions are indicated by an arrow.

Example:

1. Instruction 1
- ➔ Response to instruction 1
2. Instruction 2

1.2.3.3 Alternative instructions

CMS-T-00000110-B.1

Alternative instructions are introduced with the word "or".

Example:

1. Instruction 1

or

Alternative instruction

2. Instruction 2

1.2.3.4 Instructions with only one action

CMS-T-005211-C.1

Instructions with only one action are not numbered, but rather are presented with an arrow.

Example:

► Instruction

1.2.3.5 Instructions without a specific sequence

CMS-T-005214-C.1

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

Example:

► Instruction

► Instruction

► Instruction

1.2.3.6 Workshop task

CMS-T-00013932-B.1



WORKSHOP TASK

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

1.2.4 Listings

CMS-T-000024-A.1

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

Example:

- Point 1
- Point 2

1.2.5 Item numbers in illustrations

CMS-T-000023-B.1

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

1.2.6 Direction information

CMS-T-00012309-A.1

Unless otherwise specified, all direction information applies in the direction of travel.

1.3 Other applicable documents

CMS-T-00000616-B.1

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

1.4 Digital operating manual

CMS-T-00002024-B.1

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

1.5 Your opinion is important

CMS-T-000059-D.1

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

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

CMS-I-00000638

Safety and responsibility

2

CMS-T-00015811-A.1

2.1 Basic safety instructions

CMS-T-00015812-A.1

2.1.1 Meaning of the operating manual

CMS-T-00006180-A.1

Comply with the operating manual

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

- ▶ The safety section must be completely read and the instructions must be complied with before first use of the implement.
- ▶ In addition, read the relevant sections of the operating manual before starting work.
- ▶ Keep the operating manual in a safe place.
- ▶ Keep the operating manual available.
- ▶ Hand over the operating manual to the subsequent user.

2.1.2 Safe operating organization

CMS-T-00002302-D.1

2.1.2.1 Qualifications of personnel

CMS-T-00002306-B.1

2.1.2.1.1 Requirements imposed on the people who work with the implement

CMS-T-00002310-B.1

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

the implement must meet the following minimum requirements:

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

2.1.2.1.2 Qualification levels

CMS-T-00002311-A.1

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

- Farmer
- Agricultural helper

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

2.1.2.1.3 Farmer

CMS-T-00002312-A.1

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

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

For example, farmers can be:

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

Activity example:

- Safety instruction of agricultural helpers

2.1.2.1.4 Agricultural helper

CMS-T-00002313-A.1

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

For example, agricultural helpers can be:

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

Activity examples:

- Driving the machine
- Adjusting the working depth

2.1.2.2 Workstations and persons accompanying the driver

CMS-T-00002307-B.1

Persons accompanying the driver

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

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

2.1.2.3 Danger for children

CMS-T-00002308-A.1

Children in danger

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

- ▶ Keep children at a safe distance.
- ▶ *When you drive out or activate implement movements,*
ensure that there are no children in the danger area.

2.1.2.4 Operational safety

CMS-T-00002309-D.1

2.1.2.4.1 Perfect technical condition

CMS-T-00002314-D.1

Only use properly prepared implements

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

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

Danger due to implement damage

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

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

Comply with the technical limit values

Failure to comply with the technical limits values of the implement can cause accidents and serious personal injury or death. Moreover, the implement can be damaged. The technical limit values are provided in the Technical data.

- ▶ Comply with the technical limit values.

2.1.2.4.2 Personal protective equipment

CMS-T-00002316-B.1

Personal protective equipment

Wearing personal protective equipment is an important safety component. Missing or unsuitable personal protective equipment increases the risk of health impairment or personal injury. Personal protective equipment includes: work gloves, safety footwear, protective clothing, respiratory protection, hearing protection, face protection, and eye protection

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

Wear suitable clothing

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

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

2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

Keep warning symbols legible

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

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

2.1.3 Recognizing and avoiding dangers

CMS-T-00015814-A.1

2.1.3.1 Danger sources on the implement

CMS-T-00002318-F.1

Fluids under pressure

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

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

Risk of injury on the universal joint shaft

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

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

Risk of injury on the PTO shaft

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

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

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

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

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

2.1.3.2 Danger areas

CMS-T-00015815-A.1

Danger areas on the implement

The following significant hazards are present in the danger areas:

The implement and its work tools move in operation.

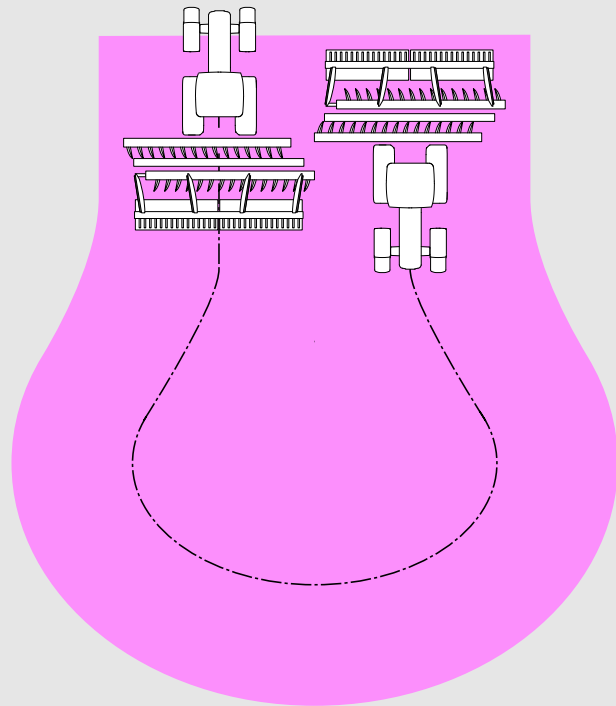
Hydraulically lifted implement parts can lower unnoticed and slowly.

The tractor and implement can roll unintentionally.

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

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

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



CMS-I-001131

Overhead power lines

When unfolding and folding or when folding and lifting out, or when lifting the implement or implement parts in operation, the implement can reach the height of overhead power lines. This can cause electrical arcing between power lines and the implement, resulting in fatal electrical shock or fire. Major voltage differentials occur on the ground around the implement.

- ▶ When unfolding or folding, and when lifting or lifting out the implement or implement parts, always maintain a safe distance from overhead power lines.
- ▶ Never fold or unfold implement parts in the vicinity of overhead power line pylons or overhead power lines.
- ▶ When implement parts are unfolded, always maintain a safe distance from overhead power lines.
- ▶ *If electrical arcing occurs between power lines and the implement:*
Stay in the cab.
- ▶ Do not touch metal parts.
- ▶ Warn people to stay away from the implement.
- ▶ Wait for help from professional rescue personnel.
- ▶ *If people must exit the cab despite the electrical arcing, e.g. if there is an imminent life-threatening fire hazard:*
Jump from the implement such that you land in safe location.
- ▶ Do not touch the implement.
- ▶ Walk away from the implement, taking small steps.

2.1.4 Safe operation and handling of the implement

CMS-T-00002304-J.1

2.1.4.1 Coupling the implement

CMS-T-00002320-D.1

Coupling the implement to the tractor

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

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

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

2.1.4.2 Driving safety

CMS-T-00002321-F.1

Hazards when driving on roads and fields

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

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

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

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

Preparing the implement for road travel

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

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

Parking the implement

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

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

Unsupervised parking

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

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

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

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

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

2.1.5 Safe maintenance and modification

CMS-T-00002305-J.1

2.1.5.1 Modifications on the implement

CMS-T-00002322-B.1

Only authorized modifications

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

- ▶ Have any structural modifications or extensions performed only by a qualified specialist workshop.
- ▶ *This ensures that the operating permit remains valid in accordance with national and international regulations.*
Ensure that the specialist workshop only uses conversion parts, spare parts, and special equipment approved by AMAZONE.

2.1.5.2 Tasks on the implement

CMS-T-00002323-I.1

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

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

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

Maintenance tasks

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

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

Raised implement parts

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

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

Danger due to welding tasks

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

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

2.1.5.3 Operating materials

CMS-T-00002324-C.1

Unsuitable operating materials

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

- ▶ Only use operating materials that meet the requirements specified in the Technical data.

2.1.5.4 Special equipment and spare parts

CMS-T-00002325-B.1

Special equipment, accessories, and spare parts

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

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

2.2 Safety routines

CMS-T-00002300-D.1

Securing the tractor and implement

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

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

Securing the implement

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

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

Keep protective devices functional

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

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

Climbing on and off

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

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

Intended use

3

CMS-T-00004230-A.1

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

Product description

4

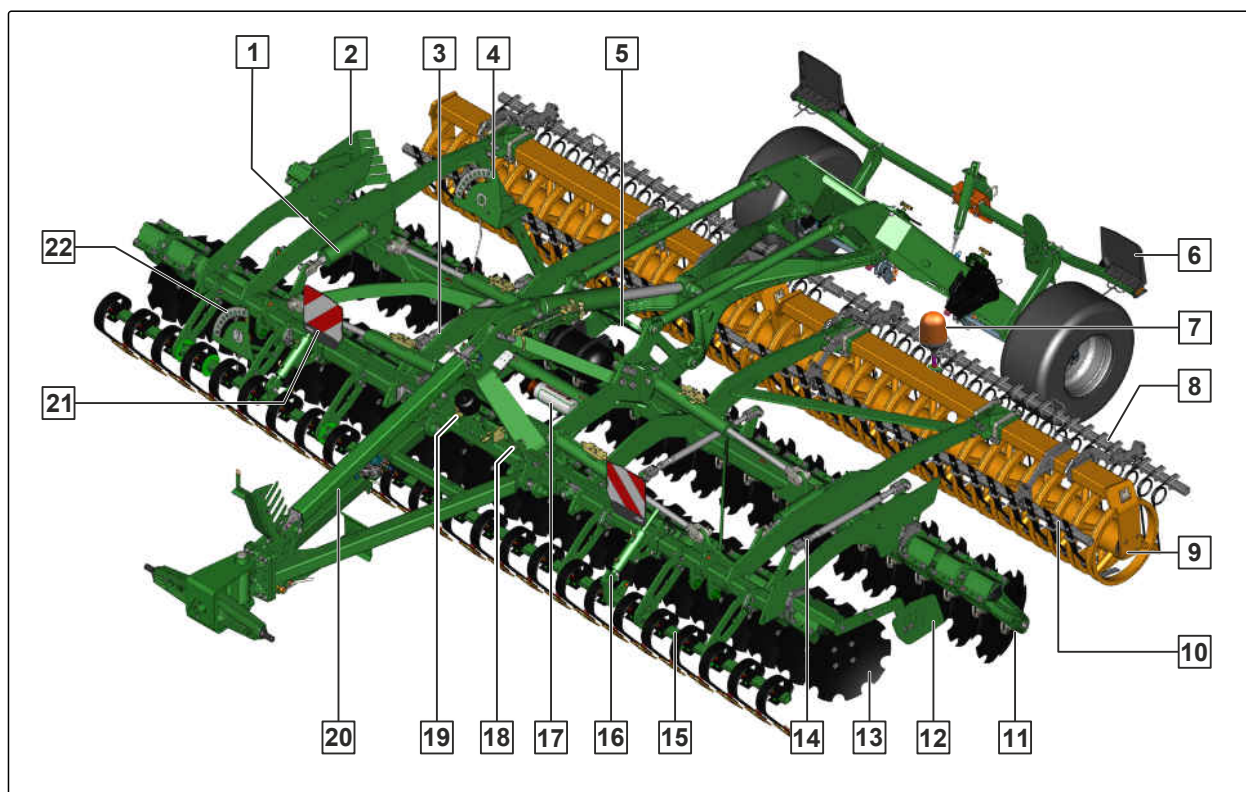
CMS-T-00010499-E.1

4.1 Implement overview

CMS-T-00006302-F.1

4.1.1 Implement with leading tool

CMS-T-00004260-G.1



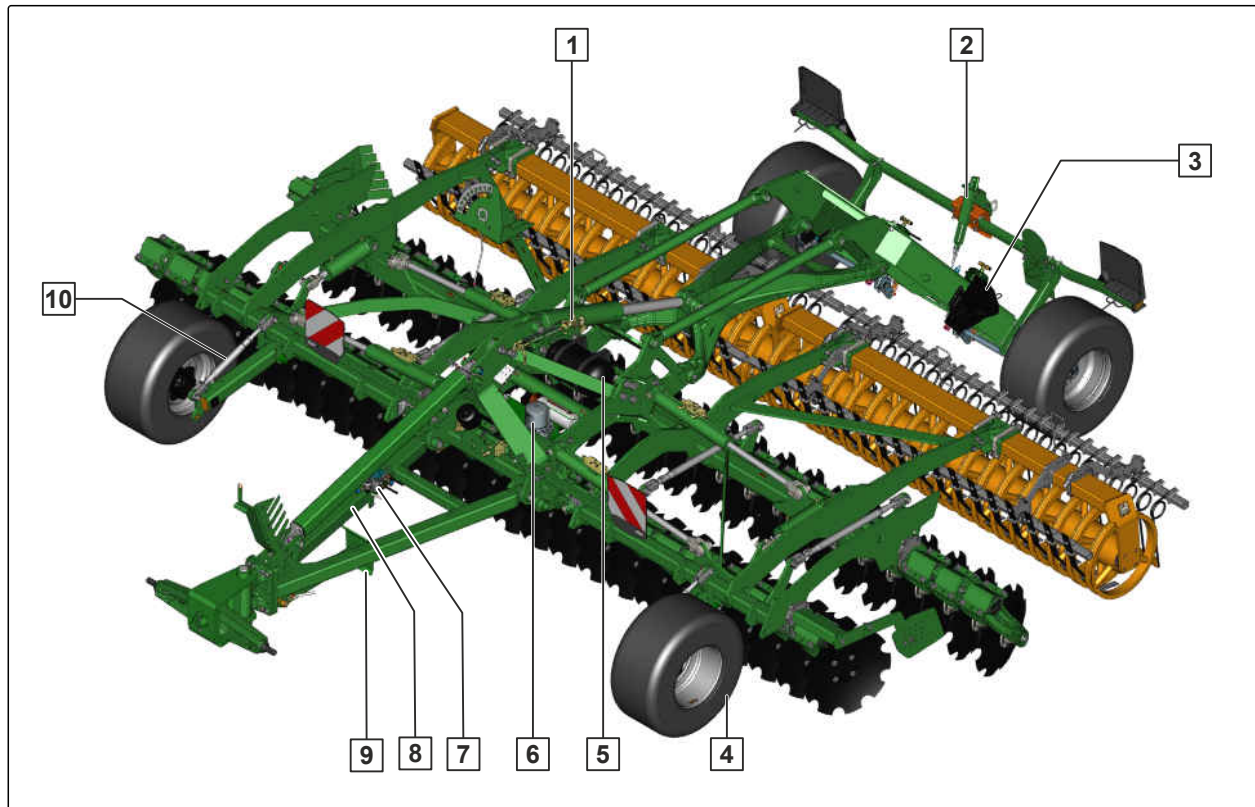
CMS-I-00003284

- | | |
|--|---|
| 1 Working depth adjustment | 2 Right side guide plate |
| 3 Rating plates and stamped identification number | 4 Working depth indicator for the discs |
| 5 Rating plates and stamped identification number | 6 Rear lighting and identification for road travel |
| 7 Warning beacon | 8 Trailing elements |
| 9 Roller | 10 Clearer system |
| 11 Side disc | 12 Left side guide plate |
| 13 Disks | 14 Threaded spindle for aligning the disc gangs |
| 15 Leading tool | 16 Working depth adjustment for leading tool |

- | | |
|---|--|
| 17 GewindePack | 18 Spirit level |
| 19 Stop tap | 20 Hand lever |
| 21 Front lighting and identification for road travel | 22 Working depth indicator for the leading tool |

4.1.2 Implement with support wheels

CMS-T-00006303-B.1

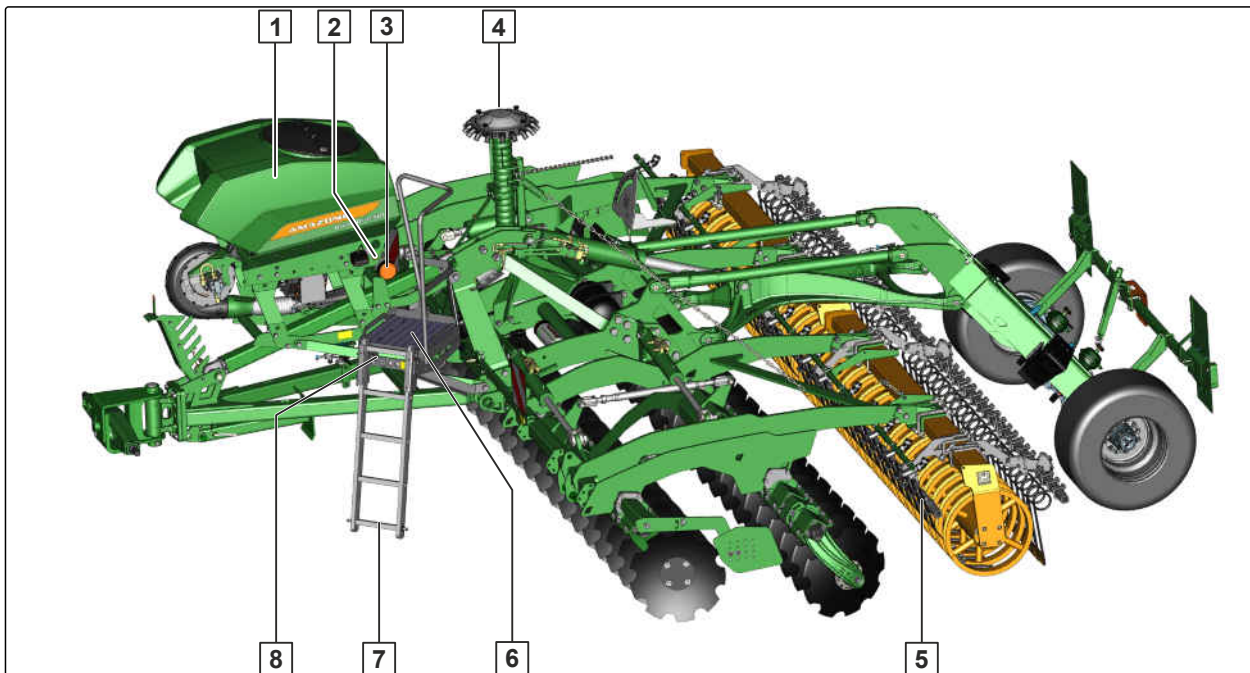


CMS-I-00004502

- | | |
|---|---|
| 1 Running gear hydraulic cylinders with vibration compensation | 2 Parking brake |
| 3 Wheel chock | 4 Support wheel |
| 5 Compressed air tank | 6 Central lubrication |
| 7 Brake valve of the dual-circuit pneumatic brake system | 8 Emergency brake valve of the single-circuit hydraulic brake system |
| 9 Jack | 10 Threaded spindle for aligning the support wheel |

4.1.3 Implement with GreenDrill

CMS-T-00006304-C.1



CMS-I-00004511

- | | |
|-----------------------------|---------------------------------------|
| 1 GreenDrill | 2 Calibration button |
| 3 GewindePack | 4 Segment distributor head |
| 5 Spreading elements | 6 Service platform |
| 7 Ladder | 8 Holder for calibration scale |

4.2 Special equipment

CMS-T-00004254-D.1

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

The following equipment is special equipment:

- GreenDrill pack top seed drill
- Lighting and identification for road travel
- Crushboard
- Single-circuit hydraulic brake system
- Spring blade system
- Cutter roller
- Clearer system
- Warning beacon
- Side guide plate
- Harrow system

- Support wheels
- Ballast weights
- Central lubrication
- Catch crop conveyor section with distributor head

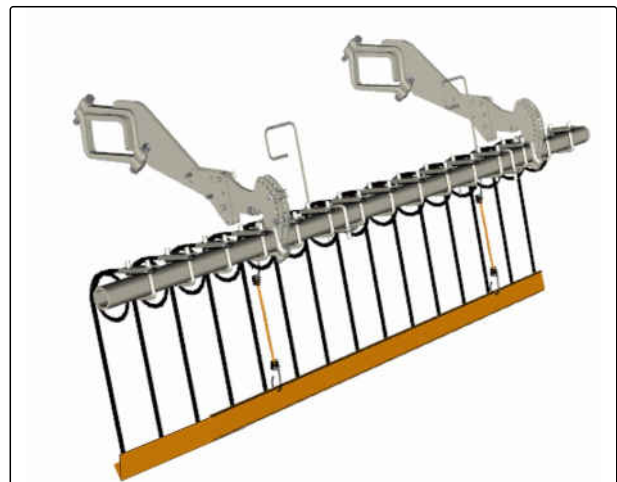
4.3 Protective devices

CMS-T-00004266-G.1

4.3.1 Road safety bars

CMS-T-00000612-E.1

For protection against injuries in road transport, the road safety bar covers the tines on the trailing element.



CMS-I-00000088

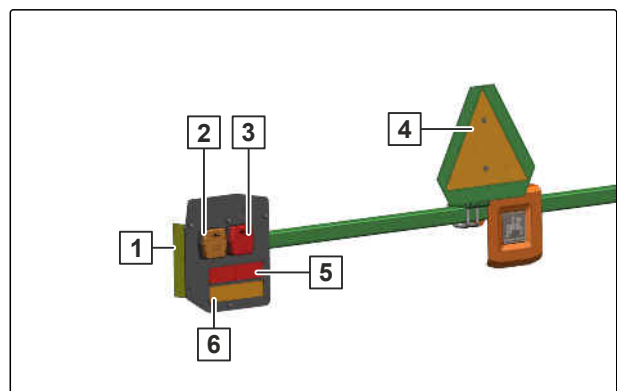
4.4 Lighting and identification for road travel

CMS-T-00010502-A.1

4.4.1 Rear lighting and identification

CMS-T-00010504-A.1

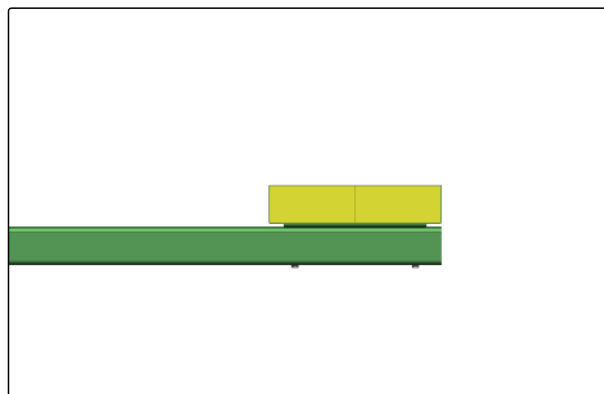
- 1 Side warning sticker
- 2 Turn indicators
- 3 Rear lights and brake lights
- 4 Triangular warning sign
- 5 Red warning sticker
- 6 Yellow warning sticker



