Translation of the original operating instructions

Self-propelled field sprayer

Pantera 7004

with Comfort Package plus

SmartLearning

www.amazone.de

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

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About this operating manual

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CMS-T-00000081-I.1

1.1 Copyright

CMS-T-00012308-A.1

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1.2 Diagrams

CMS-T-005676-F.1

1.2.1 Warnings and signal words

CMS-T-00002415-A.1

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

DANGER

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

WARNING

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

CAUTION

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

1.2.2 Further instructions

CMS-T-00002416-A.1

IMPORTANT

- Indicates a risk for damage to the implement.

ENVIRONMENTAL INFORMATION

- Indicates a risk for environmental damage.

NOTE

Indicates application tips and instructions for optimal use.

1.2.3 Instructions

CMS-T-00000473-D.1

1.2.3.1 Numbered instructions

CMS-T-005217-B.1

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

Example:

1. Instruction 1
2. Instruction 2

1.2.3.2 Instructions and responses

CMS-T-005678-B.1

Reactions to instructions are marked with an arrow.

Example:

1. Instruction 1

➡ Reaction to instruction 1

2. Instruction 2

1.2.3.3 Alternative instructions

CMS-T-00000110-B.1

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

Example:

1. Instruction 1

   or

   Alternative instruction

2. Instruction 2

1.2.3.4 Instructions with only one action

CMS-T-005211-C.1

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

Example:

▶ Instruction

1.2.3.5 Instructions without sequence

CMS-T-005214-C.1

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

Example:

▶ Instruction

▶ Instruction

▶ Instruction

1.2.3.6 Workshop work

CMS-T-00013932-B.1

WORKSHOP WORK

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

1.2.4 Lists

CMS-T-000024-A.1

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

Example:

- Point 1
- Point 2

1.2.5 Item numbers in figures

CMS-T-000023-B.1

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

1.2.6 Direction information

CMS-T-00012309-A.1

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

1.3 Other applicable documents

CMS-T-00000616-B.1

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

1.4 Digital operating manual

CMS-T-00002024-B.1

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

1.5 Your opinion is important

CMS-T-000059-D.1

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

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CMS-I-00000638

Safety and responsibility 2

CMS-T-00014224-A.1

2.1 Basic safety instructions

CMS-T-00014225-A.1

2.1.1 Meaning of the operating manual

CMS-T-00006180-A.1

Observe the operating manual

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

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

2.1.2 Safe operating organisation

CMS-T-00014394-A.1

2.1.2.1 Personnel qualification

CMS-T-00002306-B.1

2.1.2.1.1 Requirements for persons working with the implement

CMS-T-00002310-B.1

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

the implement must meet the following minimum requirements:

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

2.1.2.1.2 Qualification levels

CMS-T-00002311-A.1

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

- Farmer
- Agricultural helper

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

2.1.2.1.3 Farmer

CMS-T-00002312-A.1

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

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

Farmers can be e.g.:

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

Activity example:

- Safety training for agricultural helpers

2.1.2.1.4 Agricultural helpers

CMS-T-00002313-A.1

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

Agricultural helpers can be e.g.:

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

Activity examples:

- Driving the machine
- Adjusting the working depth

2.1.2.2 Workplaces and passengers

CMS-T-00002307-B.1

Passengers

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

► Do not let anybody ride on the machine.

► Do not let anybody climb onto the driving machine.

2.1.2.3 Danger for children

CMS-T-00002308-A.1

Danger for children

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

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

2.1.2.4 Operational safety

CMS-T-00014395-A.1

2.1.2.4.1 Perfect technical condition

CMS-T-00014396-A.1

Only use properly prepared machines

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

- Prepare the machine according to this operating manual.

Danger due to damage to the machine

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

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

Observe the technical limit values

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

- Comply with the technical limit values.