CMS-I-00007172

4.4.2 Front identification

Warning sticker



CMS-T-00010503-A.1

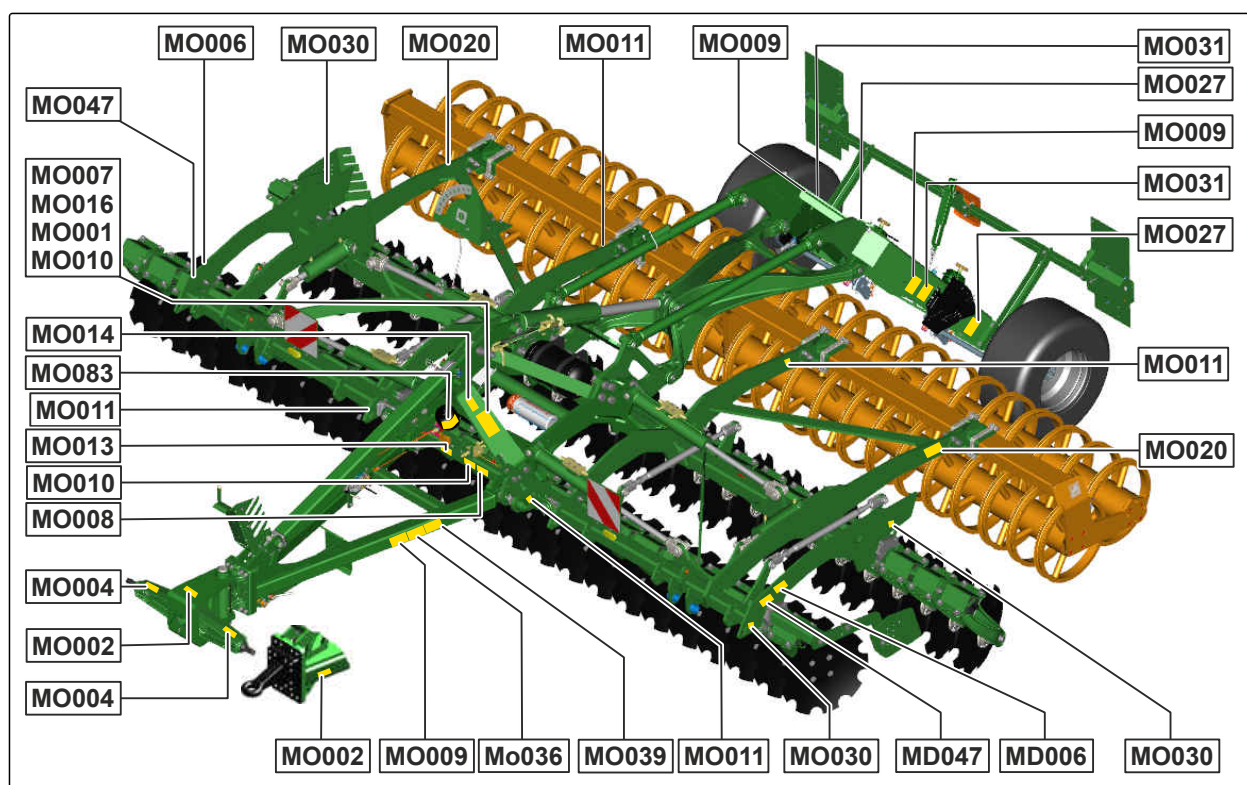
CMS-I-00007173

4.5 Warning symbols

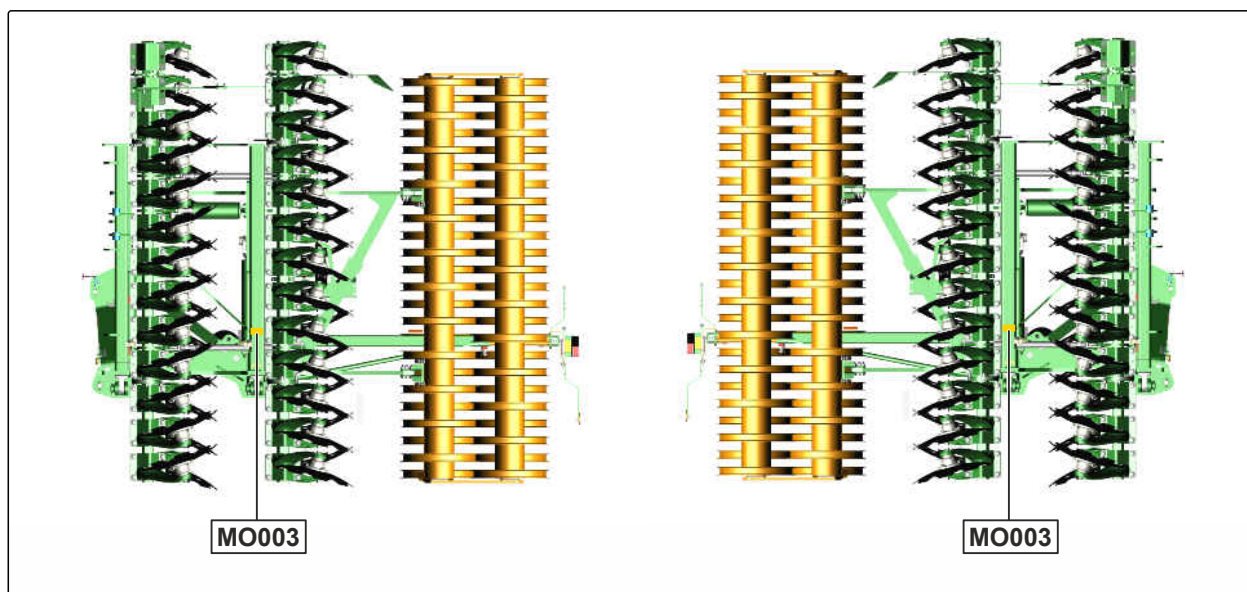
CMS-T-00010500-C.1

4.5.1 Positions of the warning symbols

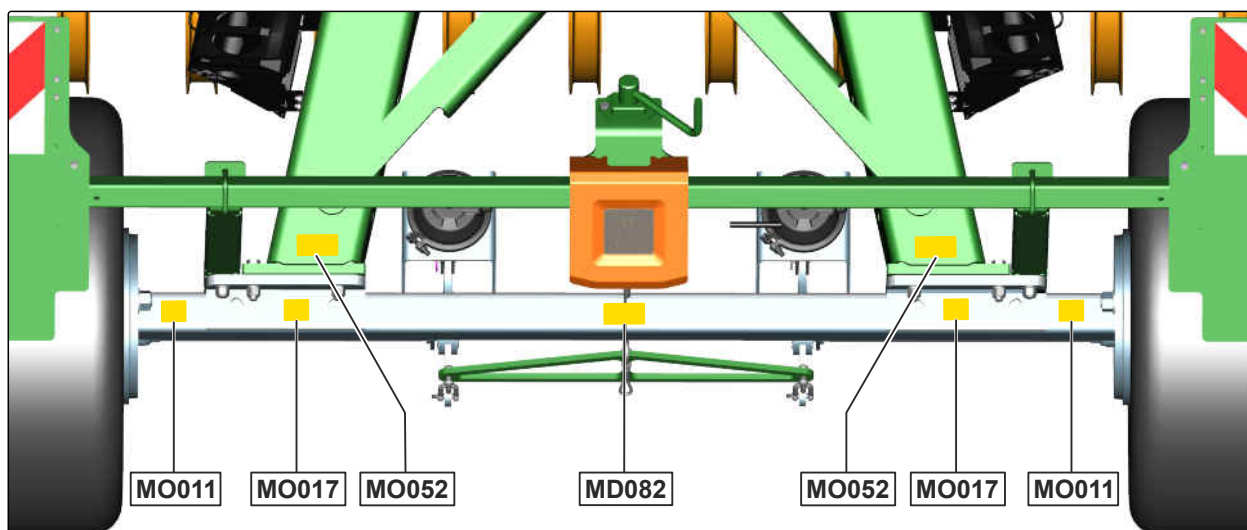
CMS-T-00004257-F.1



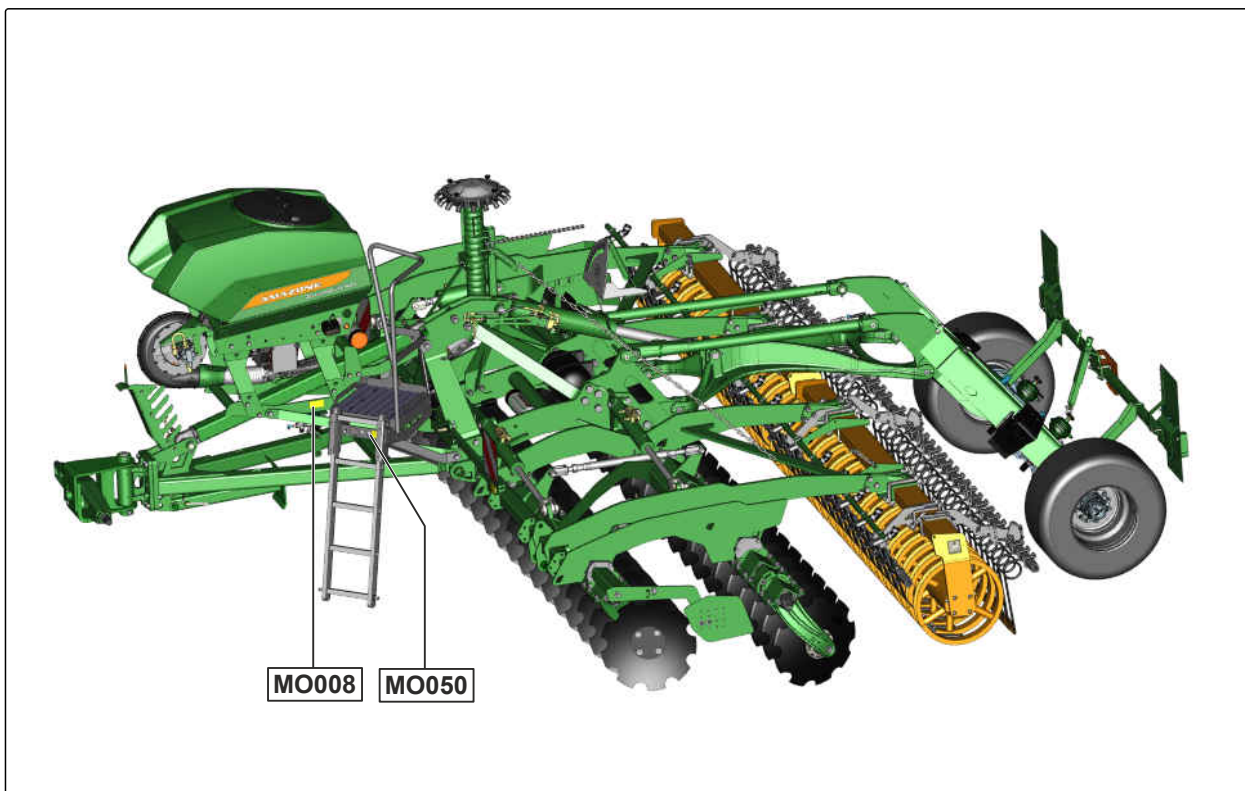
CMS-I-00003528



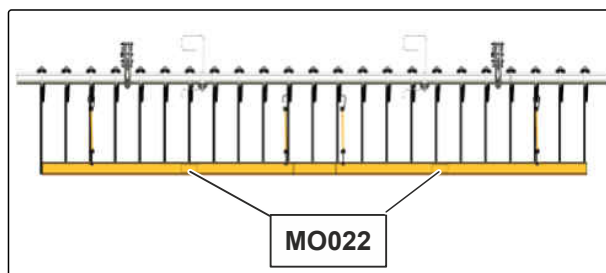
CMS-I-00003482



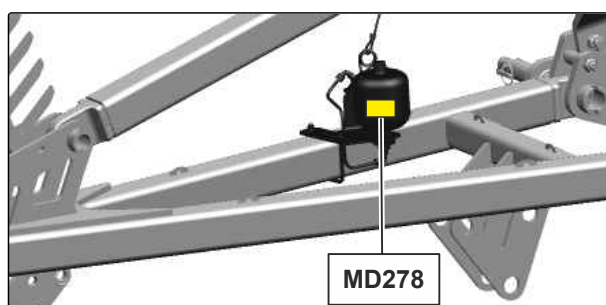
CMS-I-00003531



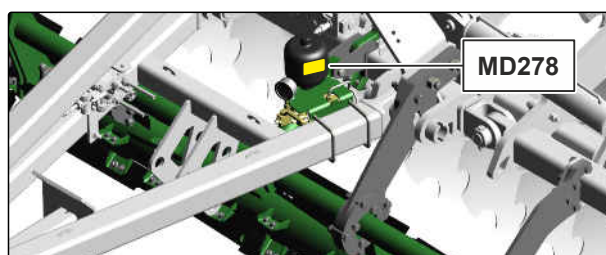
CMS-I-00004516



CMS-I-00007680



CMS-I-00007881



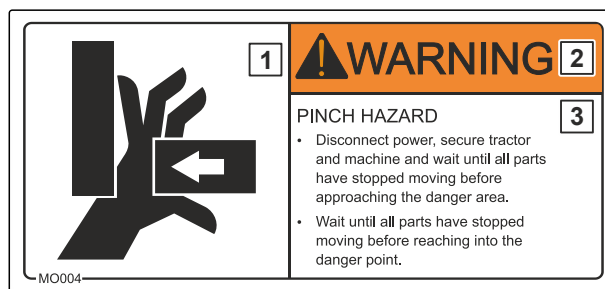
CMS-I-00007883

4.5.2 Structure of the warning symbols

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

A warning symbol consists of 3 fields:

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



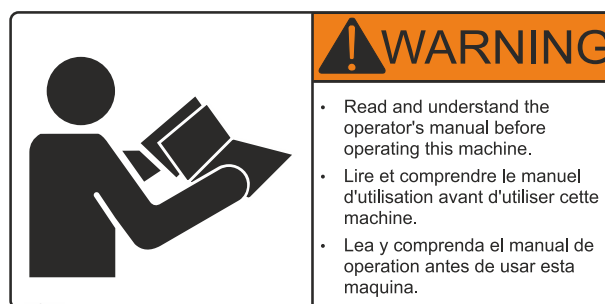
CMS-I-00004316

4.5.3 Description of the warning symbols

MO001

OPERATOR'S MANUAL

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

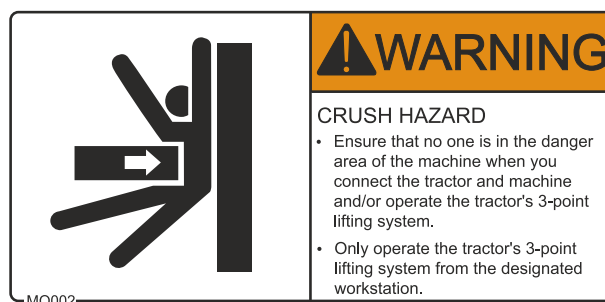


CMS-I-00004161

MO002

CRUSH HAZARD

- Ensure that no one is in the danger area of the machine when you connect the tractor and machine and/or operate the tractor's 3-point lifting system.
- Only operate the tractor's 3-point lifting system from the designated workstation.

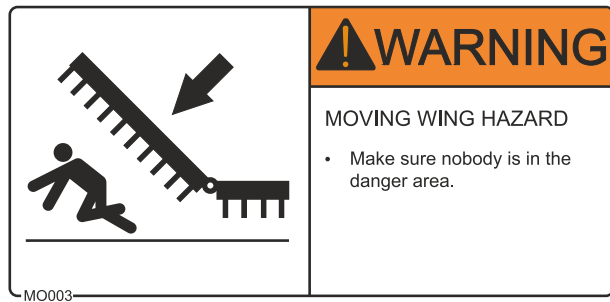


CMS-I-00004162

MO003

MOVING SECTION HAZARD

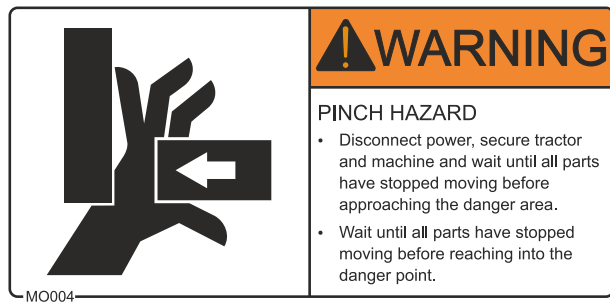
- ▶ Ensure that no one is in the danger area.



MO004

PINCH HAZARD

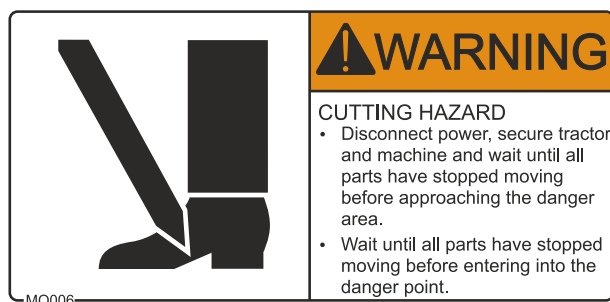
- ▶ Disconnect power, secure tractor and machine and wait until all parts have stopped moving before approaching the danger area.
- ▶ Wait until all parts have stopped moving before reaching into the danger point.



MO006

CUTTING HAZARD

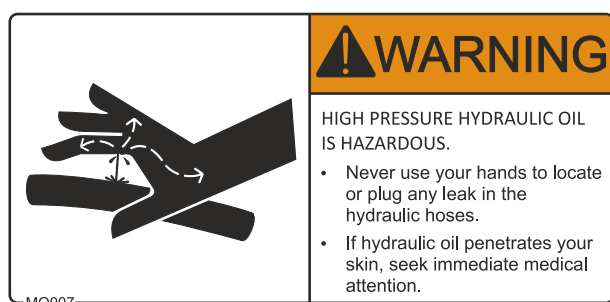
- ▶ Disconnect power, secure tractor and machine and wait until all parts have stopped moving before approaching the danger area.
- ▶ Wait until all parts have stopped moving before entering into the danger point.



MO007

HIGH-PRESSURE HYDRAULIK OIL IS HAZARDOUS

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



MO008

FALLING HAZARD

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



MO009

ROLLING HAZARD

- Secure the implement against accidental rolling.
- Use parking blocks or wheel chocks to secure the implement.

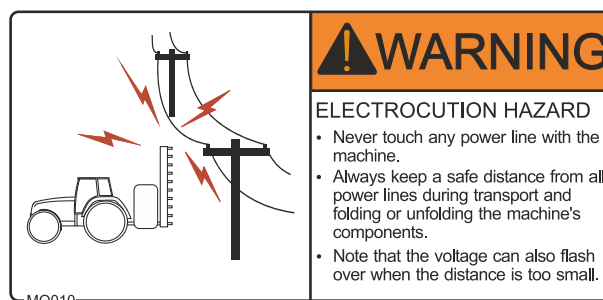


CMS-I-00004169

MO010

ELECTROCUTION HAZARD

- Ensure that the implement does not touch a power line.
- Always maintain a safe distance from all power lines in transport and when folding or unfolding the implement components.
- Note that voltage can also flash over if the safety distance is not maintained.

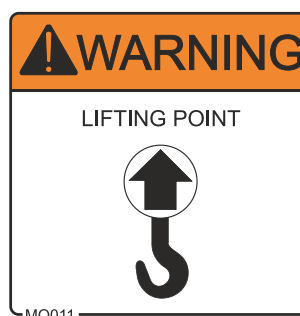


CMS-I-00004170

MO011

LIFTING POINT

- Only attach the sling gear at the marked points.

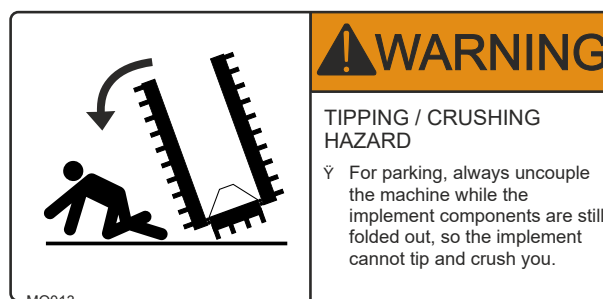


CMS-I-00004171

MO013

TIPPING / CRUSHING HAZARD

- When parking, always uncouple the implement while the implement components are still unfolded. This ensures that the implement cannot tilt and cause crush injuries.

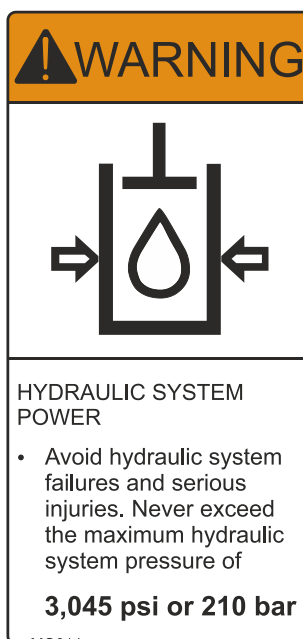


CMS-I-00007174

MO014

HYDRAULIC SYSTEM POWER

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



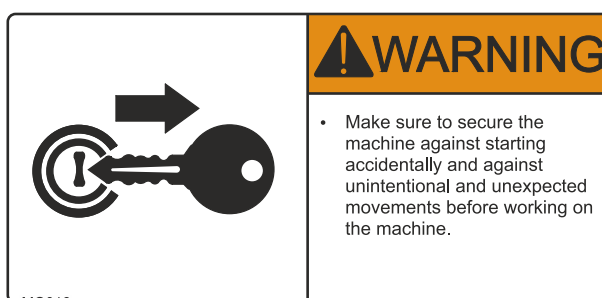
MO014

CMS-I-00004174

MO016

REMOVE KEY

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



MO016

CMS-I-00004176

MO017

LIFTING POINT

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



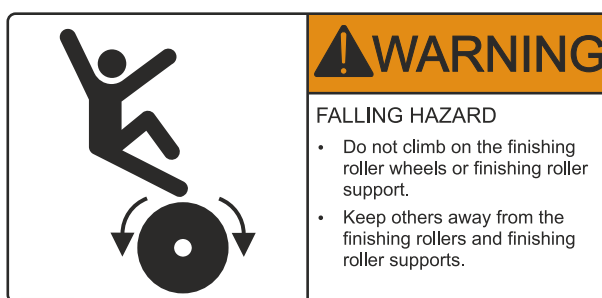
MO017

CMS-I-00004177

MO020

FALLING HAZARD

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



MO020

CMS-I-00004180

MO030

Risk of accident and implement damage during transport due to an improperly secured implement

- For implement transport, only attach the lashing straps on the marked lashing points.



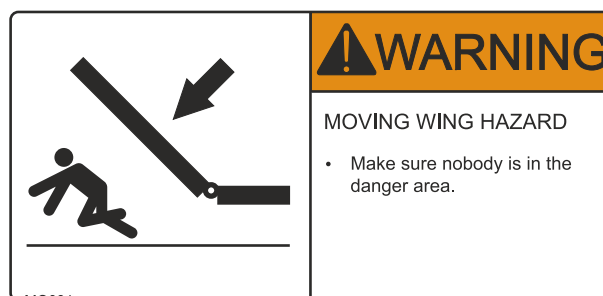
MO030

CMS-I-00007176

MO031

MOVING SECTION HAZARD

- Ensure that no one is in the danger area



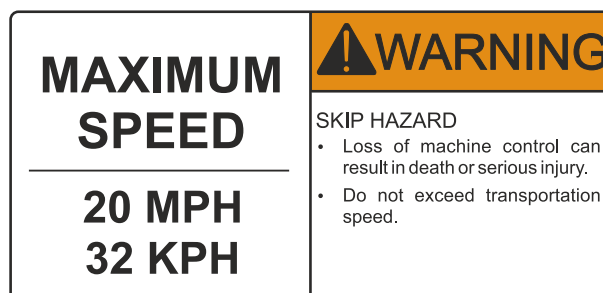
MO031

CMS-I-00004191

MO036

BOUNCE HAZARD

- Loss of implement control can result in death or serious injury.
- Do not exceed the specified transport speed.



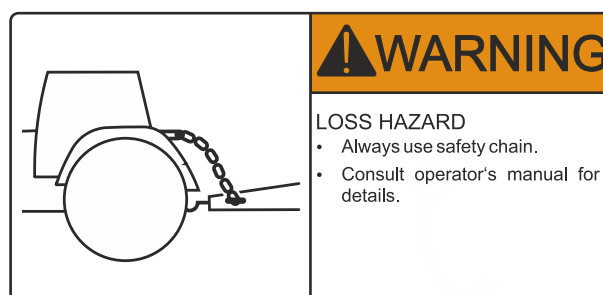
MO036

CMS-I-00004196

MO039

DETACHMENT HAZARD,

- Always use the safety chain
- See the operating manual for details



MO039

CMS-I-00004199

MO047

HAZARD DUE TO EJECTED OBJECTS

- Ensure that no one is in the danger area

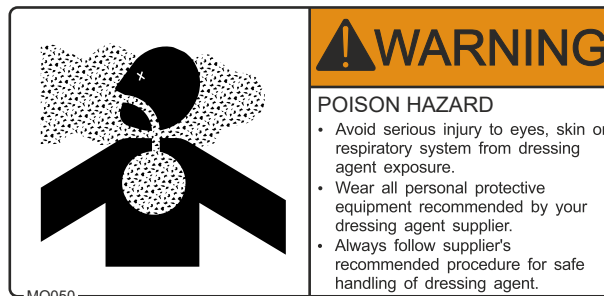


CMS-I-00004206

MO050

POISON HAZARD

- Avoid serious injury to eyes, skin or respiratory system from dressing agent exposure.
- Wear all personal protective equipment recommended by your dressing agent supplier.
- Always follow the supplier's recommended procedure for safe handling of dressing agent.



CMS-I-00008716

MO083

EXPLOSION AND PROJECTILE HAZARD

- Only a qualified specialist workshop is allowed to check and repair pressurized hydraulic accumulators.



CMS-I-00007177

4.6 Rating plate

CMS-T-00004498-L.1

4.6.1 Rating plate on the implement

CMS-T-00004505-J.1

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

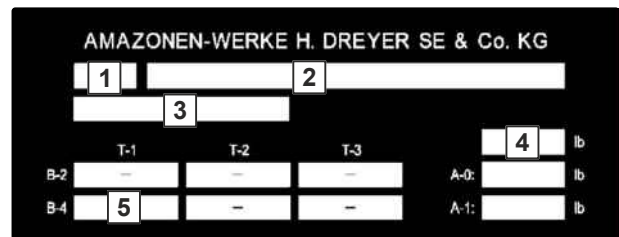


CMS-I-00004294

4.6.2 Additional rating plate

CMS-T-00005949-E.1

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



CMS-I-00005056

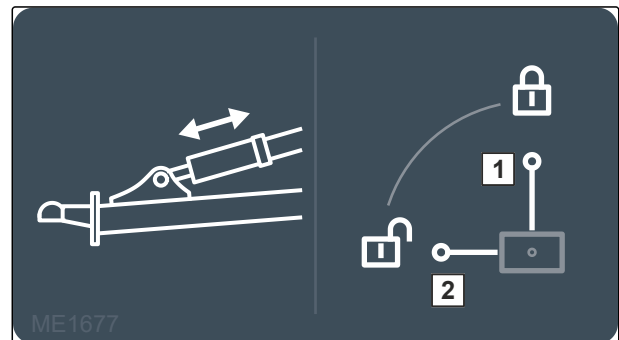
4.7 More information concerning the implement

CMS-T-00004953-E.1

4.7.1 Information concerning the stop tap on the hydraulic drawbar

CMS-T-00004952-C.1

The figure shows that the stop tap on the hydraulic drawbar is locked in position **1** and open in position **2**.