2.1.2.4.2 Personal protective equipment

CMS-T-00002316-B.1

Personal protective equipment

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

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

Wear suitable clothing

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

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

2.1.2.4.3 Warning symbols

CMS-T-00002317-B.1

Keep warning symbols legible

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

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

2.1.3 Knowing and preventing dangers

CMS-T-00014226-A.1

2.1.3.1 Safety hazards on the machine

CMS-T-00005137-B.1

Liquids under pressure

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

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

Danger due to machine parts still running

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

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

2.1.3.2 Danger areas

CMS-T-00014230-A.1

Dangers areas on the implement

The following basic dangers are encountered in the danger areas:

The implement and its work tools move during operation.

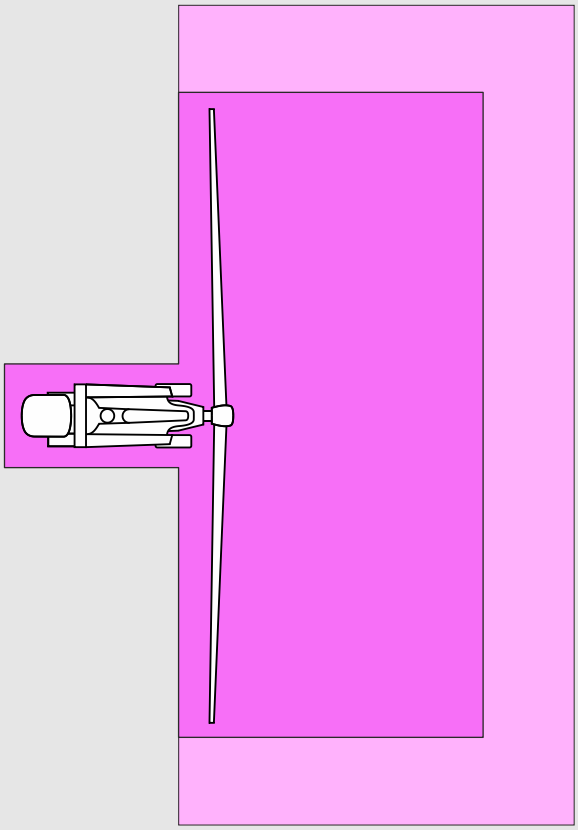
Hydraulically raised implement parts can descend unnoticed and slowly.

The machine can roll away unintentionally.

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

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

- Keep people out of the danger area of the implement. In doing so, take account of drifting of the spray mist.
- *If people enter the danger area,* immediately switch off the engines and drives.
- *Before you work in the danger area of the implement,* secure the machine. This also applies for quick checking work.



CMS-I-00009027

Overhead power lines

When unfolding and folding components or during operation, the machine can reach the height of overhead power lines. This can cause voltage to jump over to the machine and cause lethal electrical shocks or fires. Large voltage differences develop on the ground surrounding the machine.

- When unfolding and folding the boom sections, maintain a sufficient distance from overhead power lines.
- Never fold or unfold the boom sections close to overhead power line pylons and overhead power lines.
- When the boom sections are unfolded, maintain a safe distance from overhead power lines.
- *If voltage has jumped over to the machine:*
  Stay in the cab.
- Do not touch any metal parts.
- Warn people to stay away from the machine.
- Wait for help from a professional recue team.
- *If people must exit the cab despite the voltage flashover, e.g. due to direct lethal danger from fire:*
  Jump away from the machine into a stable position.
- Do not touch the machine.
- Move away from the machine with small steps.

2.1.4 Safe operation and handling of the machine

CMS-T-00014397-A.1

2.1.4.1 Driving safety

CMS-T-00014398-A.1

Risk when driving on roads and fields

The driving characteristics also depend on the operating condition, the fill level of the load, and on the ground. If the driver does not take account of changing driving characteristics, he can cause accidents.

- Always ensure that the machine's steering and braking systems are operating correctly.
- *To ensure the prescribed brake lag for the machine:*
  Check the function of the brakes before moving off.
- Calculate and observe the permitted payload for the machine.
- Observe the permissible axle loads.
- Drive in such a way that you always have full control over the machine. In so doing, take your personal abilities into account as well as the road, traffic, visibility and weather conditions.

Preparing the machine for road travel

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

- Check the lighting and identification for road travel for proper function.
- Remove coarse dirt from the implement.

Parking the implement

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

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

Unsupervised parking

Machines that are insufficiently secured and unsupervised represent danger for people and playing children.

- *Before you leave the machine,*
  shutdown the machine.
- Secure the machine.

2.1.5 Safe maintenance and modification

CMS-T-00014227-A.1

2.1.5.1 Changes on the implement

CMS-T-00002322-B.1

Only authorised design changes

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

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

2.1.5.2 Work on the machine

CMS-T-00014228-A.1

Only work on the machine when it is at a standstill

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

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

Maintenance work

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

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

Raised implement parts

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

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

Danger due to welding work

Improper welding work, particularly on or close to safety-related components, endangers the operational safety of the implement. This can result in accidents and serious personal injury or even death. Safety-relevant components include, for example, hydraulic components and electronic components, frames, springs, and also axles and axle suspensions, lines and tanks containing flammable substances.

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

2.1.5.3 Operating materials

CMS-T-00002324-C.1

Unsuitable operating materials

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

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

2.1.5.4 Special equipment and spare parts

CMS-T-00002325-B.1

Special equipment, accessories, and spare parts

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

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

2.2 Safe working with crop protection products

CMS-T-00012385-B.1

Safe working with crop protection products

Crop protection products that are not used properly can cause accidents, environmental damage and machine damage. Observe the national regulations for health and occupational safety. Be sure to especially observe the first aid measures in the safety data sheets regarding body contact with crop protection products.

- ► Follow the country-specific regulations for handling and applying crop protection products.
- ► Observe the warning instructions and regulations from the crop protection product manufacturer regarding the handling of crop protection products for dosing, application and cleaning.
- ► Wear the personal protective equipment required by the safety data sheets for the crop protection product and on the crop protection product containers or the Safety Kit from AMAZONE.
- ► Wear suitable robust clothing, such as safety shoes, long trousers and a long-sleeved top.
- ► Follow the instructions from the manufacturer of the personal protective equipment.
- ► Take off contaminated protective equipment, clothing, shoes and gloves before entering the cab.
- ► Do not bring any used personal protective equipment, crop protection product containers, used filters, contaminated gloves, shoes or pieces of clothing into the driver's cab.
- ► Depending on the requirements in the safety data sheets for the utiliser crop protection product, wear the personal protective equipment in the driver's cab.
- ► Use personal protective equipment for all activities during which you could come into contact with crop protection products.
- ► *To prevent damage to components and materials of the machine:*
  Use only approved crop protection products. In case of doubt, contact AMAZONE Customer Service.
- ► *To be able to rinse away crop protection product in the event of an emergency:*
  Always carry sufficient water in the hand wash tank.
- ► Do not mix different crop protection products.
- ► Do not fill the machine from open waters.
- ► *If you must fill the machine from open waters:*
  Observe the country-specific regulations.
- ► Fill the machine only using AMAZONE original filling equipment or using filling equipment that meets AMAZONE requirements.
- ► Do not exceed the nominal volume of the spray liquid tank.
- ► *To avoid exceeding the payload of the machine:*
  Observe the specific weight of the spray liquid when filling the machine.

- ► Reduce your speed when turning, otherwise the boom can be overly strained and can break.
- ► Switch the sprayer off when turning on the headlands.
- ► Never open spray liquid lines that are under pressure.
- ► Follow the instructions from the manufacturer of the system for the outside air supply / filtering.
- ► The doors and windows of Category 4 cabs must be tight enough to prevent infiltration of dusts, aerosols and vapours into the cab. Make sure that the cable grommets and grommets for other supply lines are impermeable. See section "Maintaining the machine".

2.3 Safety routines

CMS-T-00014399-A.1

Securing the machine

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

- ► Lower the raised implement or raised implement parts.
- ► Relieve pressure in the hydraulic hose lines by actuating the operating devices.
- ► *If you have to stand under the raised implement or components,*
  secure the raised implement and components against lowering with a mechanical safety support or hydraulic locking device.
- ► Switch off all drives.
- ► Apply the parking brake.
- ► Particularly on slopes, additionally secure the machine against rolling away with wheel chocks.
- ► Remove the ignition key.