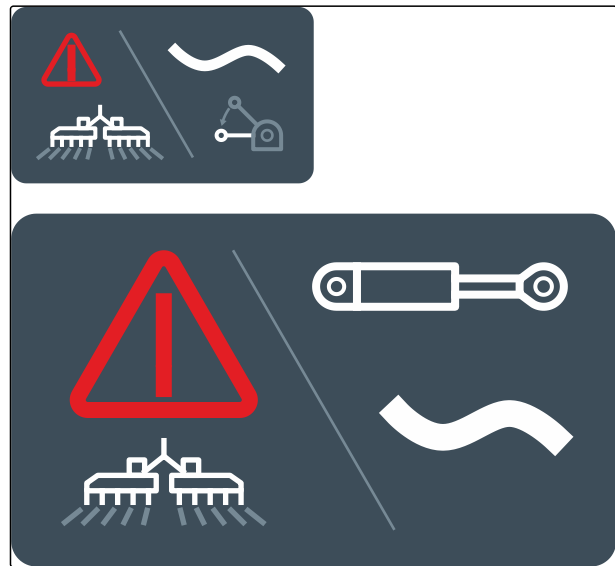


CMS-I-00003535

4.7.2 Note concerning the float position of hydraulic valves

CMS-T-00012591-A.1

The illustrations indicate that the marked hydraulic valves must be switched to float position when the implement is in working position.

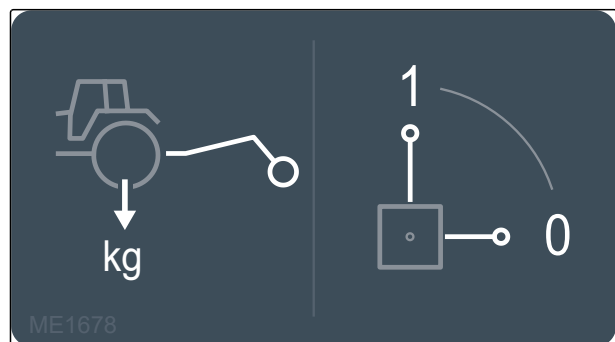


CMS-I-00008046

4.7.3 Note concerning the switch tap for traction assistance

CMS-T-00012631-A.1

The illustration indicates that traction assistance is switched on in position "1" of the switch tap and that it is switched off in position "0" of the switch tap.



ME1678

CMS-I-00008055

4.8 GewindePack

CMS-T-00001776-E.1

The GewindePack contains the following:

- Documents
- Auxiliary equipment



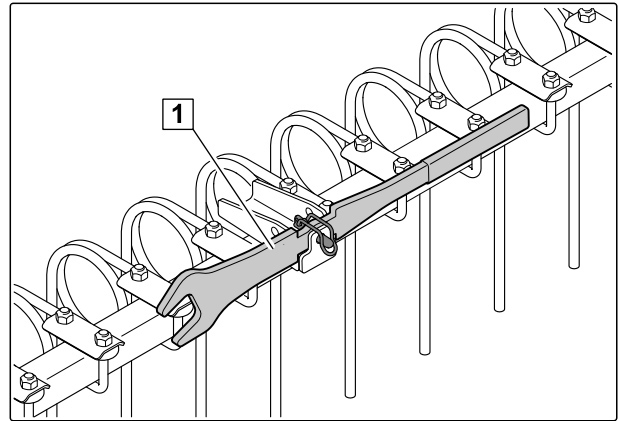
CMS-I-00002306

4.9 Adjustment lever for the trailing elements

CMS-T-00012588-A.1

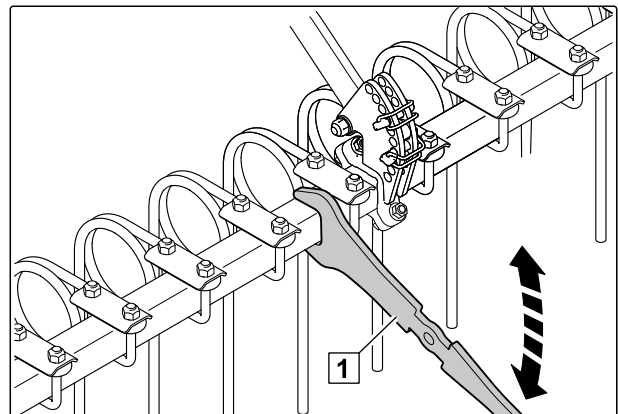
Use the adjustment lever to conveniently adjust the inclination of the harrow system, of the double harrow, of the spring blade system, and of the spring clearer system.

1 Adjustment lever in parking position



CMS-I-00002241

1 Adjustment lever in adjustment position



CMS-I-00007912

Technical data

5

CMS-T-00004234-I.1

5.1 Dimensions

CMS-T-00004235-D.1

Catros	4003-2TS	5003-2TS	6003-2TS	7003-2TS
Working width	13.12 ft (4 m)	16.4 ft (5 m)	19.69 ft (6 m)	7
Transport height	8.86 ft (2.7 m)	10.5 ft (3.2 m)	12.14 ft (3.7 m)	13.12 ft (4 m)
Transport width	9.84 ft (3 m)			
Total length	21.65 ft (6.6 m)			
Center of gravity distance	4.53 ft (1.38 m)			

	Catros ^{XL} 5003-2TS	Catros ^{XL} 6003-2TS
Working width	16.4 ft (5 m)	19.69 ft (6 m)
Transport width	9.68 ft (2.95 m)	9.68 ft (2.95 m)
Transport height	10.5 ft (3.2 m)	12.14 ft (3.7 m)
Total length	7.87 ft (2.4 m)	7.87 ft (2.4 m)
Total length with lighting and identification for road travel	22.57 ft (6.88 m)	22.57 ft (6.88 m)
Centre of gravity distance without front rack	3.94 ft (1.2 m)	3.94 ft (1.2 m)
Center of gravity distance with front rack	6.04 ft (1.84 m)	6.04 ft (1.84 m)

5.2 Soil tillage tool

CMS-T-00004705-G.1

Catros	4003-2TS	5003-2TS	6003-2TS	7003-2TS
Number of disks	32	40	48	56
Disc thickness	0.17 fl.oz (5 ml)			
Disk diameter	20.08 in (51 cm)			
Disk spacing	9.84 in (25 cm)			

Catros	4003-2TS	5003-2TS	6003-2TS	7003-2TS
Working depth	1.97-5.51 in (5-14 cm)			

	Catros ^{XL} 5003-2TS	Catros ^{XL} 6003-2TS
Number of disks	40	48
Disc thickness	0.24 in (6 mm)	
Disk diameter	24.02 in (61 cm)	
Working depth	1.97-6.3 in (5-16 cm)	

5.3 Permissible mounting categories

CMS-T-00004236-A.1

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

5.4 Forward speed

CMS-T-00015791-A.1

Optimal working speed	7.46-11.18 mph (12-18 km/h)
-----------------------	-----------------------------

5.5 Capacity characteristics of the tractor

CMS-T-00004704-G.1

Catros	4003-2TS	5003-2TS	6003-2TS	7003-2TS
Engine capacity	from 91 kW/ 123.29 HP (125 PS)	from 110 kW/ 152.88 HP (155 PS)	from 130 kW/ 177.54 HP (180 PS)	from 154 kW/ 207.13 HP (210 PS)

Engine capacity	
Catros ^{XL} 5003-2TS	Catros ^{XL} 6003-2TS
from 147 kW/197.26 HP (200 PS)	from 176 kW/236.72 HP (240 PS)

Electrical system	
Battery voltage	12 V
Lighting socket	7-pin

Hydraulics	
Maximum operating pressure	3,045.79 psi (210 bar)
Tractor pump capacity	At least 3.96 gpm (15 l/min) at 2,175.57 psi (150 bar)
Tractor pump capacity for GreenDrill	At least 7.93 gpm (30 l/min) at 2,175.57 psi (150 bar)

Hydraulics	
Implement hydraulic oil	HLP68 DIN 51524 The hydraulic oil is suitable for the combined hydraulic oil circuits of all standard tractors.
Control units	Depending on the implement equipment, For section folding, a lockable tractor control unit is required as the tractor-side protective device.

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

5.6 Tightening torques for wheels

CMS-T-00015817-A.1

Tires	tightening torques	
Running gear wheel / support wheel	M18 x 1.5	199.14 ft-lb (270 Nm) (-0/+20)
	M20 x 1.5	258.15 ft-lb (350 Nm) (-0/+30)
	M22 x 1.5	331.9 ft-lb (450 Nm) (-0/+60)

5.7 Noise emission data



CMS-T-00002296-D.1

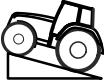
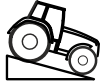
The workplace-related emission sound pressure level is lower than 70 dB(A), measured in operating status at the ear of the tractor driver with the cab closed.

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

5.8 Drivable slope inclination

CMS-T-00002297-E.1

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

Uphill and downhill		
Uphill	15%	
Downhill	15%	

5.9 Lubricants

CMS-T-00002396-B.1

Manufacturer	Lubricant
ARAL	Aralub HL2
FINA	Marson L2
ESSO	Beacon 2
SHELL	Retinax A

Preparing the implement

6

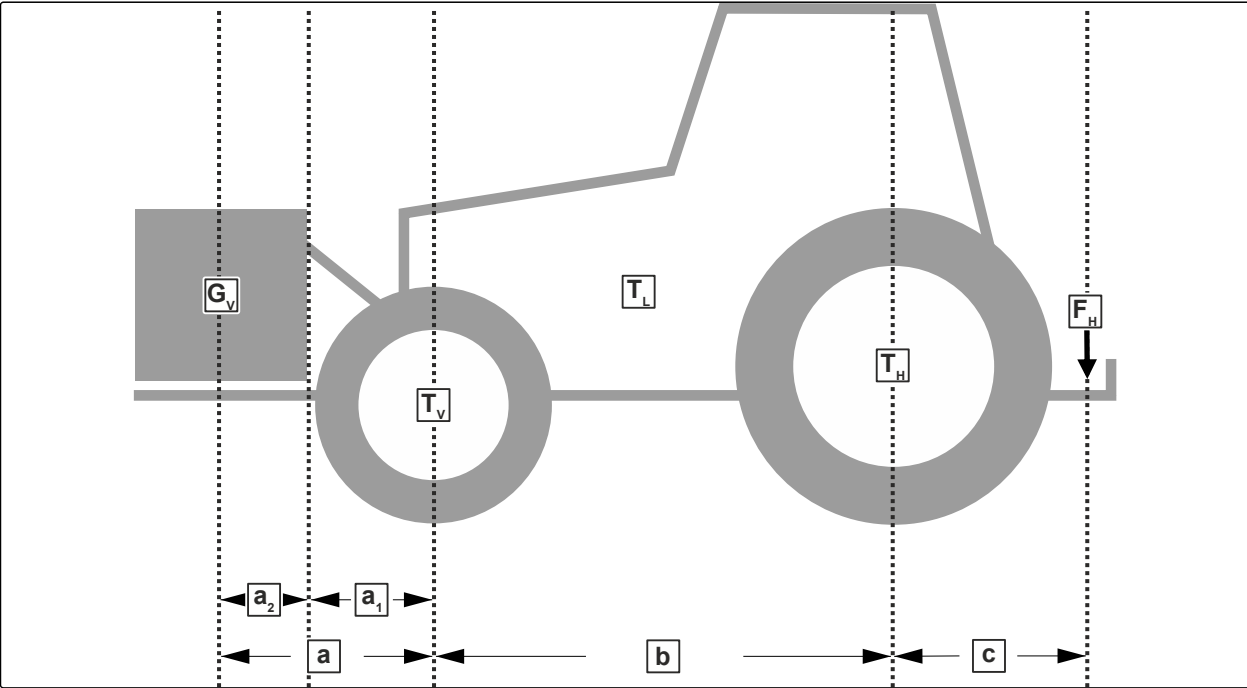
CMS-T-00004237-W.1

6.1 Checking tractor suitability

CMS-T-00004592-G.1

6.1.1 Calculating the required tractor characteristics

CMS-T-00004868-G.1



CMS-I-00000580

Designation	Unit	Description	Determined values
T_L	lb (kg)	Tractor tare weight	
T_V	lb (kg)	Front axle load of the operational tractor without mounted implement or weights	
T_H	lb (kg)	Rear axle load of the operational tractor without mounted implement or weights	
G_V	lb (kg)	Total weight of front-mounted implement or front weight	
F_H	lb (kg)	Drawbar load	

Designation	Unit	Description	Determined values
a	ft (m)	Distance between the center of gravity of the front-mounted implement or the front ballast and the center of the front axle	
a ₁	ft (m)	Distance between center of the front axle and center of the lower link connection	
a ₂	ft (m)	Center of gravity distance: Distance between the center of gravity of the front-mounted implement or the front ballast and the center of the lower link connection	
b	ft (m)	Wheelbase	
c	ft (m)	Distance between the center of the rear axle and the center of the lower link connection	

1. Calculate the minimum front ballast.

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

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

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

CMS-I-00003504

2. Calculate the actual front axle load.

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

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

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

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 tire load capacity for two tractor tires in the manufacturer specifications.
6. Note the determined values in the table below.



IMPORTANT

Risk of accident due to implement damage caused by excessive loads

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

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

6.1.2 Determining the required coupling devices

CMS-T-00004593-D.1

Coupling device		
Tractor	AMAZONE implement	
Top hitch coupling		
Pin coupling, type A, B, C A, not automatic A, automatic, smooth pin A, automatic, spherical pin	Drawbar eye	Bushing 1.57 in (40 mm)
	Drawbar eye	1.57 in (40 mm)
	Drawbar eye	1.97 in (50 mm), only compatible with type A
Upper hitch coupling or lower hitch coupling		
Ball hitch coupling 3.15 in (80 mm)	Ball hitch coupling	3.15 in (80 mm)
Lower hitch coupling		
Towing hook or hitch hook	Drawbar eye	Center hole Ø 1.97 in (50 mm) Eye Ø 1.18 in (30 mm)
	Rotating drawbar eye	Only compatible with type Y, bore Ø 1.97 in (50 mm)
	Drawbar eye	Center hole Ø 1.97 in (50 mm) Eye Ø 1.18-1.61 in (30-41 mm)
Swinging drawbar – Category 2	Drawbar eye	Center hole 1.97 in (50 mm) Eye 1.18 in (30 mm)
		Bush, 1.57 in (40 mm)
		1.57 in (40 mm)
		1.97 in (50 mm)
Swinging drawbar	Drawbar eye	
Swinging drawbar or Piton-fix	Drawbar eye	Center hole 1.97 in (50 mm) Eye 1.18 in (30 mm)
	Rotating drawbar eye	Only compatible with type Y, bore Ø 1.97 in (50 mm)
Non-rotatable clevis coupling	Rotating drawbar eye	
Lower link hitch	Lower link crossmember	

- Check whether the coupling device of the tractor is compatible with the coupling device of the implement.

6.1.3 Comparing the permissible DC value with the actual DC value

CMS-T-00004867-B.1

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

1. Calculate the D_C value.
2. Check whether the calculated D_C value is less than or equal to the D_C values on the rating plate of the coupling devices of implement and tractor.

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

CMS-I-00003582

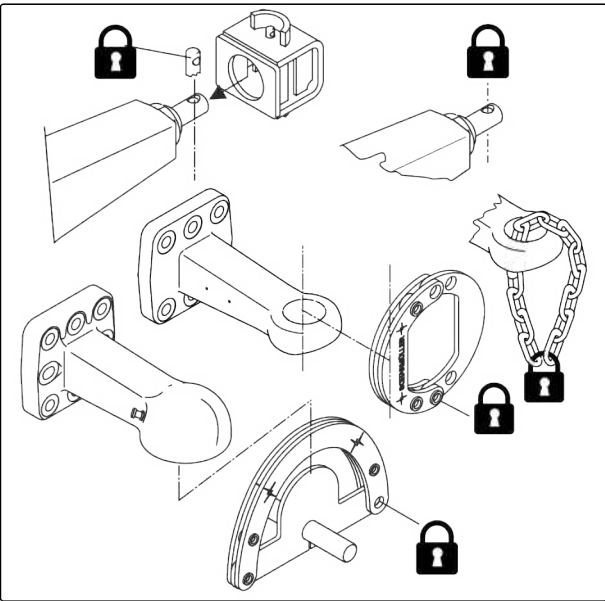
6.2 Coupling the implement

CMS-T-00004246-Q.1

6.2.1 Remove safeguard against unauthorized use

CMS-T-00005089-B.1

1. Unlock padlock.
2. Remove the safeguard against unauthorized use from the hitch device.



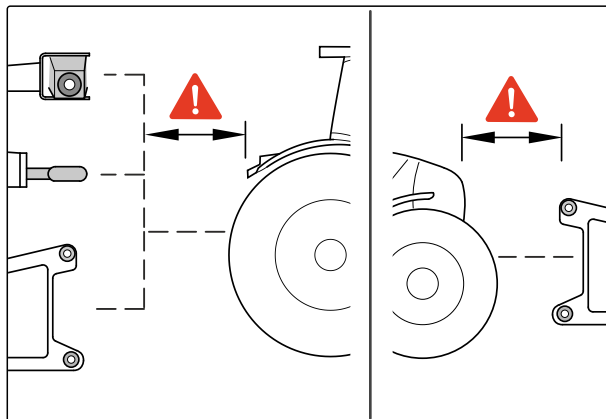
CMS-I-00003534

6.2.2 Moving the tractor towards the implement

CMS-T-00005794-D.1

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

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



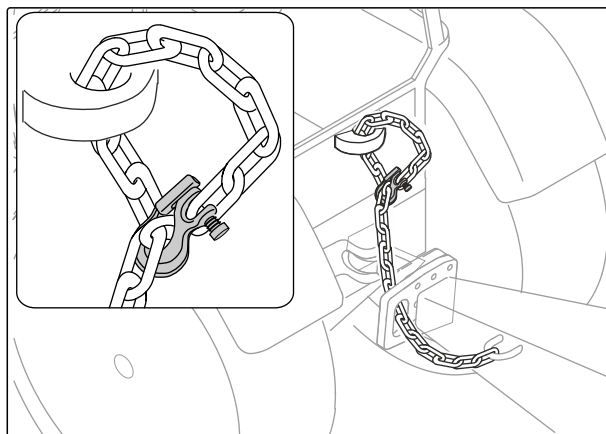
CMS-I-00004045

6.2.3 Fastening the safety chain

CMS-T-00004293-D.1

Depending on country-specific regulations, implements without a brake system are equipped with a safety chain.

- Fasten the safety chain on the tractor as prescribed.



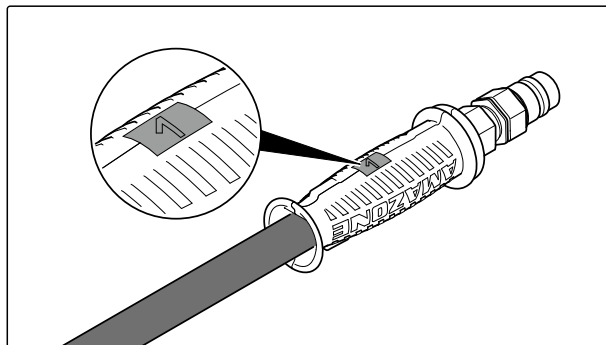
CMS-I-00007814

6.2.4 Coupling hydraulic hose lines

CMS-T-00006194-F.1

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

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



CMS-I-00000121

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

Marking		Function			Tractor control unit	
Blue			Section	Fold	Double-acting lockable	
				Unfold		
Yellow			Running gear	Lift	Double-acting	
				Lower		
Yellow			Drawbar	Lift	Double-acting	
				Lower		
Green			Working depth of the concave disks	Increase	Double-acting	
				Reduce		
Beige			Working depth of the crushboard	Increase	Double-acting	
				Reduce		
Beige			Cutter roller	Insert	Double-acting	
				Lift out		



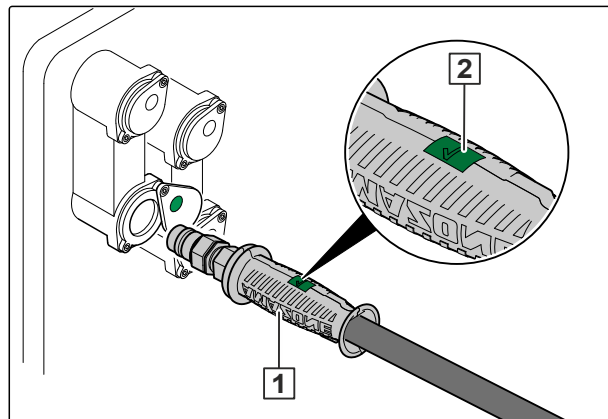
WARNING

Risk of injury or even death

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

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

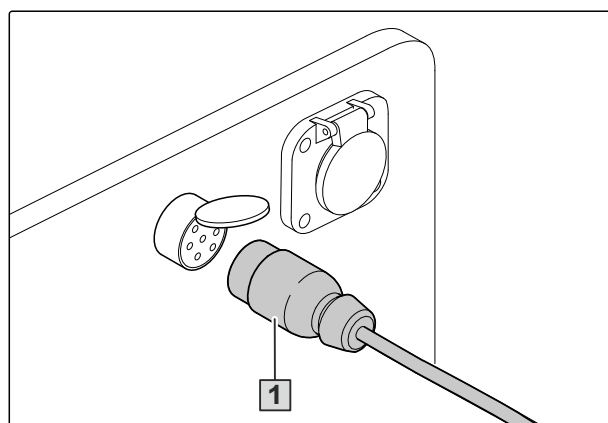
1. Depressurize the hydraulic system between the tractor and the implement using the tractor control unit.
 2. Clean the hydraulic plug connectors.
 3. Couple the hydraulic hose lines **1** to the hydraulic sockets of the tractor according to the marking **2**.
- ➔ The hydraulic plug connectors lock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



CMS-I-00001045

6.2.5 Coupling the power supply

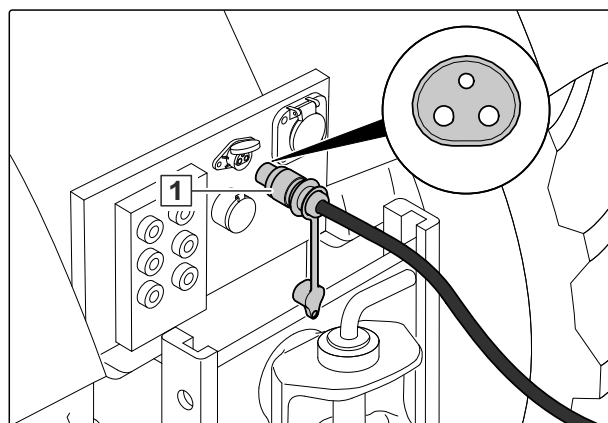
1. Plug in the plug connector **1** for the power supply.
2. Route the power supply cable with sufficient freedom of movement and without chafing or pinching points.
3. Check the lighting on the implement for proper function.



CMS-I-00001048

6.2.6 Connecting the power supply for the central lubrication

1. Connect the plug connector **1** for the power supply to the central lubrication.



CMS-I-00004518

6 | Preparing the implement

Coupling the implement

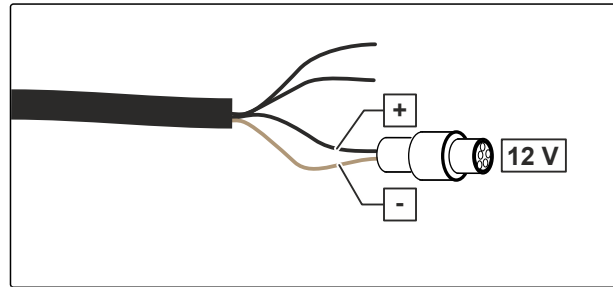
2. *If a different plug connector is used, connect the lines as shown.*



NOTE

- black
- brown

The direction of pump rotation must be the same as shown by the arrow on the tank.



CMS-I-00004517

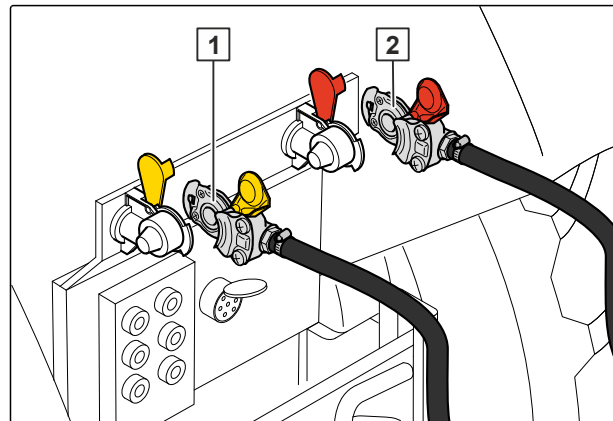
6.2.7 Connecting the brake system

CMS-T-00004317-F.1

6.2.7.1 Coupling the dual-circuit pneumatic brake system

CMS-T-00004318-F.1

1. Open the caps of the coupling heads on the tractor.
2. Clean off any contamination of the sealing rings on the coupling heads.
3. Disconnect the yellow coupling head of the brake line **1** from the parking device.
4. Connect the yellow coupling head to the coupling marked in yellow on the tractor.
5. Disconnect the red coupling head of the brake line **2** from the parking device.
6. Connect the red coupling head to the coupling marked in red on the tractor.
7. Route the brake lines with sufficient freedom of movement and without chafing or pinching points.