Make sure that the protective equipment is functional

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

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

Climbing on and off

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

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

Intended use

3

CMS-T-00013426-A.1

- The machine is designed solely for professional use for the precise application of spray liquid according to Good Agricultural Practices.
- Crop protection products in the form of suspensions, emulsions and mixtures as well as liquid fertiliser can be applied with the machine.
- The pH value of the spray liquid to be applied must be greater than 1.5.
- Moreover, the machine can transport spray liquid and clear fresh water.
- The machine can be driven on public roads depending on the provisions of the applicable road traffic regulations.
- The implement may only be used and maintained by persons who fulfil the requirements. The personnel requirements are described in the section *"Personnel qualification"*.
- The operating manual is part of the implement. The implement is solely intended for use in compliance with this operating manual. Uses of the implement that are not described in this operating manual can lead to serious personal injuries or even death and to implement and material damage.
- The applicable accident prevention regulations as well as generally accepted safety-related, occupational health and road traffic regulations must also be observed by the users and the owner.
- Further instructions for intended use in special cases can be requested from AMAZONE.
- Uses other than those specified under the intended use are considered as improper. The manufacturer is not liable for any damage resulting from improper use, solely the operator is responsible.

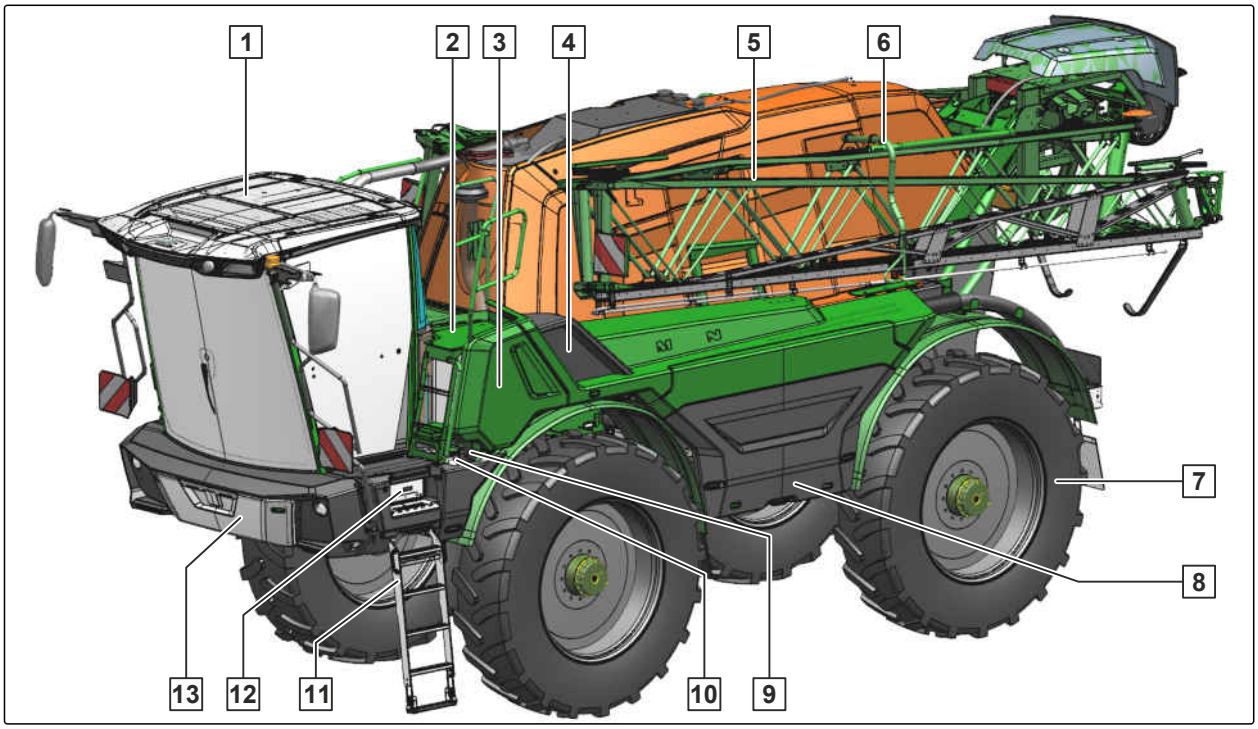
Product description

4

CMS-T-00014576-A.1

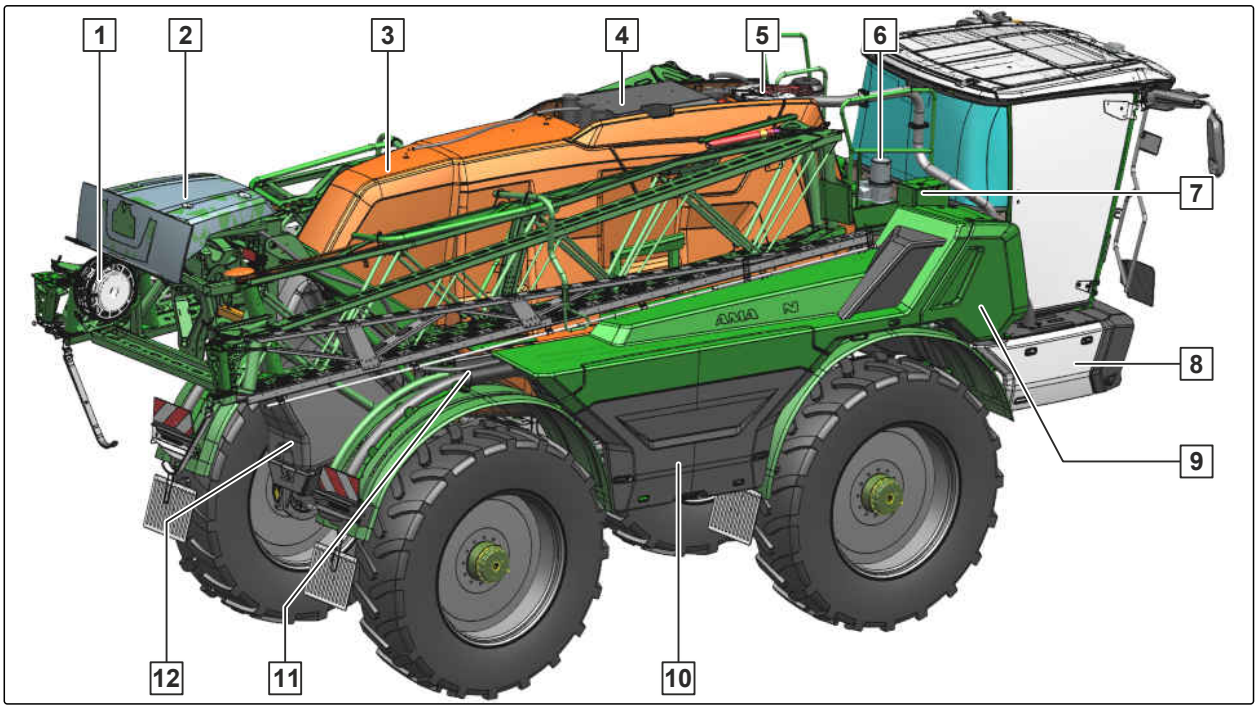
4.1 Implement overview

CMS-T-00013430-A.1



CMS-I-00008536

1 Driver's cab	2 Service platform with maintenance flap
3 Engine radiator with fan behind the removable cover	4 Dry air filter behind the removable cover
5 Sprayer boom	6 Boom locking mechanism
7 Wheels with hydrostatic drive	8 Folding cover for control panel and induction bowl
9 Diesel filling opening	10 DEF filling opening
11 Swivelling ladder	12 Glove compartment
13 Front storage bin	



CMS-I-00008537

1 External wash-down device	2 Boom valve chest
3 Spray liquid tank	4 Exhaust system with diesel particle filter
5 Inspection hatch for the spray liquid tank	6 Central lubrication
7 Expansion vessel for cooling water	8 Folding cover for the battery and windscreen wiper fluid
9 Engine radiator with fan behind the removable cover	10 Folding cover for the spray liquid pumps, flushing water pump. HighFlow and hydraulic oil tank
11 Two-part suction hose in parking position on both sides	12 Flushing water tank

4.2 Function of the implement

CMS-T-00013429-A.1

The machine is steered with a hydraulic front-wheel steering system, four-wheel steering system or crab steering system. Only the front axle steering is available for road transport.

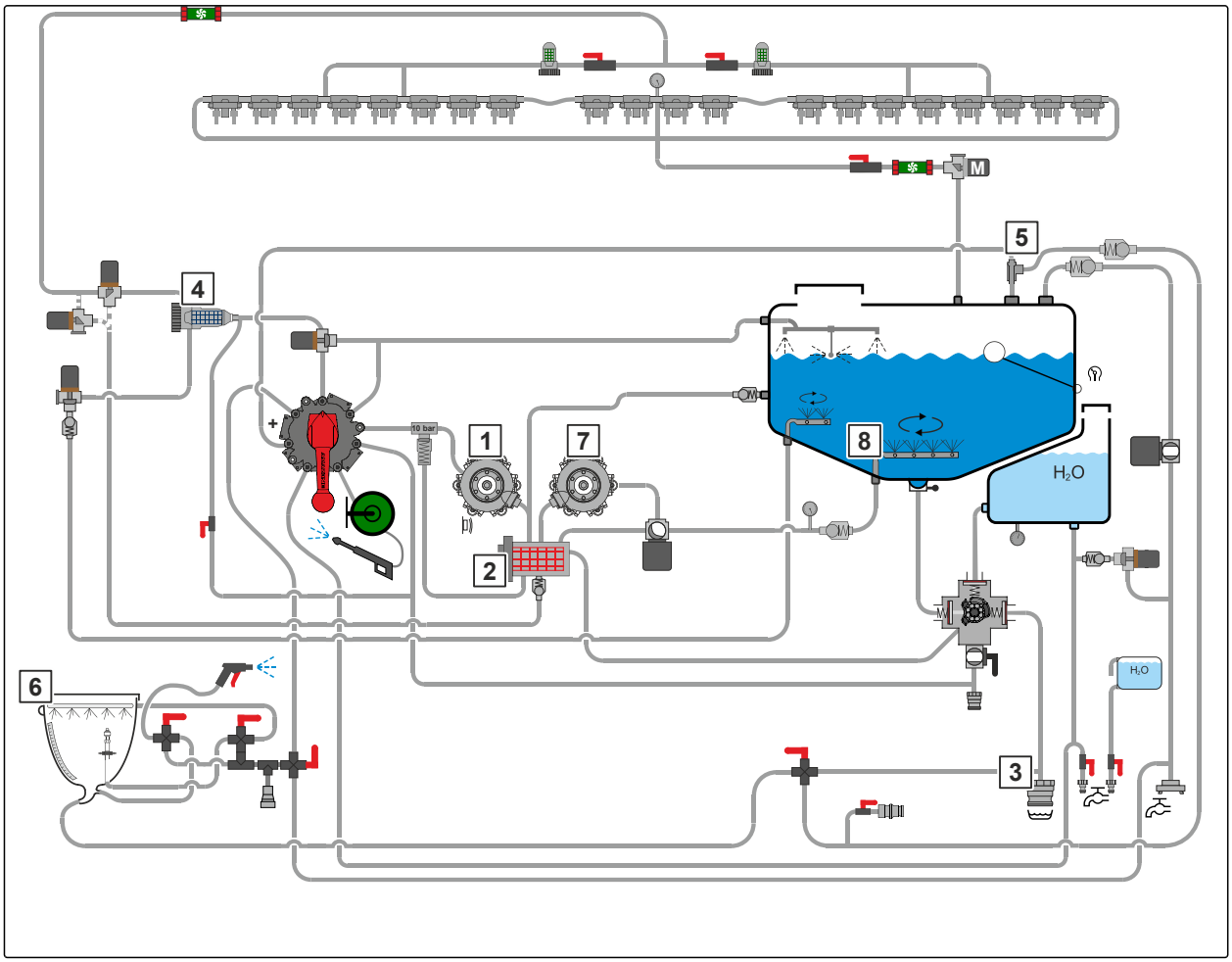
The AmaDrive vehicle terminal is used as a display terminal and control terminal for vehicle operation.