CMS-I-00003559

6.2.7.2 Coupling the single-circuit hydraulic brake system

CMS-T-00004319-D.1

1. Clean the hydraulic plug connector and hydraulic socket.
2. Connect the hydraulic plug connector and hydraulic socket.

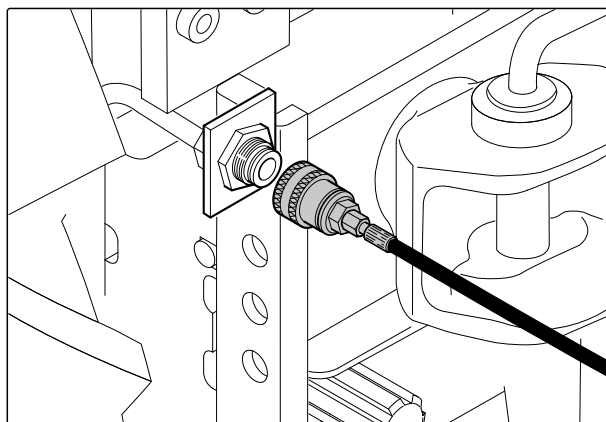


FAULT RECTIFICATION

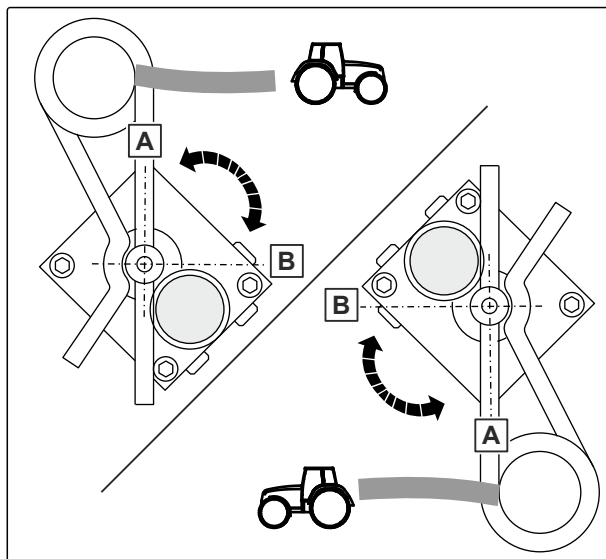
Is it difficult to connect the hydraulic plug connector and hydraulic socket?

The pressure accumulator of the emergency brake forces hydraulic oil into the hydraulic lines.

1. Dissipate the hydraulic pressure using the hand pump on the brake valve of the emergency brake.
 3. Bring brake valve into position **A**.
 4. Fasten the ripcord to a strong point on the tractor.
 5. Activate the tractor brake several times with the tractor engine running.
- ➔ The pressure accumulator of the emergency brake will be charged.



CMS-I-00003560



CMS-I-00007789

6.2.8 Coupling the coupling device

CMS-T-00012208-A.1

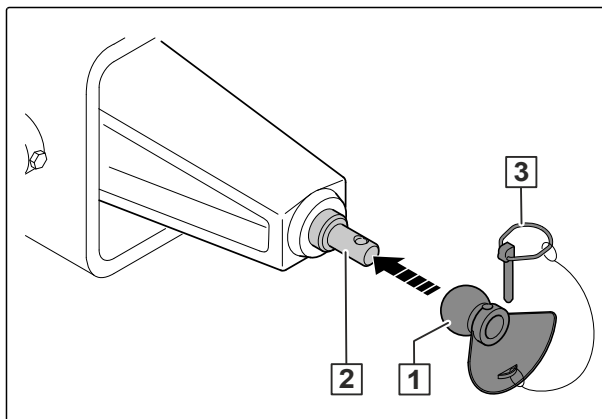
6.2.8.1 Disconnecting the lower link hitch

CMS-T-00004301-F.1

6.2.8.1.1 Attaching backstop profiles for lower links

CMS-T-00010330-A.1

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

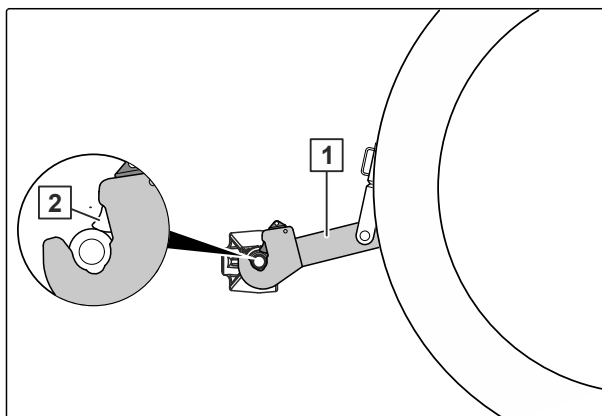


CMS-I-00007047

6.2.8.1.2 Disconnecting the tractor lower links

CMS-T-00004294-F.1

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

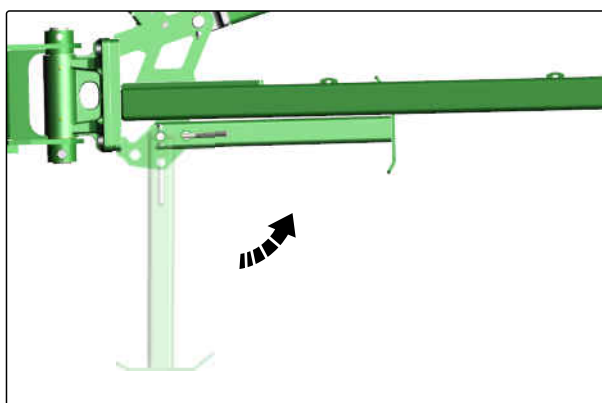


CMS-I-00003346

6.2.8.1.3 Swinging up the jack

CMS-T-00004295-C.1

1. *To offload the jack,*
Slightly lift the implement via the lower links.
2. Pull linch pin of the pin.
3. Pull pin.
4. Swing down jack.
5. Insert pin.
6. Secure the pin with a linch pin.



CMS-I-00003350

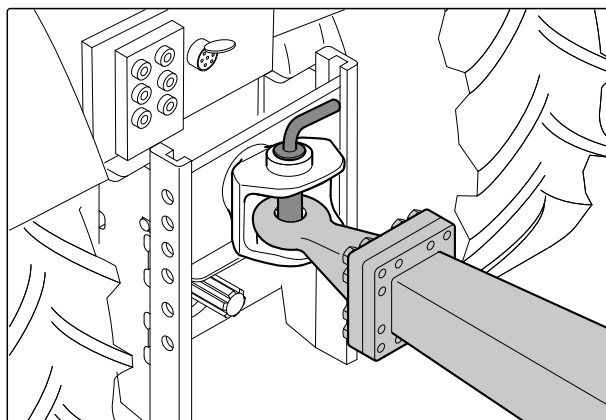
6.2.8.2 Connecting the ball hitch coupling or drawbar eye

CMS-T-00004302-C.1

6.2.8.2.1 Connecting the drawbar eye

CMS-T-00004305-C.1

1. Open the stop tap on the hydraulic drawbar.
2. Adjust the height of the hydraulic drawbar using the "yellow" tractor control unit.
3. Move the tractor towards the implement.
4. Connect the drawbar eye with the clevis coupling of the tractor.

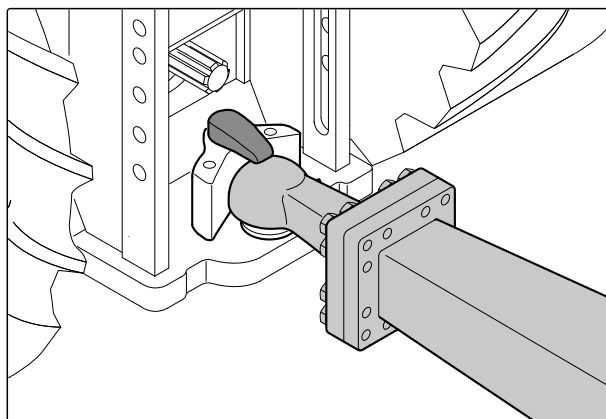


CMS-I-00003557

6.2.8.2.2 Connecting the ball hitch coupling

CMS-T-00004306-C.1

1. Open the stop tap on the hydraulic drawbar.
2. Move the tractor towards the implement.
3. *To place the ball hitch coupling on the hitch ball,*
Lower drawbar via the "yellow" tractor control unit.

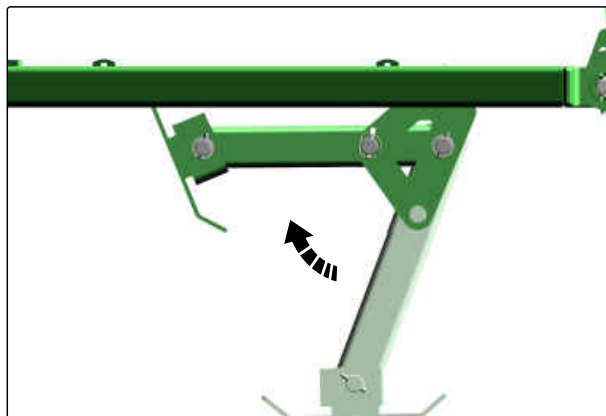


CMS-I-00003558

6.2.8.2.3 Swinging up the jack

CMS-T-00004303-C.1

1. *To offload the jack,*
slightly lift the implement using the "yellow" tractor control unit.
2. Pull lynch pin of the pin.
3. Pull pin.
4. Swing down jack.
5. Insert pin.
6. Secure the pin with a lynch pin.

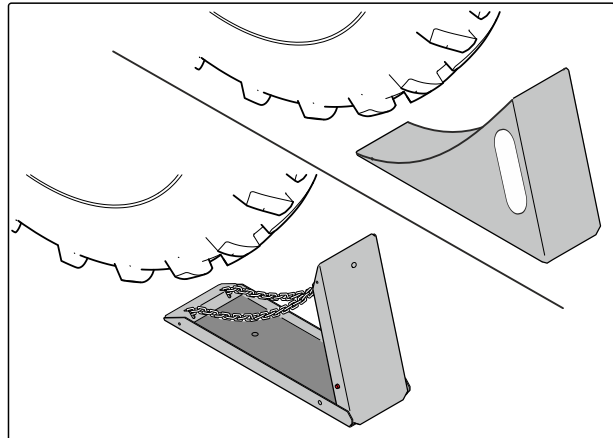


CMS-I-00003552

6.2.9 Removing wheel chocks

CMS-T-00004296-D.1

1. Remove wheel chocks from the wheels.
2. Collapse the folding wheel chocks.
3. Insert wheel chocks in holder.

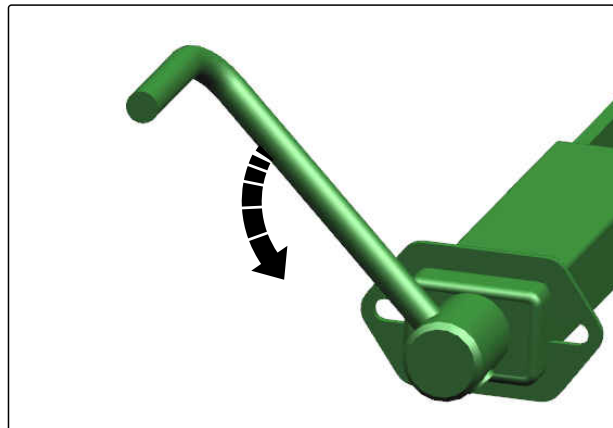


CMS-I-00007790

6.2.10 Releasing the parking brake

CMS-T-00012108-A.1

- Turn the hand crank counter-clockwise until the cable pull is de-tensioned.



CMS-I-00007808

6.3 Preparing the implement for operation

CMS-T-00004238-M.1

6.3.1 Unfolding sections

CMS-T-00004426-E.1

1. Completely lift the implement.
2. Activate "blue" tractor control unit.
- ➔ Sections unfold.
3. Unfold the sections to end position.

6.3.2 Adjusting the trailing elements

CMS-T-00012141-A.1

6.3.2.1 Adjusting harrow system 12-125 HI

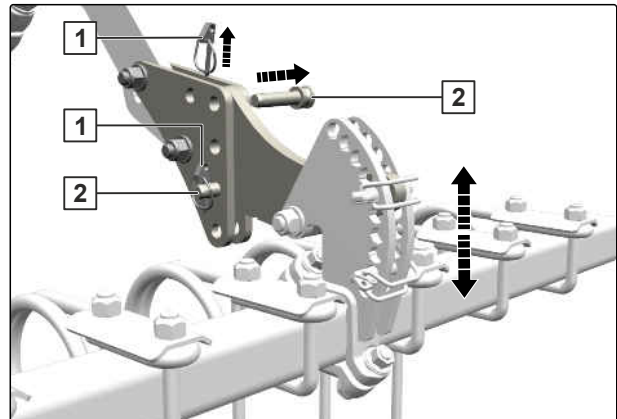
CMS-T-00012142-A.1

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

CMS-T-00012144-A.1

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

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



CMS-I-00007854

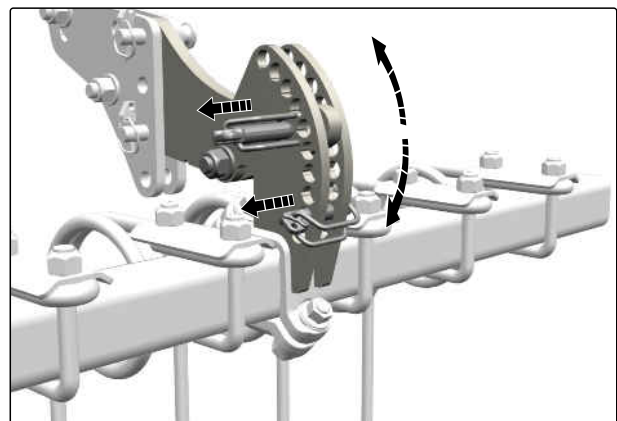
6.3.2.1.2 Adjusting the inclination of the 12-125 HI harrow system

CMS-T-00012143-A.1

1. Pull both linch pins on both adjustment units.

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

2. Turn the harrow into the desired position.

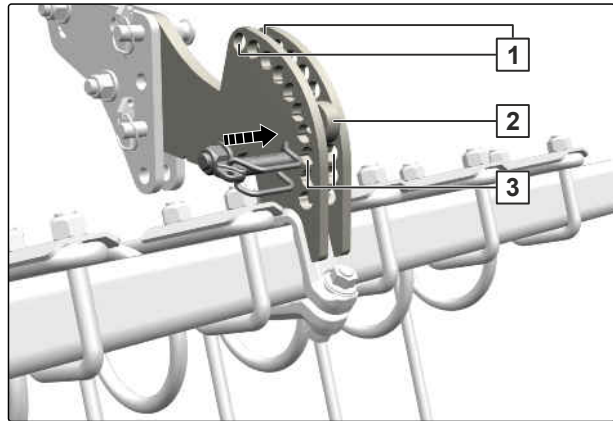


CMS-I-00007852

6 | Preparing the implement

Preparing the implement for operation

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



CMS-I-00007853

6.3.2.2 Adjusting the 12-125 H KWM/DW harrow system

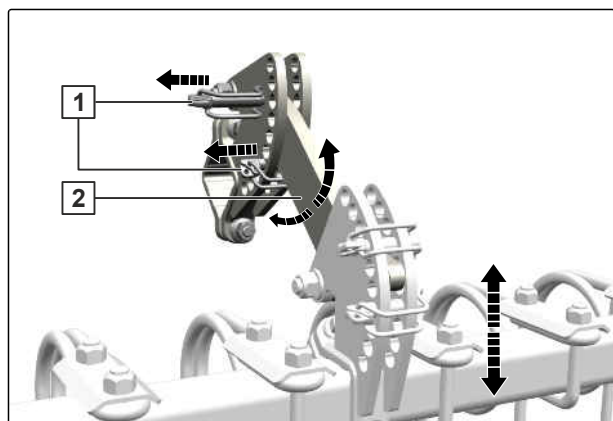
CMS-T-00012148-A.1

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

CMS-T-00012150-A.1

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

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



CMS-I-00007870

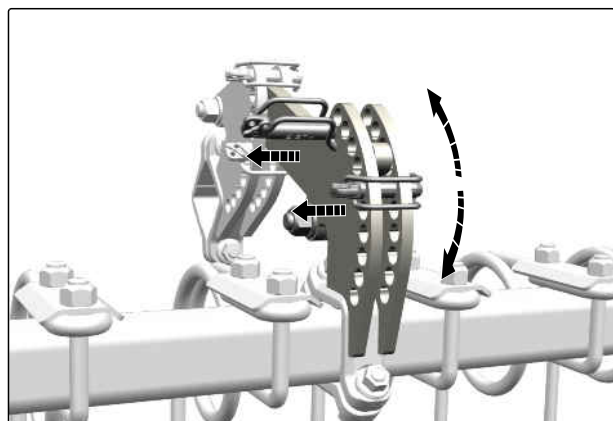
6.3.2.2.2 Adjusting the inclination of the 12-125 HI KWM/DW harrow system

CMS-T-00012149-A.1

1. Pull both linch pins on both adjustment units.

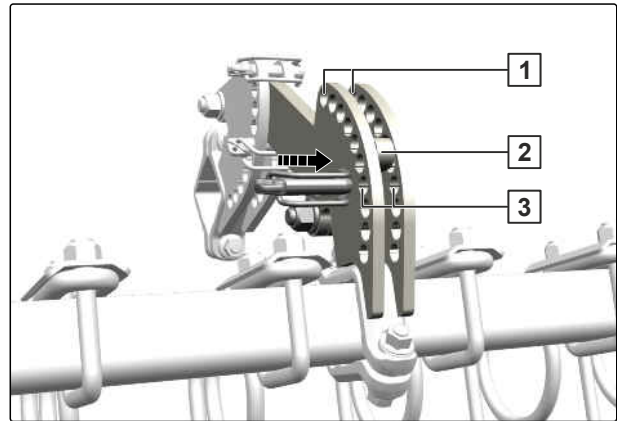
The next work step can also be executed with the adjustment lever.

2. Turn the harrow into the desired position.



CMS-I-00007866

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



CMS-I-00007869

6.3.2.3 Adjusting harrow system 12-250 HI

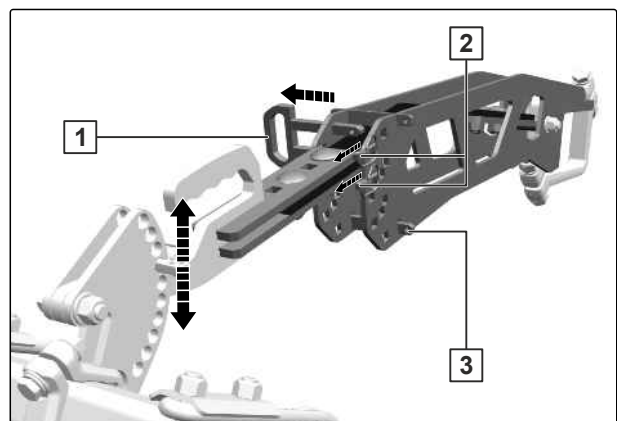
CMS-T-00012163-A.1

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

CMS-T-00012166-A.1

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

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



CMS-I-00007880

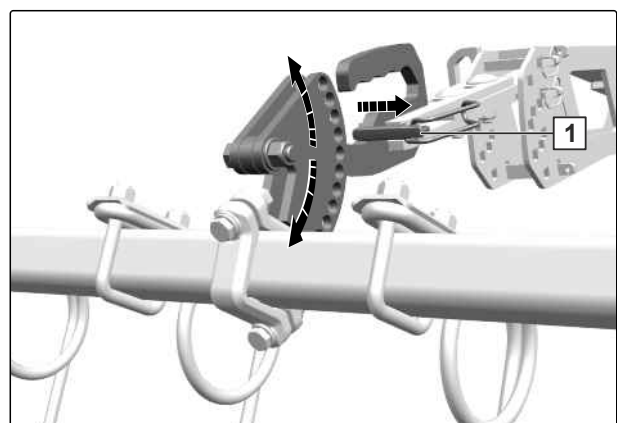
6.3.2.3.2 Adjusting the inclination of the 12-250 HI harrow system

CMS-T-00012164-A.1

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

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

2. Turn the harrow into the desired position.

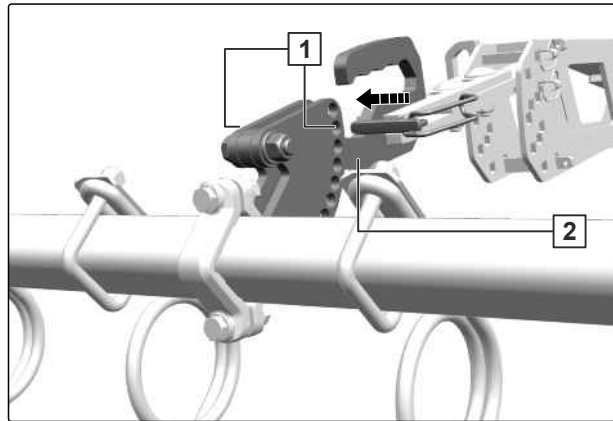


CMS-I-00007871

6 | Preparing the implement

Preparing the implement for operation

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



CMS-I-00007874

6.3.2.4 Adjusting the CXS double harrow

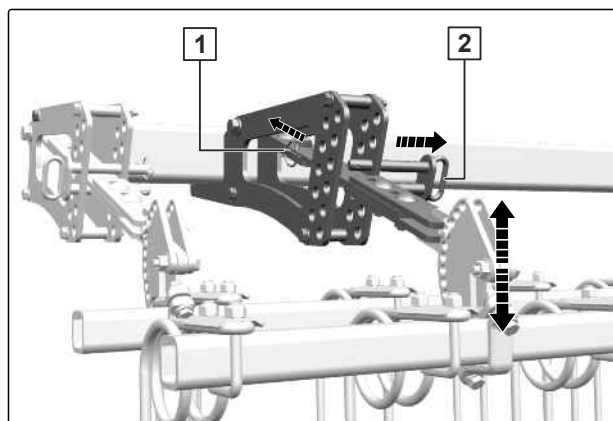
CMS-T-00012167-A.1

6.3.2.4.1 Adjusting the height of the CXS double harrow

CMS-T-00012169-A.1

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

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



CMS-I-00007887

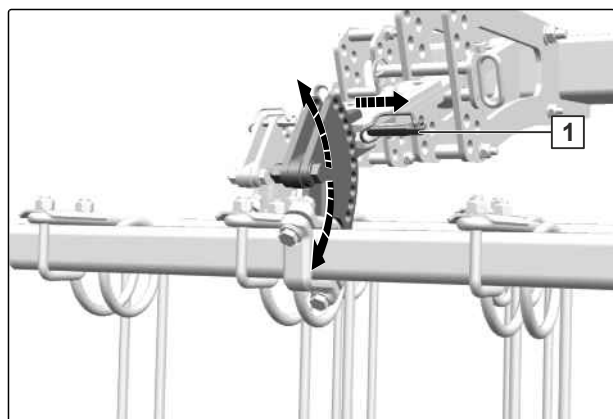
6.3.2.4.2 Adjusting the inclination of the CXS double harrow

CMS-T-00012168-A.1

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

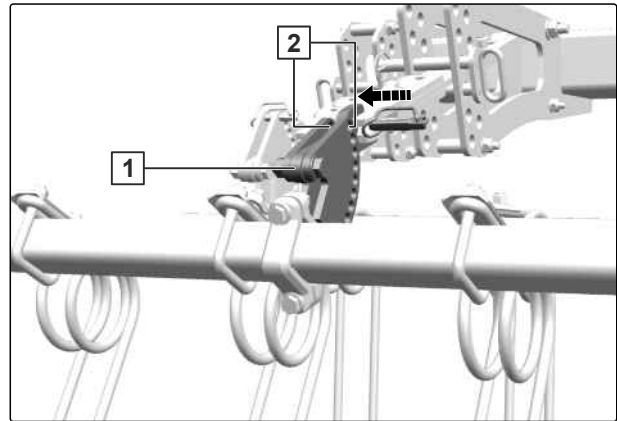
The next work step can also be executed with the adjustment lever.

2. Turn the harrow beam to the desired position.



CMS-I-00007882

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



CMS-I-00007884

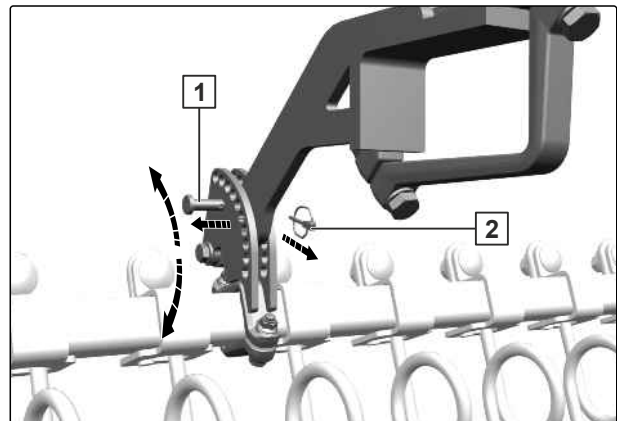
6.3.2.5 Adjusting spring blade system 142 or spring clearer system 167

CMS-T-00012170-A.1

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

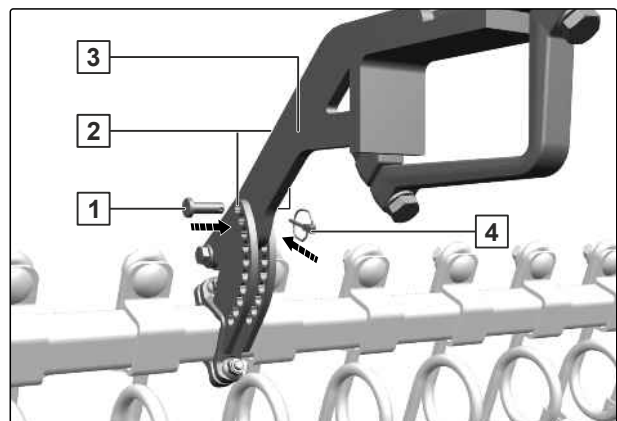
The next work step can also be executed with the adjustment lever.

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



CMS-I-00007888

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



CMS-I-00007889

6.3.2.6 Adjusting the scrapers of the WW 142 HI clearer system

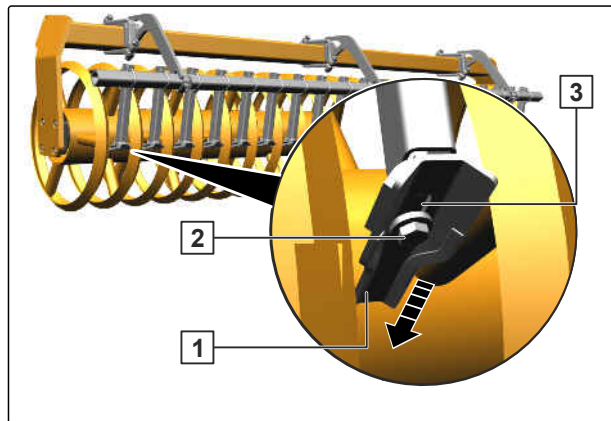
CMS-T-00012171-A.1

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

6 | Preparing the implement

Preparing the implement for operation

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



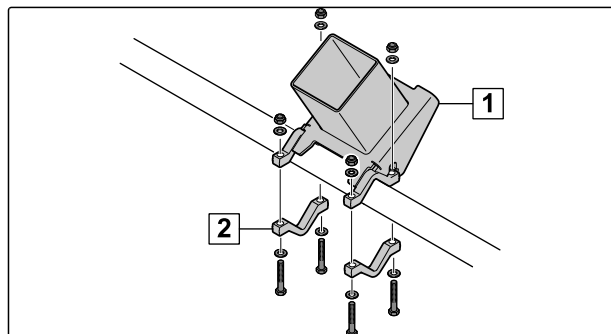
CMS-I-00007890

6.3.3 Mounting ballast weights

CMS-T-00000069-E.1

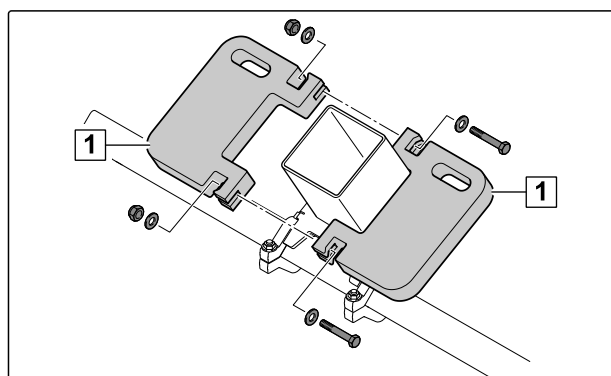
The ballast weights optimize penetration of the disks into the soil under dry and extremely hard soil conditions. One set of ballast weights consists of 4 elements, each with a weight of 55.12 lb (25 kg).

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



CMS-I-00000643

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



CMS-I-00000533

6.3.4 Adjusting the scraper to the roller

CMS-T-00000076-F.1

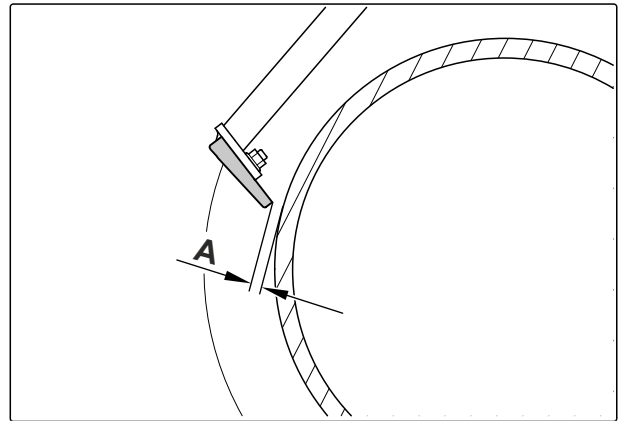
The scrapers on the roller are factory-adjusted. The scrapers can be adapted to the working conditions.



NOTE

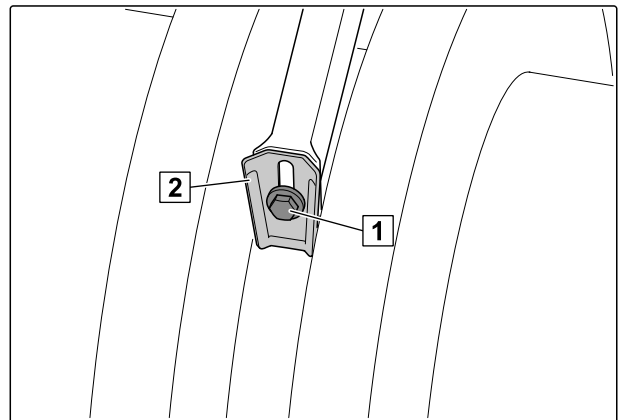
Permissible distances **A** between the roller element and scraper:

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



CMS-I-00002071

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



CMS-I-00000521

6.3.5 Filling the GreenDrill

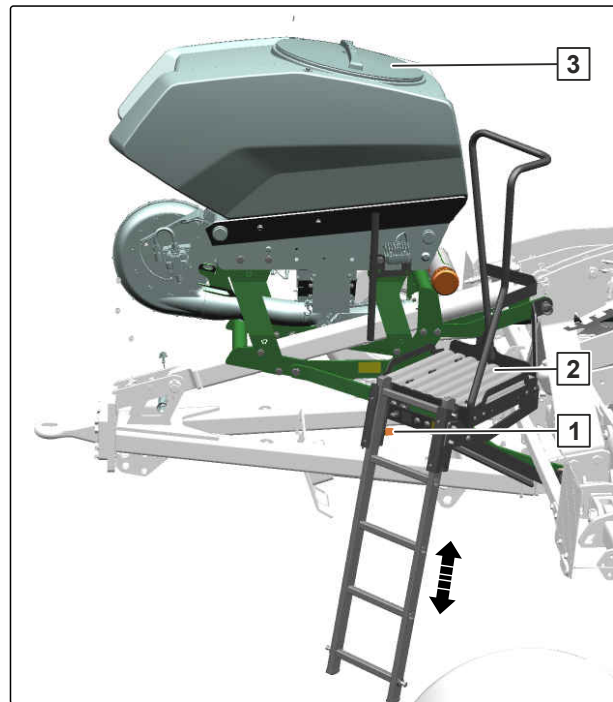
CMS-T-00015831-A.1

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

6 | Preparing the implement

Preparing the implement for road travel

1. Switch off the fan.
2. Switch off the control terminal.
3. Activate handle **1**.
4. Lower the ladder out of parking position.
5. Climb onto the service platform **2**.
6. *To fill the hopper of the GreenDrill **3**:*
See the GreenDrill operating manual.
7. After filling the hopper, swing the ladder upward and arrest it in parking position.



CMS-I-00010393

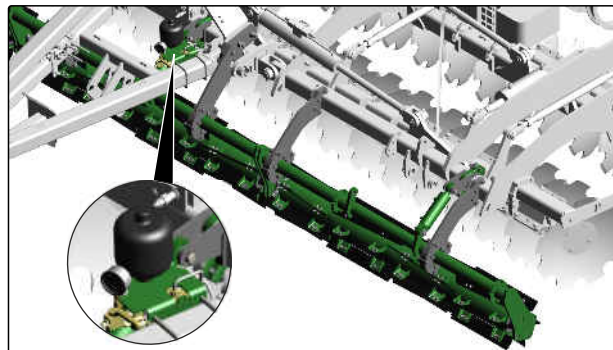
6.4 Preparing the implement for road travel

CMS-T-00004244-M.1

6.4.1 Securing the cutter roller

1. Use the tractor control unit "blue" to lift out the cutter roller.
2. Close the stop tap for the cutter roller.

CMS-T-00004963-D.1



CMS-I-00003326

6.4.2 Bringing the harrow into transport position

CMS-T-00012320-A.1

6.4.2.1 Bringing the 12-125 HI harrow system into transport position

CMS-T-00012324-A.1

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

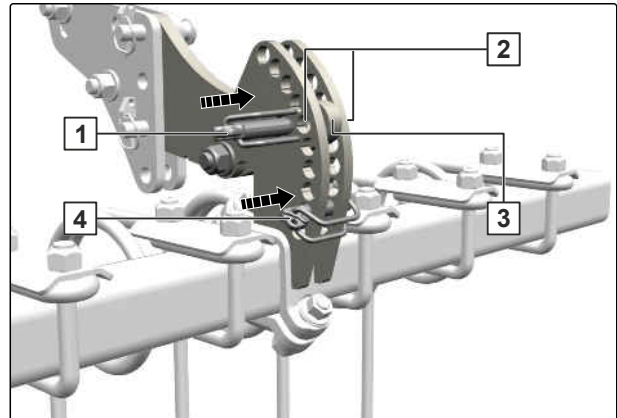
1. Pull both lynch pins on both adjustment units.

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

2. *With the implement folded, if the harrow tines exceed the transport width:*

Turn the harrow beam to a shallower inclination.

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



CMS-I-00007934

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

CMS-T-00012322-A.1

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

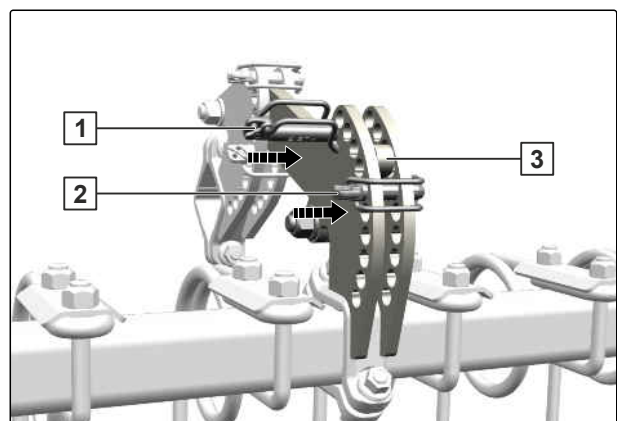
1. Pull both lynch pins on both adjustment units.

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

2. *With the implement folded, if the harrow tines exceed the transport width:*

Turn the harrow beam to a shallower inclination.

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



CMS-I-00007936

6.4.2.3 Bringing the 12-250 HI harrow system into transport position

CMS-T-00012326-A.1

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

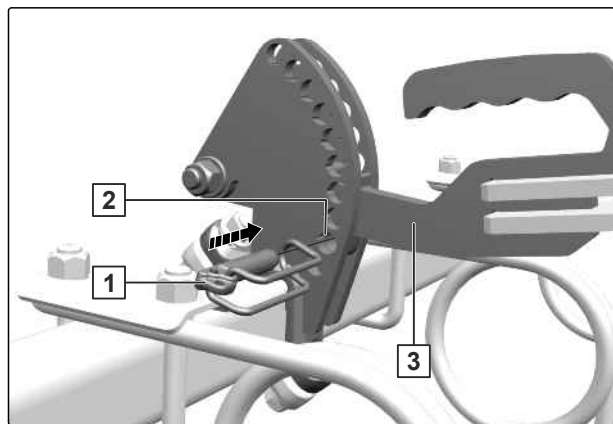
1. Pull the linch pin on both adjustment units.

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

2. *With the implement folded, if the harrow tines exceed the transport width:*

Turn the harrow beam to a shallower inclination.

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



CMS-I-00007907

6.4.2.4 Bringing the CXS double harrow into transport position

CMS-T-00012328-A.1

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

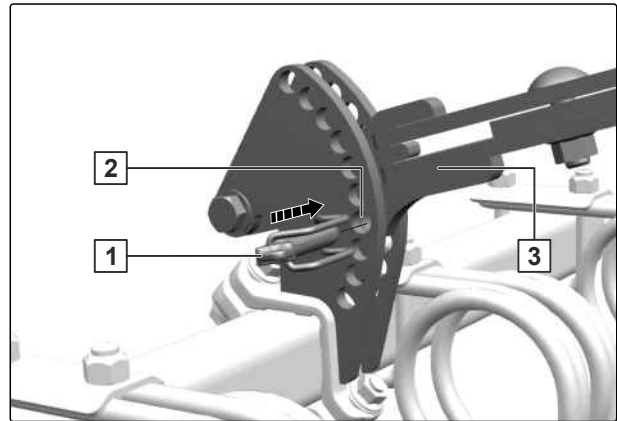
1. Pull the linch pin on both adjustment elements of a double harrow beam.

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

2. *With the implement folded, if the harrow tines exceed the transport width:*

Turn the harrow beam to a shallower inclination.

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

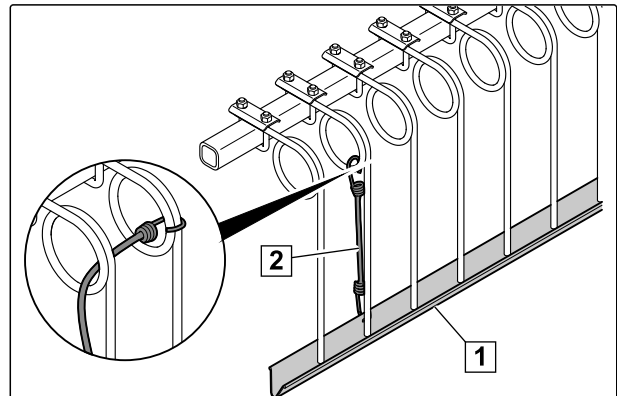


CMS-I-00007908

6.4.3 Attaching the road safety bars

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

CMS-T-00000614-C.1



CMS-I-00000517

6.4.4 Folding sections

CMS-T-00004551-D.1

1. Set the working depth of the disks to the minimum depth.
 2. Completely lift the implement with the lower links or the hydraulic drawbar.
 3. Activate "blue" tractor control unit.
- ➔ Sections fold.
4. Fold sections until they are in end position.
 5. Prevent the "blue" tractor control unit from being activated unintentionally.

6.4.5 Aligning the implement to transport height

CMS-T-00009683-F.1

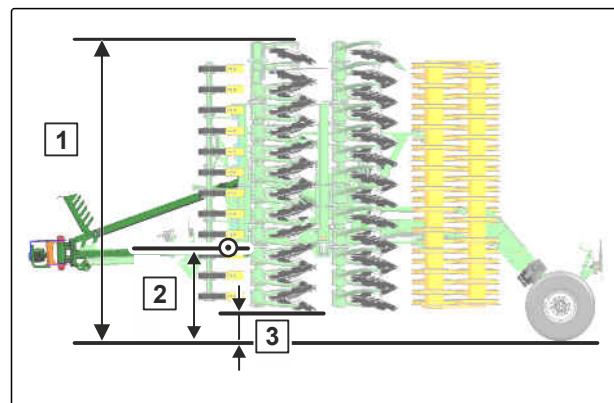
6.4.5.1 Aligning implement with lower link hitch to transport height

CMS-T-00009682-D.1

The graphic shows the implement in horizontal position and with correctly adjusted transport height. The correct transport height is reached when the pivot point of the drawbar is at the specified height.

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

- 1 Maximum transport height < 13.12 ft (4 m)
- 2 Height of the drawbar pivot point: Catros = 0.45 in (1.15 cm) and Catros ^{XL} = 0.41 in (1.05 cm)
- 3 Height of the inner side plates of the sections Catros = 16.54 in (42 cm) and Catros ^{XL} = 11.42 in (29 cm)



CMS-I-00006665

1. Drive the tractor and implement on a horizontal surface.
2. *To align the implement horizontally in the transport height,* activate the tractor lower links and the "yellow" tractor control unit.

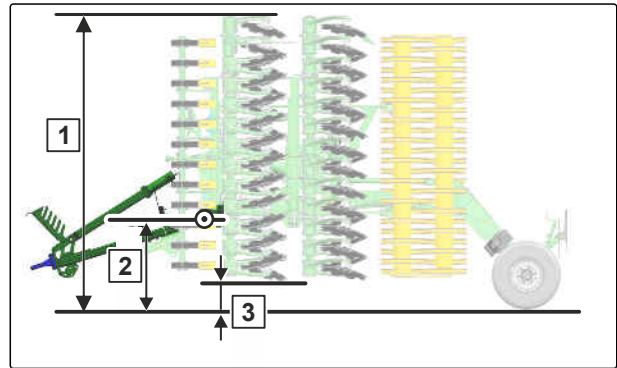
6.4.5.2 Aligning implement with hydraulic drawbar to transport height

CMS-T-00009681-E.1

The graphic shows the implement in horizontal position and with correctly adjusted transport height. The correct transport height is reached when the pivot point of the drawbar is at the specified height.

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

- 1 Maximum transport height < 13.12 ft (4 m)
- 2 Height of the drawbar pivot point: Catros = 0.45 in (1.15 cm) and Catros ^{XL} = 0.41 in (1.05 cm)
- 3 Height of the inner side plates of the sections Catros = 16.54 in (42 cm) and Catros ^{XL} = 11.42 in (29 cm)

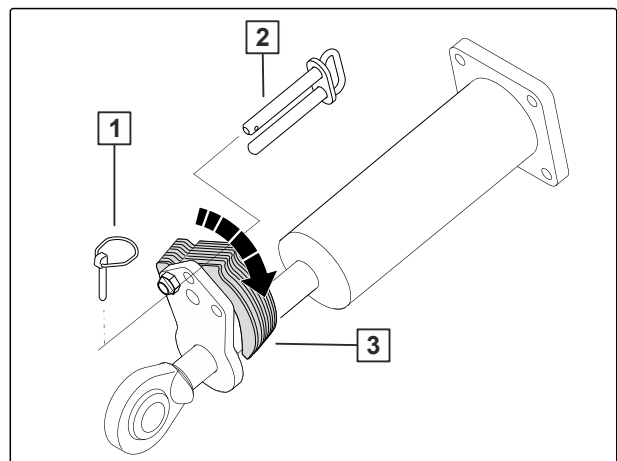


CMS-I-00006681

1. Drive the tractor and implement on a horizontal surface.
2. Lift drawbar via the "yellow" tractor control unit.

The horizontal alignment of the hydraulic drawbar is secured with spacer elements.

3. Pull the linch pin 1.
4. Pull the pins 2.
5. Swing down all spacer elements 3.
6. Lower drawbar via the "yellow" tractor control unit.
7. Insert pin.
8. Secure the pin with a linch pin.
9. *To align the implement horizontally in transport height on the running gear, Activate the "yellow" tractor control unit.*



CMS-I-00006685

6.4.6 Locking tractor control units

CMS-T-00006337-D.1

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

Using the implement

7

CMS-T-00004288-M.1

7.1 Unfolding sections

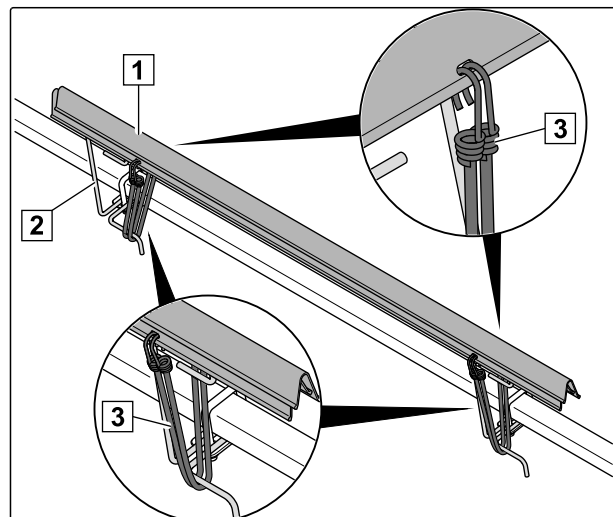
CMS-T-00004426-E.1

1. Completely lift the implement.
 2. Activate "blue" tractor control unit.
- ➔ Sections unfold.
3. Unfold the sections to end position.

7.2 Removing the road safety bars

CMS-T-00000091-D.1

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



CMS-I-00000518

7.3 Adjusting the working depth

CMS-T-00004239-J.1

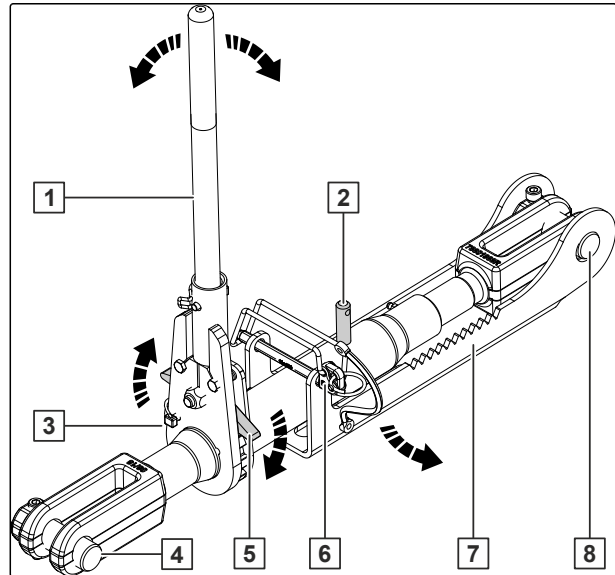
7.3.1 Adjusting the working depth of disks

CMS-T-00004726-E.1

7.3.1.1 Manual working depth adjustment

CMS-T-00004404-B.1

1. Lift the implement slightly.
2. Insert the hand lever **1**.
3. Secure hand lever with linch pin.
4. Remove the linch pin **3**.
5. Engage swivel lever **5** appropriately for the desired direction of rotation.
6. Remove the linch pin **6**.
7. Swing down lock bracket **7**.



CMS-I-00000886

Adjustment spindle	Working depth
shorten	increase
extend	reduce

8. Use the hand lever to set the adjustment spindle to the desired length.
9. Place the locking pin **2** vertically.
10. Swing up the lock bracket.
11. Secure lock bracket with linch pin.
12. Place swivel lever horizontally.
13. Secure swing lever with linch pin.
14. Measure the distance between the middle of pin **4** and the middle of pin **8**.
15. Set the adjustment spindle on the second disc array to the same length.
16. Place hand lever in parking position.
17. Secure hand lever with linch pin.

7.3.1.2 Hydraulic working depth adjustment of the disks

CMS-T-00004403-B.1

NOTE

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

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

➔ The hydraulic cylinders will be synchronized.

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

NOTE

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

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



CMS-I-00003201

7.3.1.3 Adjusting the working depth of the side disks

CMS-T-00004428-D.1

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

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

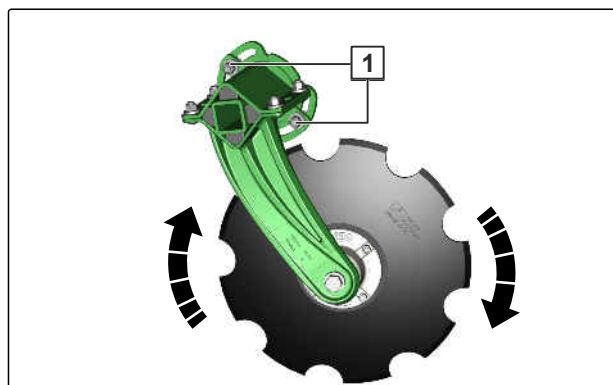
The bearing journal and the hub of the side disk serve as handles.

3. Turn the side disk up or down in the slotted holes.

NOTE

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

4. Tighten bolts.



CMS-I-00003202

7.3.2 Hydraulically adjusting the working depth of the crushboard

CMS-T-00006864-C.1



NOTE

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

1. *To synchronize the hydraulic cylinders:*
Completely extend the hydraulic cylinders with the "beige" tractor control unit.
2. hold the "beige" tractor control unit for 10 seconds.

➔ The hydraulic cylinders will be synchronized.

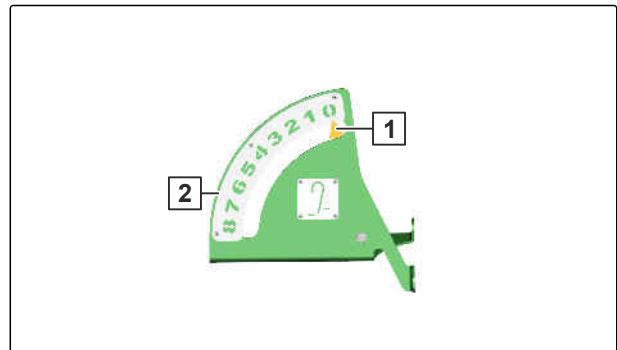
The arrow **1** on the scale **2** shows the set working depth.



NOTE

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

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



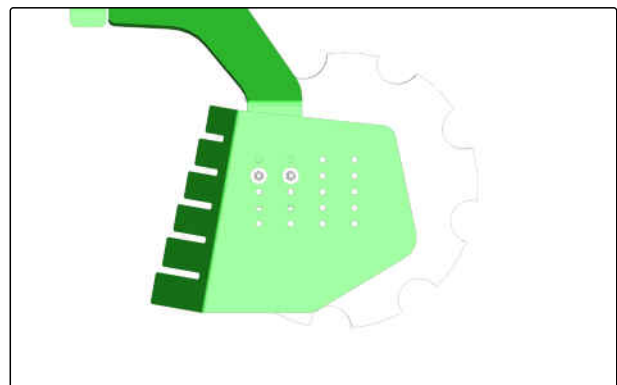
CMS-I-00003620

7.3.3 Adjusting the working depth of the side guide plates

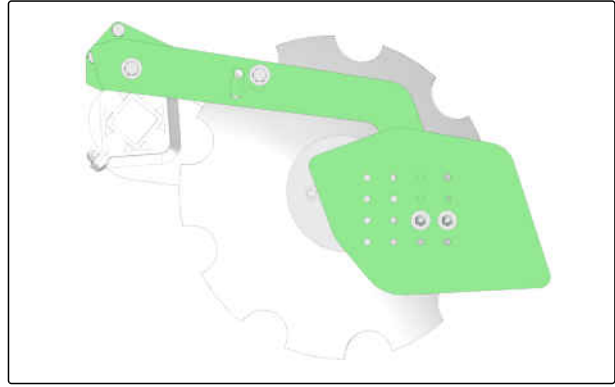
CMS-T-00004430-F.1

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

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



CMS-I-00003484



CMS-I-00003277



IMPORTANT

Damage due to the side guide plates being adjusted too low

- Adjust the side guide plates at a distance of at least 1.18 in (30 mm) from the ground.

1. Lift the implement slightly.
2. Unscrew the bolts on the side guide plates.
3. Adjust the height and longitudinal spacing of the side guide plates.
4. Tighten bolts.
5. Check the adjustment when operating the implement.

7.4 Lifting the running gear and using vibration compensation

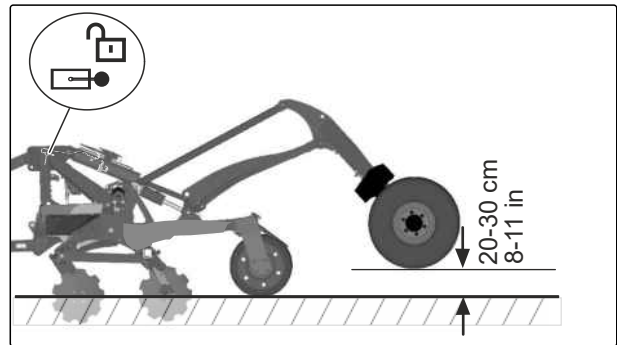
CMS-T-00012242-A.1

Vibration compensation prevents the implement from swinging, pitching or bouncing in operation. Vibration compensation consists of a stop tap and a hydraulic valve, which are connected to the hydraulic cylinder of the running gear.

PREREQUISITES

- Sections unfolded.

1. Open the stop tap on the hydraulic cylinder of the vibration compensation element.
2. Lower the running gear down to 7.87-11.81 in (20-30 cm) above the ground using the "yellow" tractor control unit.
3. Place the tractor control unit in float position.



CMS-I-00007913

7.5 Lifting the running gear and not using vibration compensation

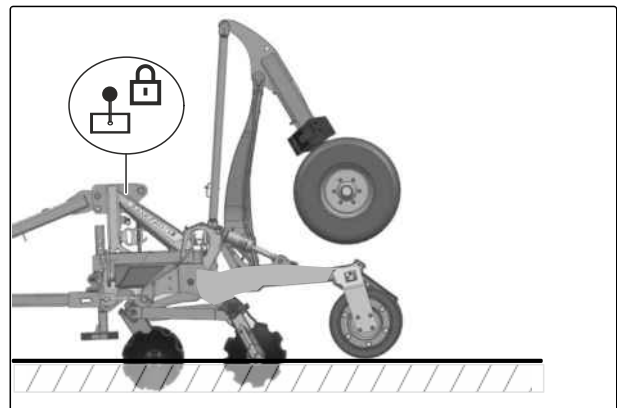
CMS-T-00012243-A.1

For optimal entry of the tools into the soil, completely pivot-in the running gear. In this case the vibration compensation is not used.

PREREQUISITES

- Sections unfolded.

1. Close the stop tap on the hydraulic cylinder of the vibration compensation element.
2. Lift the running gear using the "yellow" tractor control unit.
3. Place the tractor control unit in float position.



CMS-I-00007914

7.6 Aligning the implement horizontally

CMS-T-00004955-E.1

7.6.1 Aligning the implement horizontally with support wheels

CMS-T-00004956-C.1

The implement is guided horizontally by the support wheels.

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

7 | Using the implement

Aligning the implement horizontally

1. Drive the tractor and implement on a horizontal surface.
2. Lower the implement on the support wheels.
3. Put the lower links or hydraulic drawbar in float position.
4. Check whether the implement is aligned horizontally using a spirit level.
5. *If the implement is not horizontal,* check the adjustment of the support wheels, See page 78.

7.6.2 Aligning the implement horizontally with lower link hitch

CMS-T-00004957-B.1

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

1. Drive the tractor and implement on a horizontal surface.
2. Align the implement horizontally via the lower links.

7.6.3 Aligning the implement horizontally with hydraulic drawbar

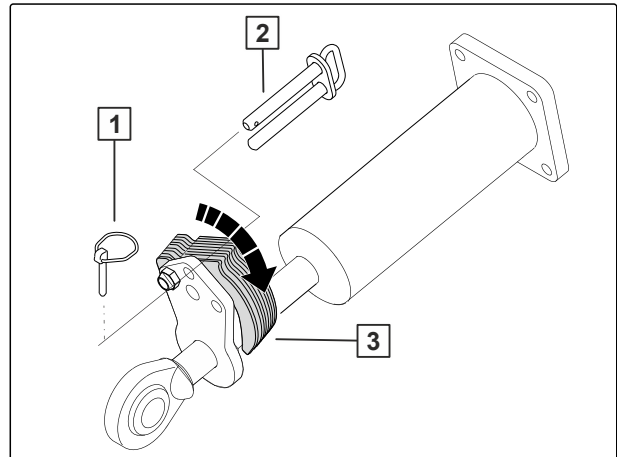
CMS-T-00004958-E.1

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

1. Drive the tractor and implement on a horizontal surface.
2. Align the implement horizontally using the hydraulic drawbar.

The horizontal alignment of the hydraulic drawbar is secured with spacer elements.

3. Pull the lynch pin **1**.
4. Pull the pins **2**.
5. Swing down the required spacer elements **3**.
6. Insert pin.
7. Secure the pin with a lynch pin.



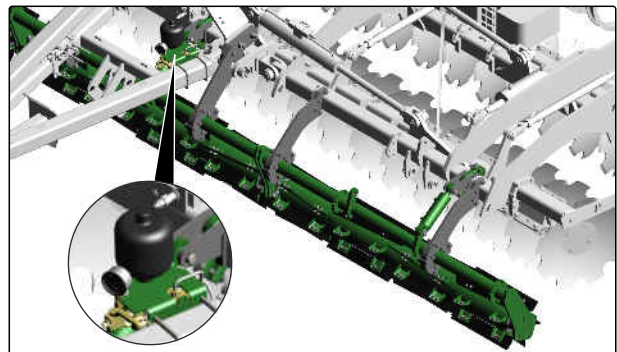
CMS-I-00006685

7.7 Using the cutter roller

CMS-T-00004707-D.1

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

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



CMS-I-00003326

7.8 Driving on headlands

CMS-T-00009824-A.1

7.8.1 Turning on the roller in headlands

CMS-T-00004606-D.1



IMPORTANT

Damage to rollers and trailing elements due to overload

- ▶ Do not turn the implement on the tandem roller or the angle profile roller.
- ▶ *If the implement has trailing elements, turn the implement on the running gear.*
- ▶ Use the running gear for road transport or for longer driving on headlands.

1. *To prevent lateral loads when turning on headlands,*
lift the implement with the lower link or the "yellow" tractor control unit.

➔ The roller supports the implement.

2. *If the direction of the implement is the same as the direction of travel,*
lower the implement with the lower link or the "yellow" tractor control unit.

7.8.2 turning on the running gear on the headlands

CMS-T-00009825-A.1

1. *To prevent lateral loads when turning on headlands,*
Lift the lower links and activate the "yellow" tractor control unit

or

activate both "yellow" tractor control units and lift the implement.

2. *If the direction of the implement is the same as the direction of travel,*
Lower the lower link and activate the "yellow" tractor control unit

or

activate both "yellow" tractor control units and lower the implement.

Rectifying faults

8

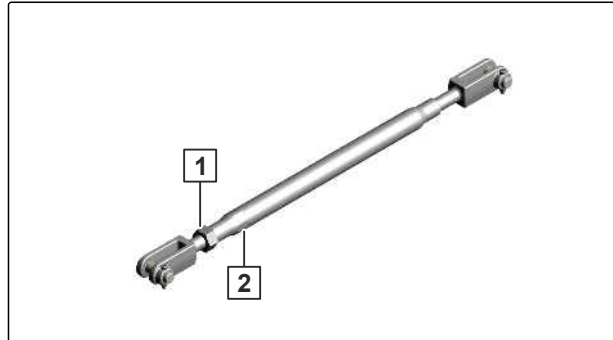
CMS-T-00004986-D.1

Error	Cause	Solution
Implement with support wheels is not horizontal	Incorrect tire pressure of the support wheels.	► Correct tire pressure.
	The tires of the support wheels are worn.	► Have worn tires replaced.
	The wheels are incorrectly adjusted.	► See page 78
The working depth is not the same across the entire implement width	The hydraulic cylinders have different lengths.	► See page 78
An implement with single-circuit hydraulic brake system is braked by the emergency brake.	Spring cotter pin is in horizontal braking position.	► See page 78

Implement with support wheels is not horizontal

CMS-T-00004987-B.1

1. Align the implement horizontally with the lower links or hydraulic drawbar.
2. Unscrew the lock nuts **1** on the adjustment spindles.
3. Adjust the support wheels using the hexagonal profile **2**.
4. Tighten lock nut.



CMS-I-00003204

The working depth is not the same across the entire implement width

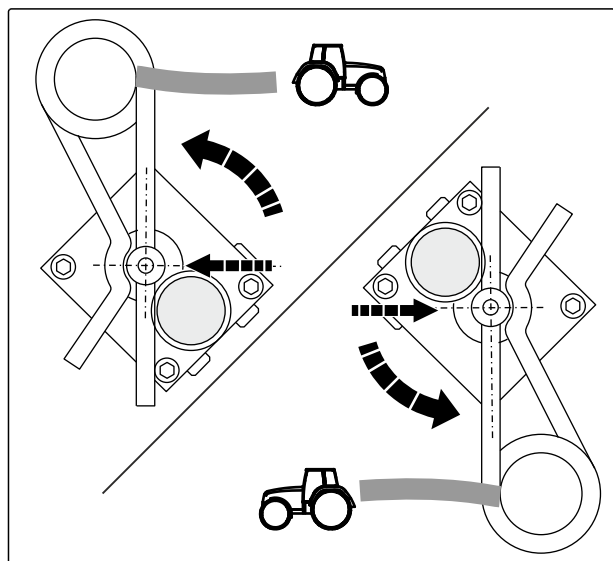
CMS-T-00005120-B.1

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

An implement with single-circuit hydraulic brake system is braked by the emergency brake

CMS-T-00012111-A.1

1. Insert spring cotter pin into the brake valve from the front.
2. Place spring cotter pin in a vertical position.
3. Dissipate brake pressure via the hand pump.



CMS-I-00007786

Parking the implement

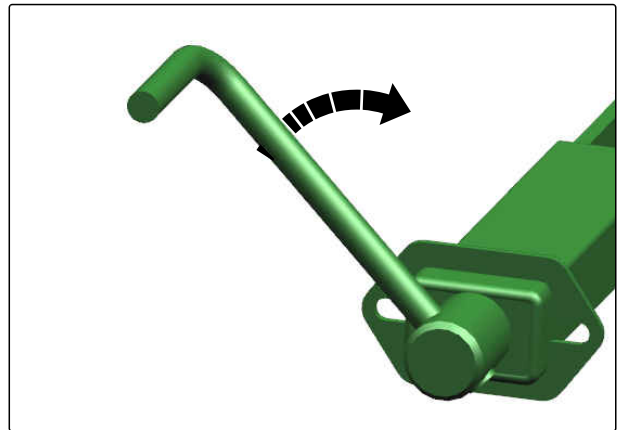
9

CMS-T-00004264-L.1

9.1 Tightening the parking brake

CMS-T-00012112-A.1

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

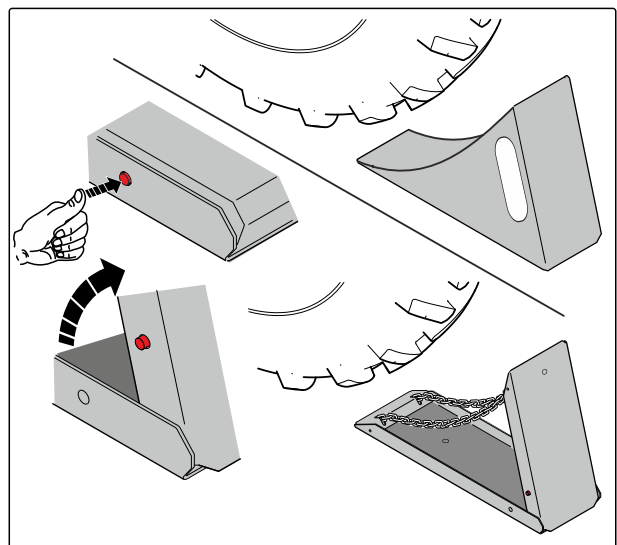


CMS-I-00007857

9.2 Placing the wheel chocks

CMS-T-00004316-C.1

1. Take wheel chocks out of the holder.
2. On folding wheel chocks, activate the pushbutton and unfold wheel chock.
3. Place wheel chocks under the wheels.



CMS-I-00007809

9.3 Uncoupling the coupling device

CMS-T-00012207-B.1

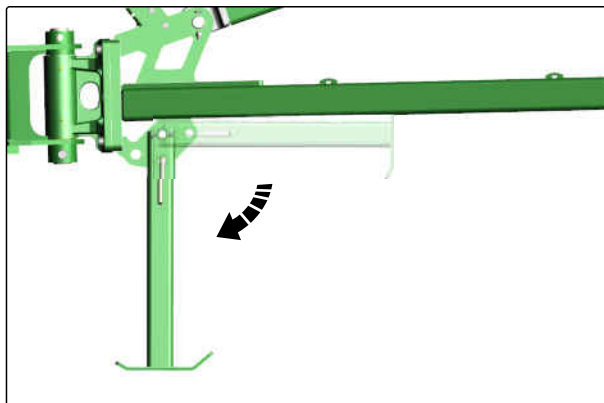
9.3.1 Uncoupling the lower link hitch

CMS-T-00004572-G.1

9.3.1.1 Swinging down the jack

CMS-T-00004573-D.1

1. Lift the implement using the lower links.
2. Pull linch pin of the pin.
3. Pull out pin.
4. Swing down the jack.
5. Insert pin.
6. Secure the pin with a linch pin.



CMS-I-00003351

9.3.1.2 Disconnecting the tractor's lower links

CMS-T-00004574-G.1

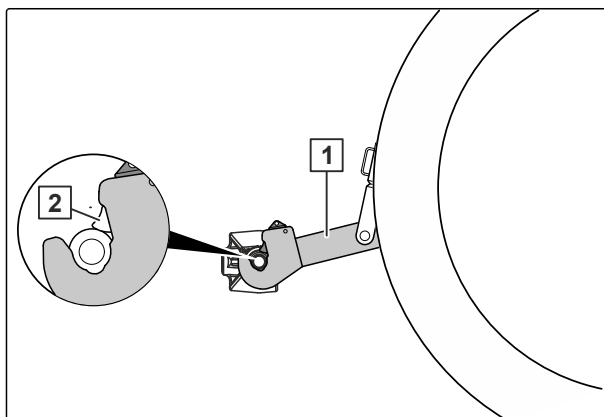
1. Offload the tractor's lower links **1**.



NOTE

Slightly lift the implement so that the lower link catch hooks can be released.

2. Release the lower link catch hook **2**.
3. Uncouple the tractor lower links from the implement.



CMS-I-00003346

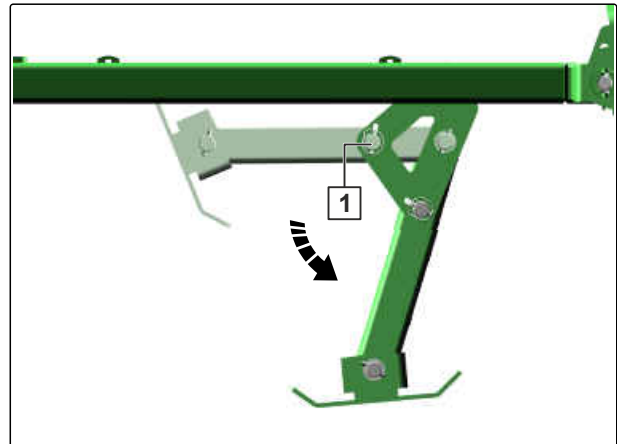
9.3.2 Disconnecting the ball hitch coupling or drawbar eye

CMS-T-00004576-D.1

9.3.2.1 Swinging down the jack

CMS-T-00004577-C.1

1. Open the stop tap on the hydraulic drawbar.
2. Lift the implement using the "yellow" tractor control unit.
3. Pull lynch pin and pin **1**.
4. Pull out pin.
5. Swing down the jack.
6. Insert pin.
7. Secure the pin with a lynch pin.

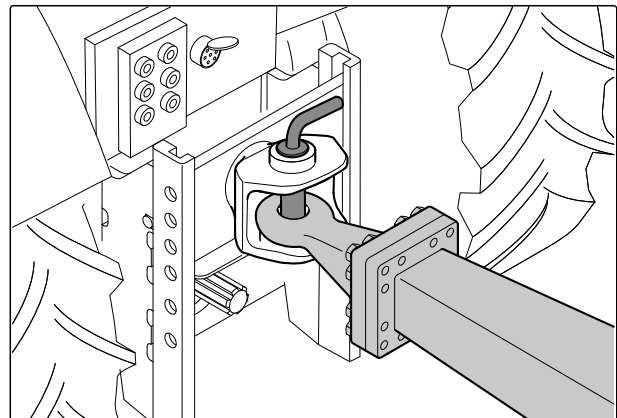


CMS-I-00003551

9.3.2.2 Uncoupling the drawbar eye

CMS-T-00004578-B.1

1. Open the stop tap on the hydraulic drawbar.
2. Use the "yellow" tractor control unit to offload the drawbar eye.
3. Uncouple the drawbar eye from the clevis coupling of the tractor.

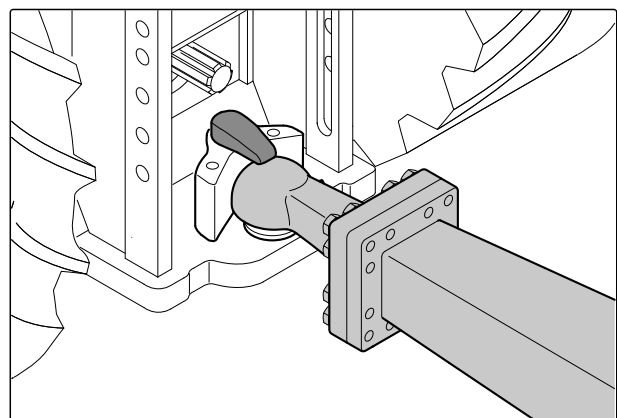


CMS-I-00003557

9.3.2.3 Uncoupling the ball hitch coupling

CMS-T-00004579-C.1

- *To lift the ball hitch coupling off of the hitch ball:*
Lift the hydraulic drawbar via the "yellow" tractor control unit.



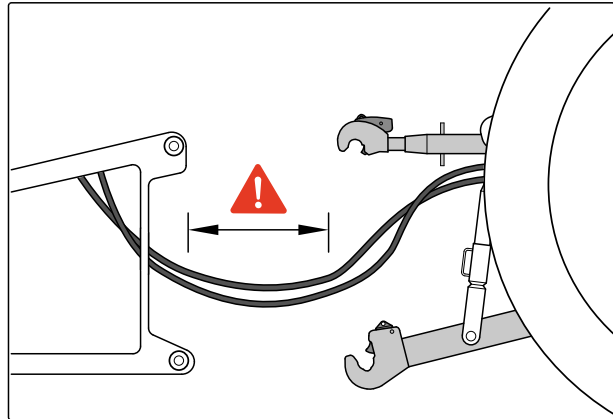
CMS-I-00003558

9.4 Moving the tractor away from the implement

CMS-T-00012195-A.1

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

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



CMS-I-00004044

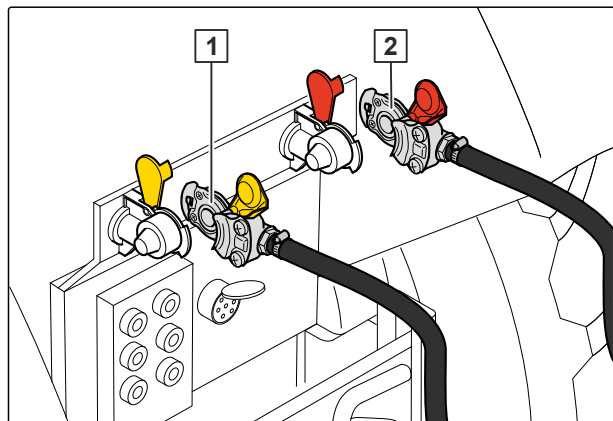
9.5 Disconnecting the brake system

CMS-T-00004569-E.1

9.5.1 Uncoupling the dual circuit compressed air system

CMS-T-00004570-D.1

1. Disconnect the red coupling head of the brake line **2** from the tractor.
2. Disconnect the red coupling head to the empty coupling on the implement.
3. Disconnect the yellow coupling head of the brake line **1** from the tractor.
4. Disconnect the yellow coupling head to the empty coupling on the implement.
5. Close the caps of the tractor coupling heads.

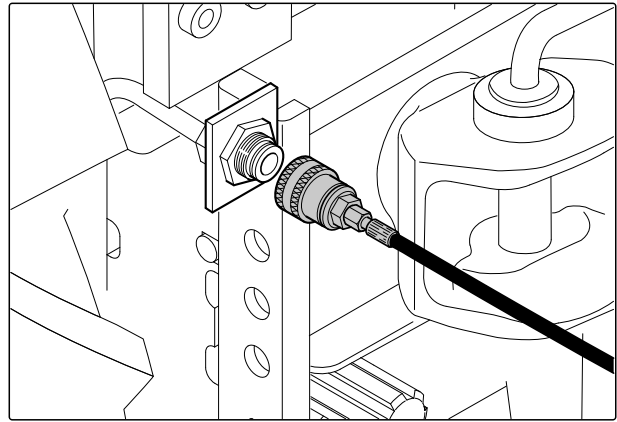


CMS-I-00003559

9.5.2 Uncoupling the single-circuit hydraulic brake system

CMS-T-00004571-D.1

1. Disconnect the ripcord of the emergency brake from the tractor.
2. Disconnect the hydraulic plug connector from the hydraulic socket.

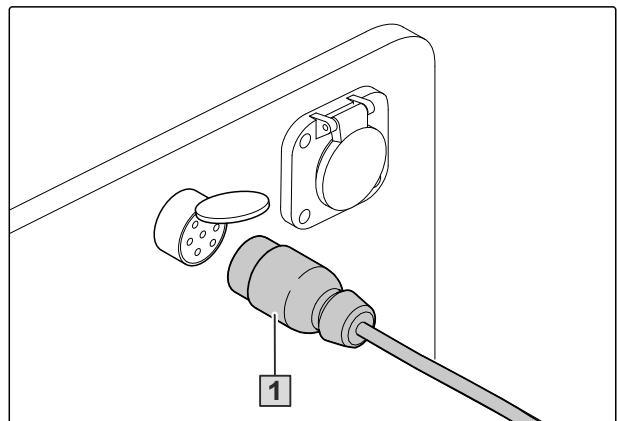


CMS-I-00003560

9.6 Uncoupling the power supply

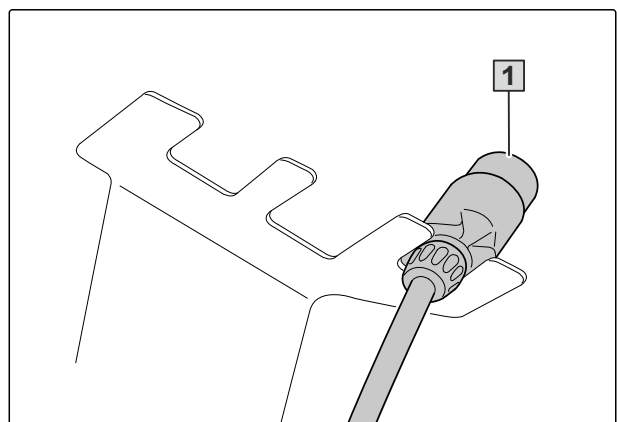
CMS-T-00001402-H.1

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



CMS-I-00001048

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

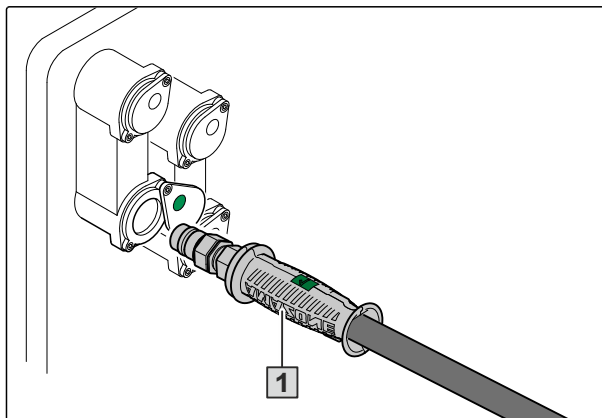


CMS-I-00001248

9.7 Uncoupling the hydraulic hose lines

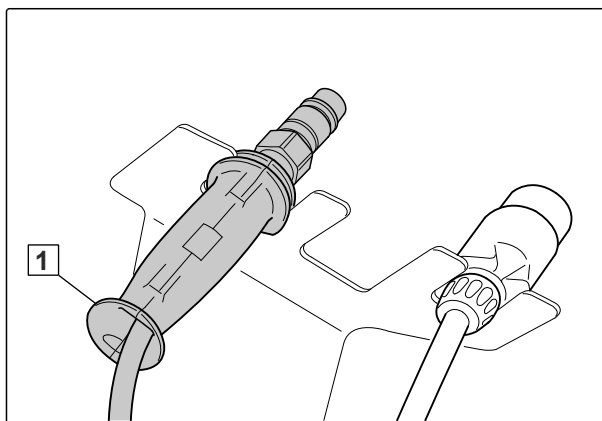
CMS-T-00000277-F.1

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



CMS-I-00001065

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

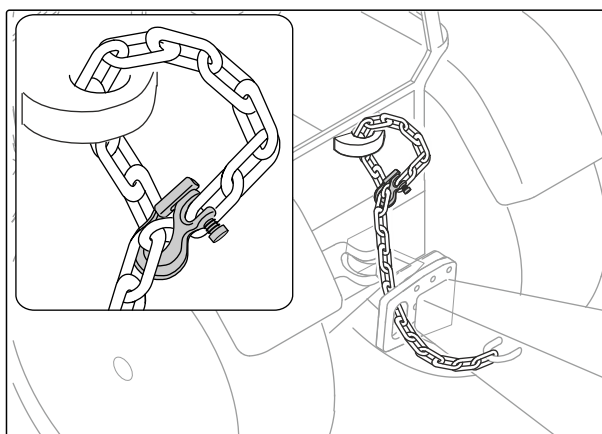


CMS-I-00001250

9.8 Detaching the safety chain

CMS-T-00004315-C.1

- Detach the safety chain from the tractor.

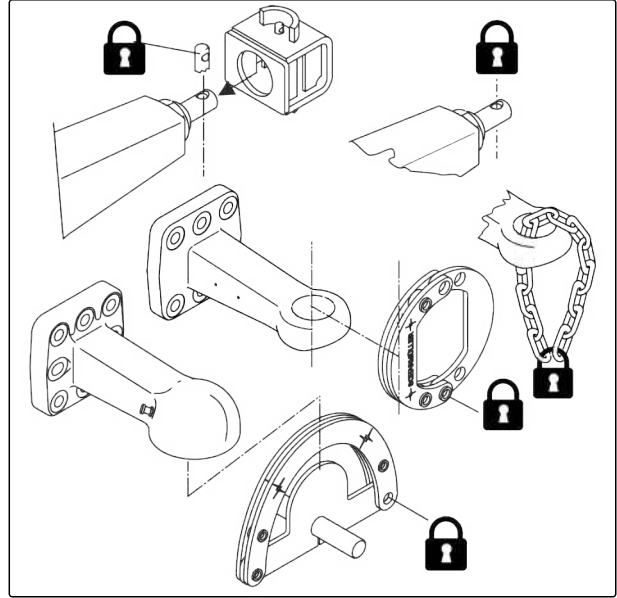


CMS-I-00007814

9.9 Attaching safeguard against unauthorized use

CMS-T-00005090-B.1

1. Attach safeguard against unauthorized use on the hitch device.
2. Attach padlock.



CMS-I-00003534

Maintaining the implement

10

CMS-T-00004231-P.1

10.1 Maintaining the implement

CMS-T-00004232-P.1

10.1.1 Maintenance schedule

After initial operation		
Checking the disk carrier connection	See page 88	
Checking the rollers	See page 89	
Checking the hydraulic hose lines	See page 90	

As needed		
Replacing the disks	See page 87	
Aligning the disk gangs relative to each other	See page 88	WORKSHOP TASK

Daily		
Dewatering the compressed air tank	See page 93	
Checking the compressed air tank	See page 93	

Every 50 operating hours		
Checking the lower link hitch	See page 95	
Checking the ball hitch coupling	See page 96	
Checking the drawbar eye	See page 96	

Every 10 operating hours / Daily		
Checking lower link pins	See page 89	

Every 50 operating hours / Weekly		
Checking the hydraulic hose lines	See page 90	
Checking wheels and tires	See page 91	

Every 200 operating hours / Every 3 months		
Checking the rollers	See page 89	
Checking the brake pads	See page 92	
Checking the dual-circuit pneumatic brake system	See page 92	
Checking the axle bolts	See page 95	

Every 1000 operating hours / Every 12 months		
Checking the wheel bearings	See page 91	WORKSHOP TASK
Cleaning the compressed air line filter on the coupling head	See page 94	

10.1.2 Replacing the disks

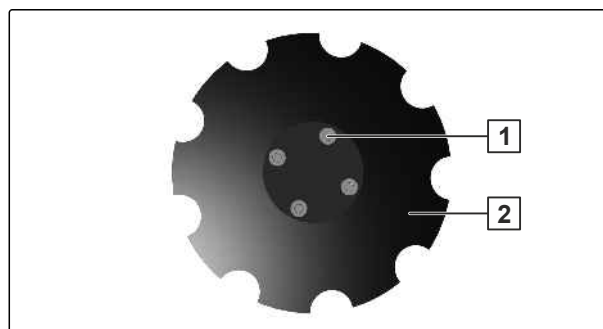
CMS-T-00002327-I.1


INTERVAL

- As needed

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

1. Slightly lift the implement.



CMS-I-00002450

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

10.1.3 Checking the disk carrier connection

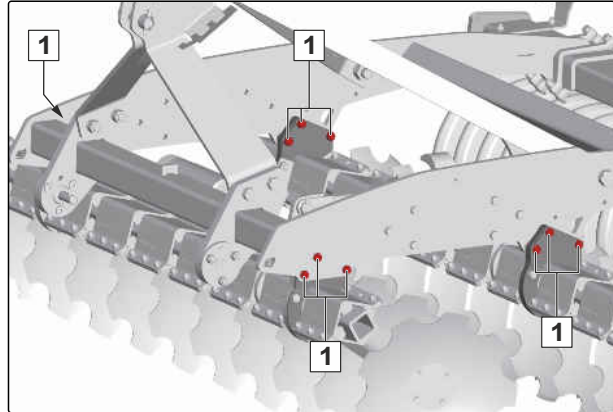
CMS-T-00002328-E.1



INTERVAL

- After initial operation

- Check the bolted connection for firm seat.



CMS-I-00000531

10.1.4 Aligning the disk gangs relative to each other

CMS-T-00015517-A.1



WORKSHOP TASK

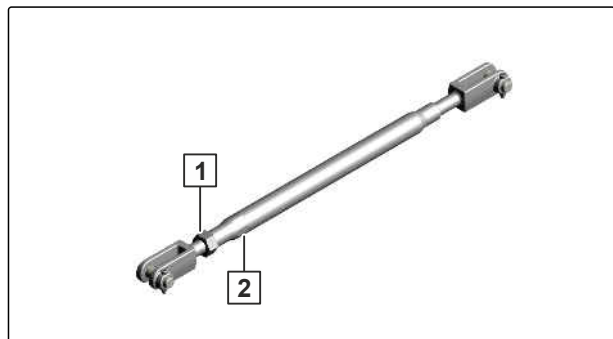
- As needed

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

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

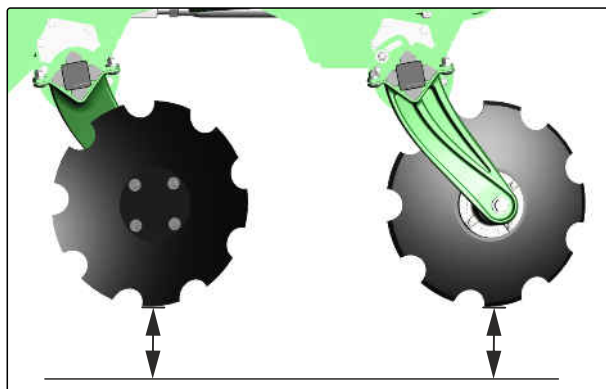
- Optimizing the working depth of the disk gangs relative to each other
- Correcting lateral pull of the implement
- Preventing non-uniform wear of the disks

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



CMS-I-00003204

5. Ensure that all disk carriers are uniformly aligned.
6. Tighten the lock nuts.



CMS-I-00003385

10.1.5 Checking the rollers

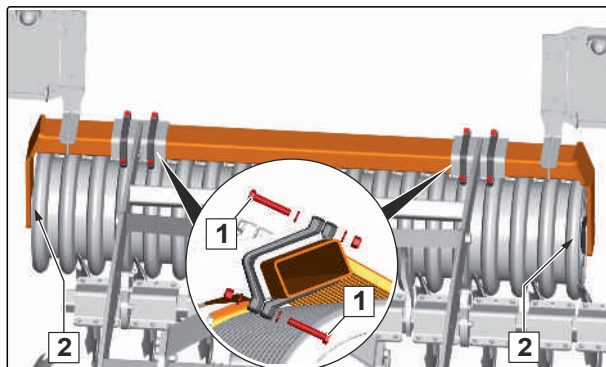
CMS-T-00002329-D.1



INTERVAL

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

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



CMS-I-00000099

10.1.6 Checking lower link pins

CMS-T-00004233-C.1



INTERVAL

- Every 10 operating hours
- or
- Daily

Criteria for visual inspection of lower link pins:

- Cracks
- Nicks
- Permanent deformations
- Permissible wear: 0.08 in (2 mm)

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

10.1.7 Checking the hydraulic hose lines

CMS-T-00002331-G.1



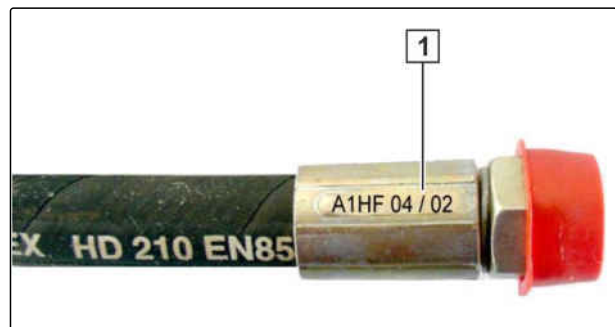
INTERVAL

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

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

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

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



CMS-I-00000532



WORKSHOP TASK

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

10.1.8 Checking wheels and tires

CMS-T-00015696-A.1



INTERVAL

- Every 50 operating hours
or
Weekly

1. Check the tire pressure according to the sticker on the rim.
2. Tighten the bolts according to the tightening torque in the technical data.
3. Check tires for damage.

10.1.9 Checking the wheel bearings

CMS-T-00015697-A.1



WORKSHOP TASK

- Every 1000 operating hours
or
Every 12 months

1. Check the wheel bearings.
2. Adjust the bearing clearance if necessary.
3. Re-grease the wheel bearings.

10.1.10 Checking the brake pads

CMS-T-00004984-E.1

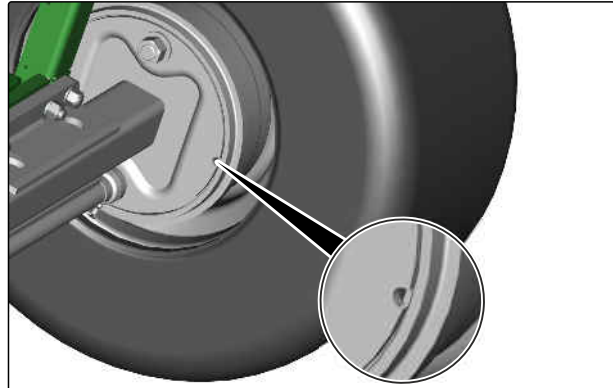


INTERVAL

- Every 200 operating hours
or
Every 3 months

Test criteria:

- Wear limit: 0.08 in (2 mm)
 - Damage
 - coarse contamination
1. Check the brake pads through the inspection holes.



CMS-I-00003599



WORKSHOP TASK

2. Replace worn, damaged or contaminated brake pads.

10.1.11 Checking the dual-circuit pneumatic brake system

CMS-T-00004985-G.1



INTERVAL

- Every 200 operating hours
or
Every 3 months

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



WORKSHOP TASK

2. Replace damaged components.

Test criteria	Setpoints
Pressure drop in the dual-circuit pneumatic brake system	maximum 2.18 psi (0.15 bar) in 10 minutes
Compressed air in the compressed air tank	87.02 psi (6 bar)-118.93 psi (8.2 bar)
Brake cylinder pressure	0 psi (0 bar) when the brake is not activated:

3. Check the specified test criteria.

10.1.12 Dewatering the compressed air tank

CMS-T-00004588-E.1



INTERVAL

- Daily

1. *To fill the compressed air tank,*
run the tractor engine for 3 minutes.
2. Switch off the tractor engine.
3. *To drain the water,*
Pull the dewatering valve to the side using the ring.



CMS-I-00003555

10.1.13 Checking the compressed air tank

CMS-T-00004589-D.1



INTERVAL

- Daily

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



WORKSHOP TASK

4. Replace a damaged or corroded compressed air tank.
5. *If the tensioning straps are damaged or cannot be tensioned,*
Replace tensioning straps.

10.1.14 Cleaning the compressed air line filter on the coupling head

CMS-T-00004590-E.1



INTERVAL

- Every 1000 operating hours
or
Every 12 months



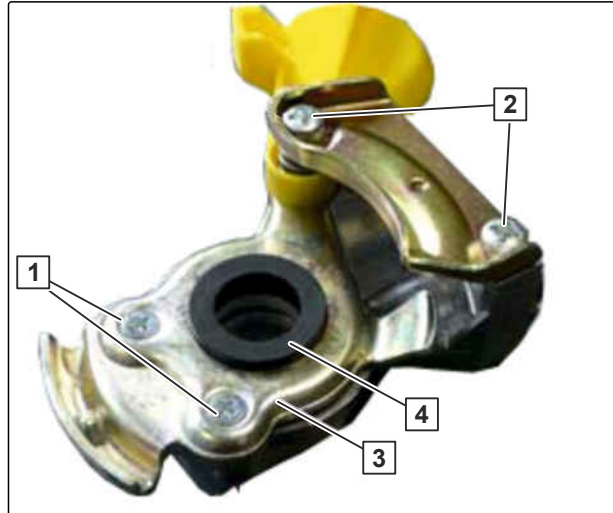
NOTE

The coupling head contains a tensioned spring.

Bolt tightening torques:

- **1** 1.84 ft-lb (2.5 Nm)
- **2** 5.16 ft-lb (7 Nm)

1. Unscrew bolts **1**.
2. Unscrew bolts **2** a few turns.
3. Lift the housing plate **3** and turn it to the side via the rubber seal **4**.
4. Take out the rubber seal.
5. Replace damaged parts.
6. Clean the sealing surfaces, sealing ring, and compressed air line filter.
7. Grease the sealing surfaces, sealing ring, and compressed air line filter.
8. Check the position of the sealing ring.
9. Reassemble in the reverse sequence.



CMS-I-00003574



CMS-I-00003573



CMS-I-00003572

10.1.15 Checking the axle bolts

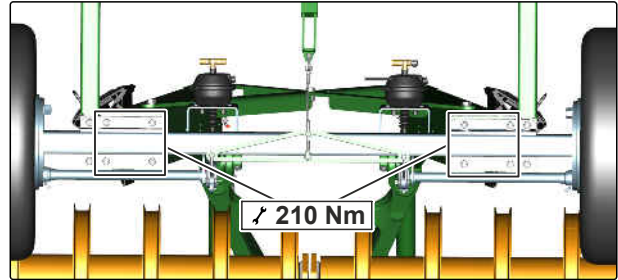
CMS-T-00004966-B.1



INTERVAL

- Every 200 operating hours
or
Every 3 months

- Check the bolted connection for firm seat.



CMS-I-00003556

10.1.16 Checking the lower link hitch

CMS-T-00004973-F.1



INTERVAL

- Every 50 operating hours

Lower link hitch	Degree of wear	Fastening bolts	Quantity	Bolt tightening torques
Category 3	1.36 in (34.5 mm)	M20 8.8	8	309.78 ft-lb (420 Nm)
Category 4	1.89 in (48 mm)	M20 8.8	8	309.78 ft-lb (420 Nm)
Category 4N	1.89 in (48 mm)	M20 8.8	8	309.78 ft-lb (420 Nm)
Category K700	2.2 in (56 mm)	M20 8.8	8	309.78 ft-lb (420 Nm)

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



WORKSHOP TASK

3. Replace a damaged lower link hitch.

10.1.17 Checking the ball hitch coupling

CMS-T-00006968-G.1



INTERVAL

- Every 50 operating hours

Ball hitch coupling	Degree of wear	Fastening bolts	Quantity	Bolt tightening torque
K80 (LI009)	3.23 in (82 mm)	M16 10.9	8	221.27 ft-lb (300 Nm)
K80 (LI040)	3.23 in (82 mm)	M20 10.9	8	413.03 ft-lb (560 Nm)
K80 (LI015)	3.23 in (82 mm)	M20 10.9	12	413.03 ft-lb (560 Nm)

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



WORKSHOP TASK

3. Replace a damaged ball hitch coupling.

10.1.18 Checking the drawbar eye

CMS-T-00006969-F.1



INTERVAL

- Every 50 operating hours

Drawbar eye	Degree of wear	Fastening bolts	Quantity	Bolt tightening torque
D35 (LI038)	1.65 in (42 mm)	M16 12.9	6	250.77 ft-lb (340 Nm)
D40 (LI017)	1.63 in (41.5 mm)	M16 10.9	6	221.27 ft-lb (300 Nm)
D40 (LI006)	1.67 in (42.5 mm)	M20 8.8	8	291.34 ft-lb (395 Nm)
D46(LI034)	1.89 in (48 mm)	M20 10.9	12	405.66 ft-lb (550 Nm)
D50 (LI037)	2.36 in (60 mm)	M16 12.9	4	250.77 ft-lb (340 Nm)
D50 (LI010)	2.03 in (51.5 mm)	M16 10.9	8	221.27 ft-lb (300 Nm)
D50 (LI059)	2.03 in (51.5 mm)	M20 10.9	4	413.03 ft-lb (560 Nm)
D50 (LI011)	2.03 in (51.5 mm)	M20 8.8	8	302.4 ft-lb (410 Nm)

Drawbar eye	Degree of wear	Fastening bolts	Quantity	Bolt tightening torque
D50 (LI060)	2.07 in (52.5 mm)	M20 10.9	8	413.03 ft-lb (560 Nm)
D51 (LI039)	2.09 in (53 mm)	M20 10.9	12	442.54 ft-lb (600 Nm)
D51 (LI059)	2.09 in (53 mm)	M16 10.9	6	213.89 ft-lb (290 Nm)
D58 (LI031)	2.36 in (60 mm)	M20 10.9	12	405.66 ft-lb (550 Nm)
D62 (LI007)	2.5 in (63.5 mm)	M20 10.9	8	435.16 ft-lb (590 Nm)
D79 (LI021)	3.19 in (81 mm)	M20 10.9	12	405.66 ft-lb (550 Nm)

1. Check bolt tightening torques.
2. Check the drawbar eye for damage, deformation, cracks and wear.



WORKSHOP TASK

3. Replace a damaged drawbar eye.

10.2 Cleaning the implement

CMS-T-00000593-F.1



IMPORTANT

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

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



CMS-I-00002692

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

10.3 Lubricating the implement

CMS-T-00004967-F.1



IMPORTANT

Implement damage due to improper lubrication

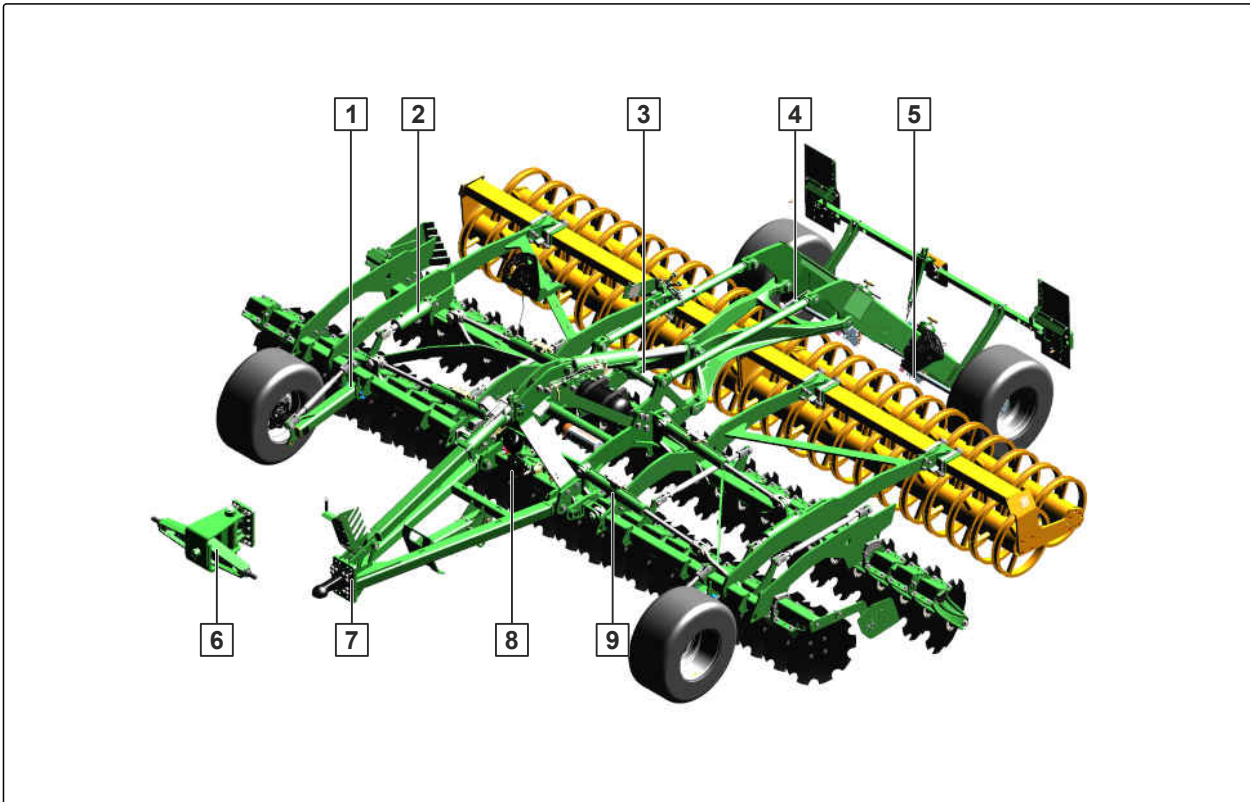
- ▶ Lubricate the implement at the marked lubrication points as specified in the lubrication schedule.
- ▶ *To ensure that contamination is not pressed into the lubrication points:* Carefully clean the grease nipples and the grease gun.
- ▶ Only lubricate the implement with the lubricants listed in the technical data.
- ▶ Press all the spent grease completely out of the bearings.



CMS-I-00002270

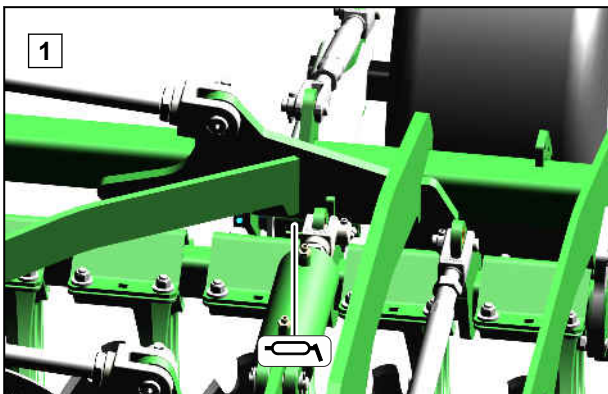
10.3.1 Overview of lubrication points

CMS-T-00004969-C.1

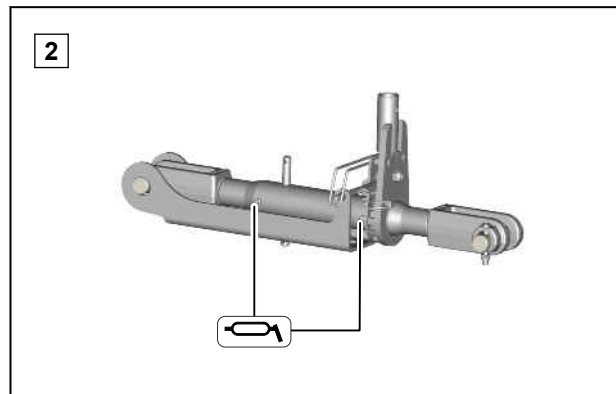


CMS-I-00003571

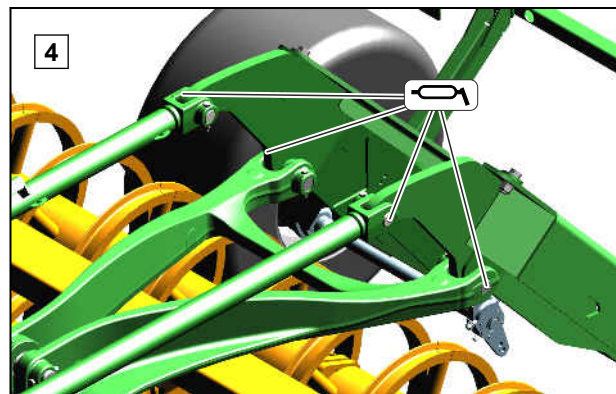
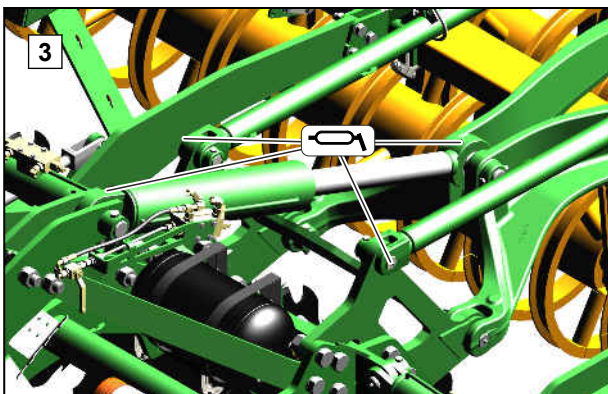
Every 50 operating hours



CMS-I-00003569

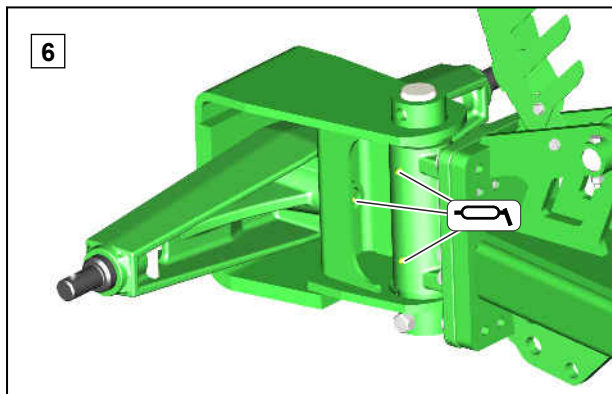


CMS-I-00002245

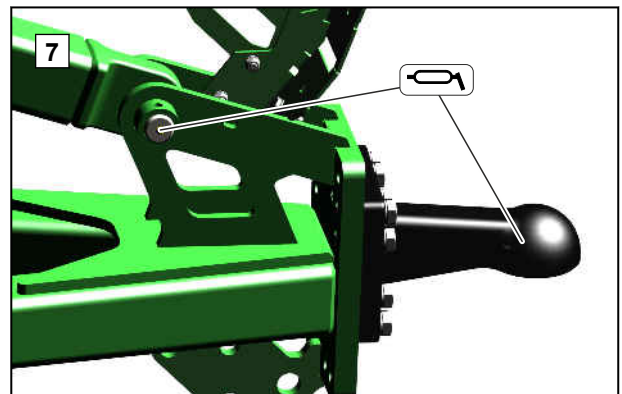


CMS-I-00003568

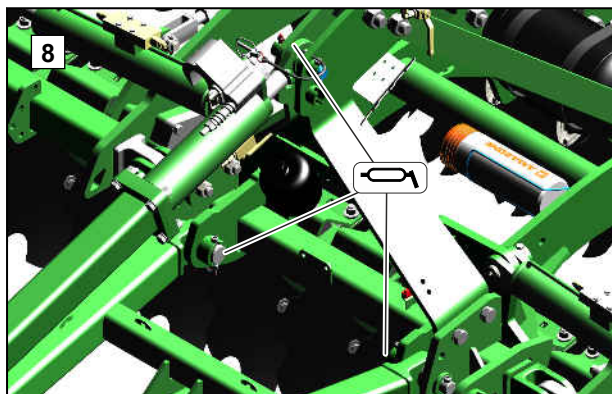
CMS-I-00003567



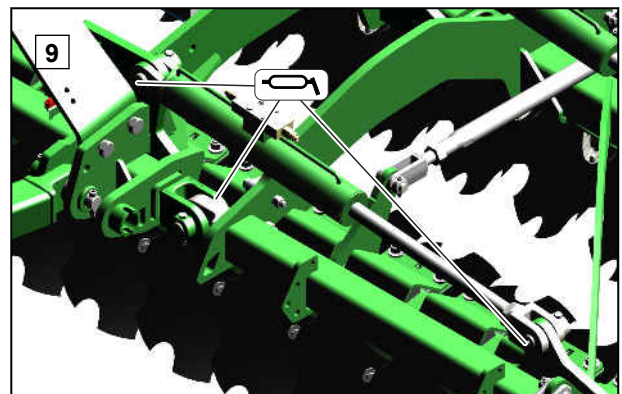
CMS-I-00003563



CMS-I-00003565

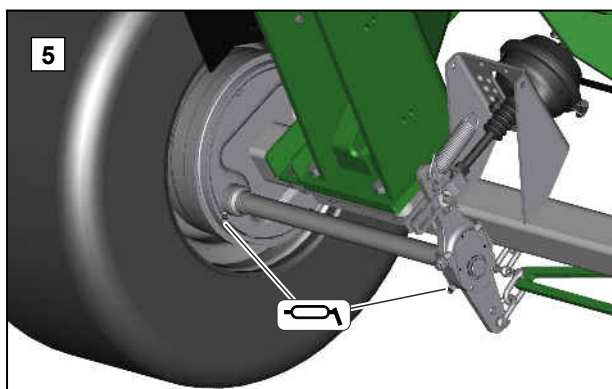


CMS-I-00003566



CMS-I-00003564

Every 200 operating hours



CMS-I-00004519

10.3.2 Lubricating wheel hubs

CMS-T-00004970-B.1



INTERVAL

- Every 500 operating hours

1. Remove wheel hub cap from wheel hub.
2. Top up the wheel hub cap with grease.
3. Fit wheel hub cap on wheel hub.

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

Maneuvering the implement

11

CMS-T-00012147-A.1

11.1

Maneuvering the implement with dual-circuit pneumatic brake system

CMS-T-00006898-D.1

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



WARNING

Risk of accident due to unbraked implement

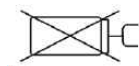
- ▶ *To maneuver the implement:*
Couple the implement to a suitable tractor using the coupling device.
- ▶ Only maneuver the implement at walking speed.

There are two types of brake valves.

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

or

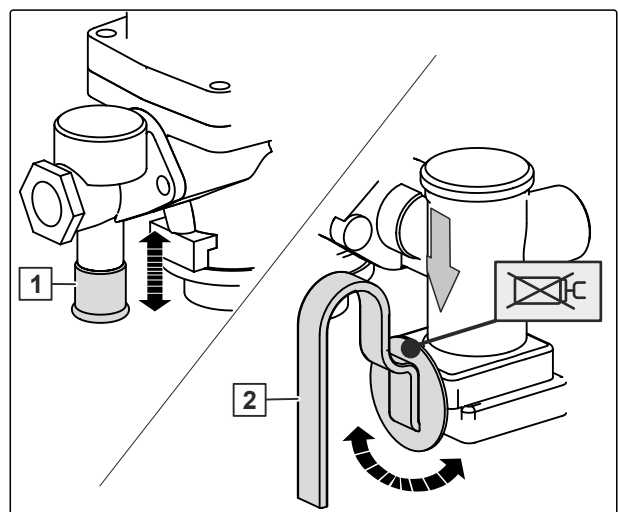
Turn the hand lever **2** of the brake valve to the



position.

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

2. Maneuver the implement.



CMS-I-00007826

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

or

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

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



NOTE

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

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

11.2 Maneuvering implement with single-circuit hydraulic brake system

CMS-T-00005208-C.1



WARNING

Risk of accident due to unbraked implement

- ▶ *To maneuver the implement:*
Couple the implement to a suitable tractor using the coupling device.
- ▶ Only maneuver the implement at walking speed.

The single-circuit hydraulic brake system can block the uncoupled implement.

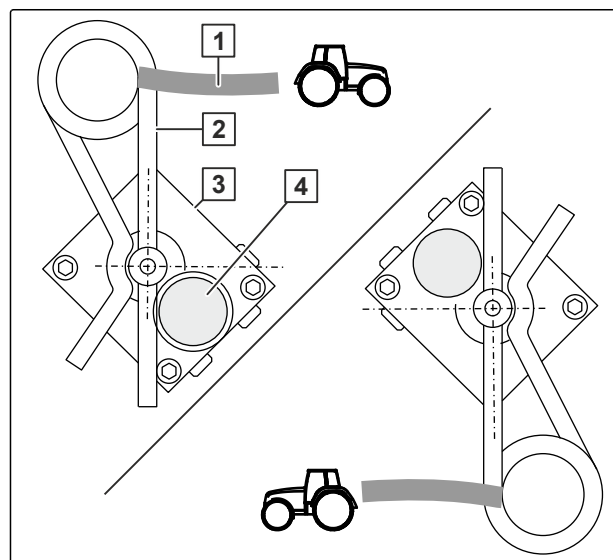
1. *If the single-circuit hydraulic braking system blocks the implement:*
Dissipate the pressure in the brake system using the hand pump **4** on the brake valve **3**.



NOTE

The hydraulic cylinders of the hydraulic brakes must be completely retracted. The required pumping time is several minutes.

2. Maneuver the implement.



CMS-I-00007787

Loading the implement

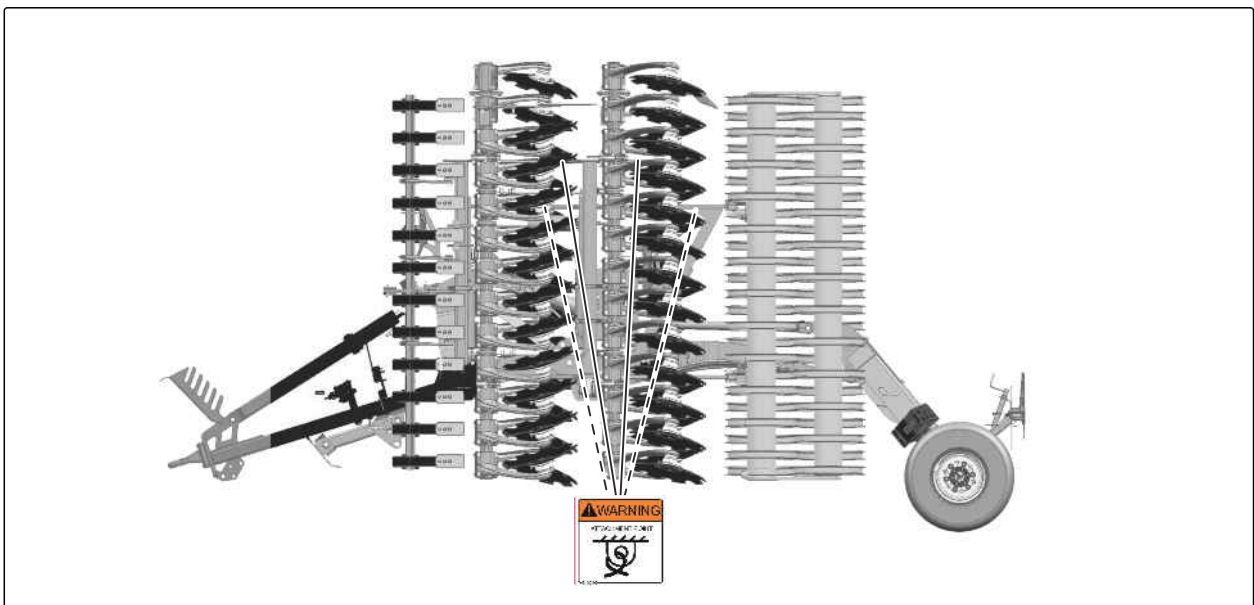
12

CMS-T-00004262-F.1

12.1 Lashing the implement

CMS-T-00010508-B.1

The implement has 4 lashing points for lashing straps.



CMS-I-00007179



WARNING

Risk of accident due to improperly attached lashing straps

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

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

12 | Loading the implement

Lashing the implement

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

Disposing of the implement

13

CMS-T-00010906-B.1

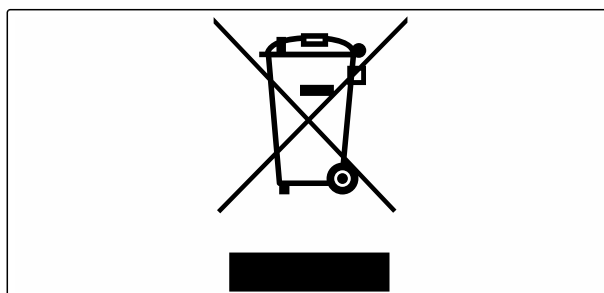


ENVIRONMENTAL INFORMATION

Environmental damage due to improper disposal

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

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



CMS-I-00007999

2. Return batteries to the distributor

or

Dispose of batteries at a collection point.

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



WORKSHOP TASK

5. Dispose of coolant.

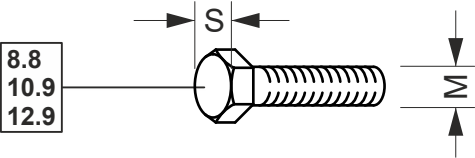
Appendix

14

CMS-T-00004228-C.1

14.1 Bolt tightening torques

CMS-T-00000373-E.1



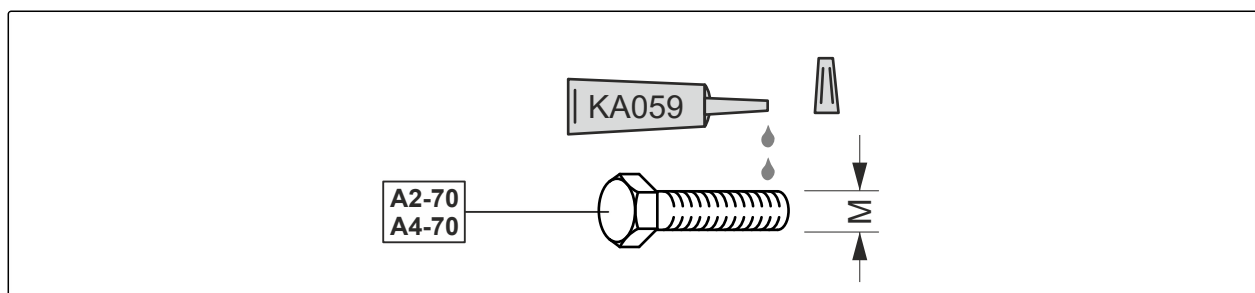
CMS-I-000260

NOTE

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

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

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



CMS-I-00000065

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

14.2 Other applicable documents

CMS-T-00004229-A.1

- Tractor operating manual
- Operating Manual – GreenDrill GD 501

Lists

15

15.1 Glossary

CMS-T-00000513-B.1

I

Implement

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

O

Operating material

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

T

Tractor

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

15.2 Index

A			
		Compressed air tank	
		<i>checking</i>	93
Address		<i>dewatering</i>	93
<i>Technical Editing organization</i>	4	<i>Position</i>	23
Adjusting the working depth		Concave disks	
<i>Concave disks</i>	69	<i>Technical data</i>	38
Adjustment lever for the trailing elements		Contact data	
<i>Description</i>	37	<i>Technical Editing organization</i>	4
Adjustment spindle		Crushboard	
<i>Position</i>	22	<i>Hydraulic working depth adjustment</i>	71
Auxiliary material	36	Cutter roller	
B		<i>insert</i>	75
		<i>securing</i>	62
Backstop profiles		CXS double harrow	
<i>attaching for lower links</i>	52	<i>Adjusting inclination</i>	58
Ballasting		<i>Adjusting the height</i>	58
<i>Mounting ballast weights</i>	60	<i>bringing into transport position</i>	64
Ballast weights		D	
<i>mounting</i>	60	Digital operating manual	4
<i>Position</i>	22	Dimensions	38
Ball hitch coupling		Disks	
<i>checking</i>	96	<i>Aligning the disk gangs relative to each other</i>	88
<i>connecting</i>	53	<i>Checking the disk carrier connection</i>	88
<i>uncoupling</i>	81	<i>Manual working depth adjustment</i>	69
Bolt tightening torques	108	<i>replacing</i>	87
Brake pads		<i>Technical data</i>	38
<i>checking</i>	92	Documents	36
Brake valve of the dual-circuit pneumatic brake system		Drawbar eye	
<i>Position</i>	23	<i>checking</i>	96
Brake valve		<i>connecting</i>	53
<i>Release valve</i>	103	<i>disconnecting</i>	81
C		Dual-circuit pneumatic brake system	
		<i>checking</i>	92
Calibration button		<i>coupling</i>	50
<i>Position</i>	24	<i>uncoupling</i>	82
Capacity characteristics of the tractor	39	F	
cleaning		Float position of hydraulic valves	36
<i>Implement</i>	97	Folding	54, 65, 68
Compressed air line filter		<i>Securing the boom</i>	65
<i>Clean on the coupling head</i>	94	Front axle load	
		<i>calculating</i>	42

Front ballasting <i>calculating</i>	42	J	
Front lighting	26	Jack	
G		<i>Position</i>	23
GewindePack		<i>swing down</i>	80, 81
<i>Description</i>	36	<i>swing up</i>	52, 53
<i>Position</i>	22, 24	L	
GreenDrill		Ladder	
<i>filling</i>	61	<i>Position</i>	24
<i>Position</i>	24	Lighting and identification	
H		<i>Front</i>	26
Harrow system		<i>Position</i>	22
<i>12-125 HI, adjusting inclination</i>	55	<i>Rear</i>	25
<i>12-125 HI, adjusting the height</i>	55	Loading board	
<i>12-125 HI, bringing into transport position</i>	62	<i>Position</i>	24
<i>12-125 HI KWM/DW, adjusting the height</i>	56	Loading	
<i>12-125 HI KWM/DW, adjusting the inclination</i>	56	<i>Lashing the implement</i>	105
<i>12-250 HI, adjusting inclination</i>	57	Loads	
<i>12-250 HI, adjusting the height</i>	57	<i>calculating</i>	42
<i>12-250 HI, bringing into transport position</i>	64	Lower link hitch	
<i>Bringing the 12-125 HI KWM/DW, into</i>		<i>checking</i>	95
<i>transport position</i>	63	<i>connecting</i>	52
Headlands		<i>disconnecting</i>	80
<i>turning on the roller</i>	75	Lower link pin	
<i>turning on the running gear</i>	76	<i>checking</i>	89
Hydraulic hose lines		Lubricants	41
<i>checking</i>	90	M	
<i>coupling</i>	47	Maintenance	86, 86
<i>uncoupling</i>	84	Maneuvering	
Hydraulics		<i>with brake system</i>	103
<i>coupling</i>	47	maneuvering	
<i>Coupling the single-circuit hydraulic brake</i>		<i>with dual-circuit pneumatic brake system</i>	103
<i>system</i>	51	Mounting categories	39
<i>Uncoupling the single-circuit hydraulic brake</i>		P	
<i>system</i>	83	Parking brake	
Hydraulic valves		<i>Position</i>	23
<i>Float position</i>	36	<i>releasing</i>	54
I		<i>tightening</i>	79
Implement		Pneumatic brake system	
<i>Loading and unloading</i>	105	<i>coupling</i>	50
<i>maintaining</i>	86		
Intended use	21		

Power supply		Segment distributor head	
<i>coupling</i>	49	<i>Position</i>	24
<i>uncoupling</i>	83	Side disks	
Product description	22	<i>adjusting</i>	70
Protective devices	25	<i>Position</i>	22
<i>Road safety bars</i>	25	Side guide plates	
R		<i>Adjusting the working depth</i>	71
Rating plate		Single-circuit hydraulic brake system	
<i>additional</i>	35	<i>coupling</i>	51
<i>Description</i>	34	<i>uncoupling</i>	83
Rating plate on the implement		Soil tillage tool	38
<i>Position</i>	22	Special equipment	24
Rear axle load		Spirit level	
<i>calculating</i>	42	<i>Position</i>	22
Rear lighting	25	Spring blade system 142	
Release valve	103	<i>adjusting</i>	59
Road safety bars		Spring clearer system 167	
<i>attaching</i>	65	<i>adjusting</i>	59
<i>Description</i>	25	Stop tap on the hydraulic drawbar	
<i>removing</i>	68	<i>Functions</i>	35
Road transport		Storage	102
<i>Adjusting transport height</i>	66	T	
<i>Adjusting transport height with hydraulic drawbar</i>	66	Technical data	
<i>Aligning lower links with hydraulic drawbar</i>	66	<i>Capacity characteristics of the tractor</i>	39
<i>Aligning the lower links</i>	66	<i>Concave disks</i>	38
Roller		<i>Dimensions</i>	38
<i>Adjusting the scraper</i>	60	<i>Disks</i>	38
<i>checking</i>	89	<i>Drivable slope inclination</i>	40
Running gear hydraulic cylinders		<i>Forward speed</i>	39
<i>Position</i>	23	<i>Lubricants</i>	41
S		<i>Noise emission data</i>	40
Safeguard against unauthorized use		<i>Permitted mounting categories</i>	39
<i>attaching</i>	85	<i>Soil tillage tool</i>	38
<i>removing</i>	46	<i>Wheels – tightening torque</i>	40
Safety chain		Threaded spindle on the support wheel	
<i>fastening</i>	47	<i>Position</i>	23
<i>releasing</i>	84	Tightening torques	
Scraper		<i>for wheels</i>	40
<i>adjusting</i>	60	Tire load capacity	
<i>of the WW 142 HI clearer system, adjusting</i>	59	<i>calculating</i>	42
Section		Tires	
<i>folding</i>	65	<i>checking</i>	91
<i>unfolding</i>	54, 68	Total weight	
		<i>calculating</i>	42

Traction assistance	
<i>Switch tap, functions</i>	36
Tractor	
<i>Calculating the required characteristics</i>	42
Tractor control units	
<i>locking</i>	67
Tractor lower links	
<i>connecting</i>	52
<i>uncoupling</i>	80
Trailing elements	
<i>adjusting</i>	55, 55, 56, 56, 57, 57, 58, 58, 59, 59
<i>Position</i>	22

W

Warning beacon	
<i>Position</i>	22
Warning symbols	26
<i>Description</i>	29
<i>Positions</i>	26
<i>Structure</i>	29
Wheel bearings	
<i>checking</i>	91
Wheel chocks	
<i>placing</i>	79
<i>removing</i>	54
Wheel hubs	
<i>lubricating</i>	102
Wheels	
<i>checking</i>	91
Winter storage	102
Working depth adjustment	
<i>Position</i>	22
<i>Synchronizing hydraulic cylinders</i>	70
Working depth	
<i>Adjusting the side disks</i>	70
<i>Adjusting the side guide plates</i>	71
<i>Hydraulic adjustment</i>	70
<i>Hydraulic crushboard adjustment</i>	71
<i>Manual disk adjustment</i>	69
Working speed	39
Workshop task	3
WW 142 HI clearer system	
<i>Adjusting the scrapers</i>	59



AMAZONE

AMAZONEN-WERKE

H. DREYER SE & Co. KG

Postfach 51

49202 Hasbergen-Gaste

Germany

+49 (0) 5405 501-0

amazone@amazone.de

www.amazone.de