During operation, the field sprayer is operated using the ISOBUS control terminal.

At a standstill, the field sprayer is additionally operated using the lateral control panel. Spray agent can be added through the induction bowl.

The spray liquid pump, the agitator pump and the optional flushing water pump operate the liquid circuit of the field sprayer.

The Super-L boom has manual or automatic boom guidance.



CMS-I-00008679

The spray liquid pump 1 suctions spray liquid from the spray liquid tank through the suction filter 2, water through the external suction connection 3 or flushing water from the flushing water tank.

Through the pressure filter 4, the suctioned liquid goes to the spray nozzles, to the injector 5 or to the induction bowl 6.

The required quantity of agent is filled into the induction bowl and conveyed into the spray liquid tank.

The agitator pump 7 and the agitator 8 ensure that the spray liquid is homogeneous.

4.3 Special equipment

CMS-T-00013880-A.1

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

- Sliding shutter
- Suction strainer 3" with non-return valve
- Increase of the working speed to 30 km/h
- Manoeuvring device

4.4 Protective equipment

CMS-T-00013882-A.1

4.4.1 Railing on the service platform

CMS-T-00013883-A.1

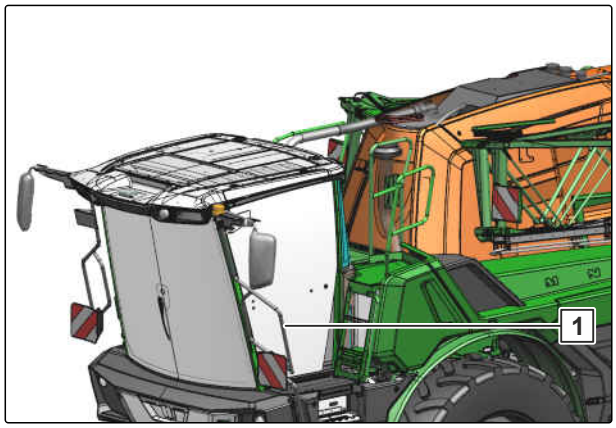
The railing [1] protects people from falling down from the service platform.

CMS-I-00008962

4.4.2 Railing on the cab ascent

CMS-T-00013884-A.1

The railing [1] protects people from falling down when climbing into and exiting the cab.

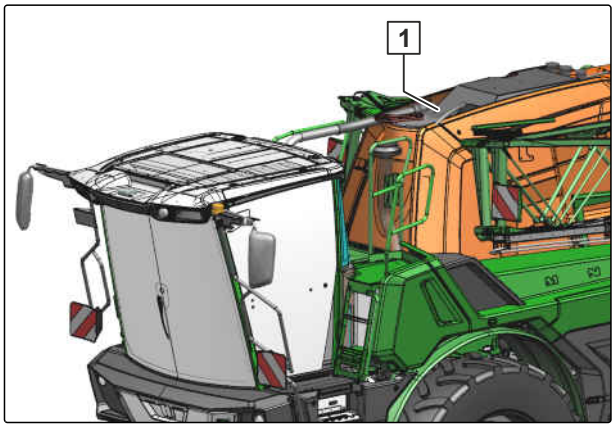


CMS-I-00008961

4.4.3 Heat schield on the exhaust system

CMS-T-00013885-A.1

The heat shield 1 protects people from burning themselves on the exhaust system.



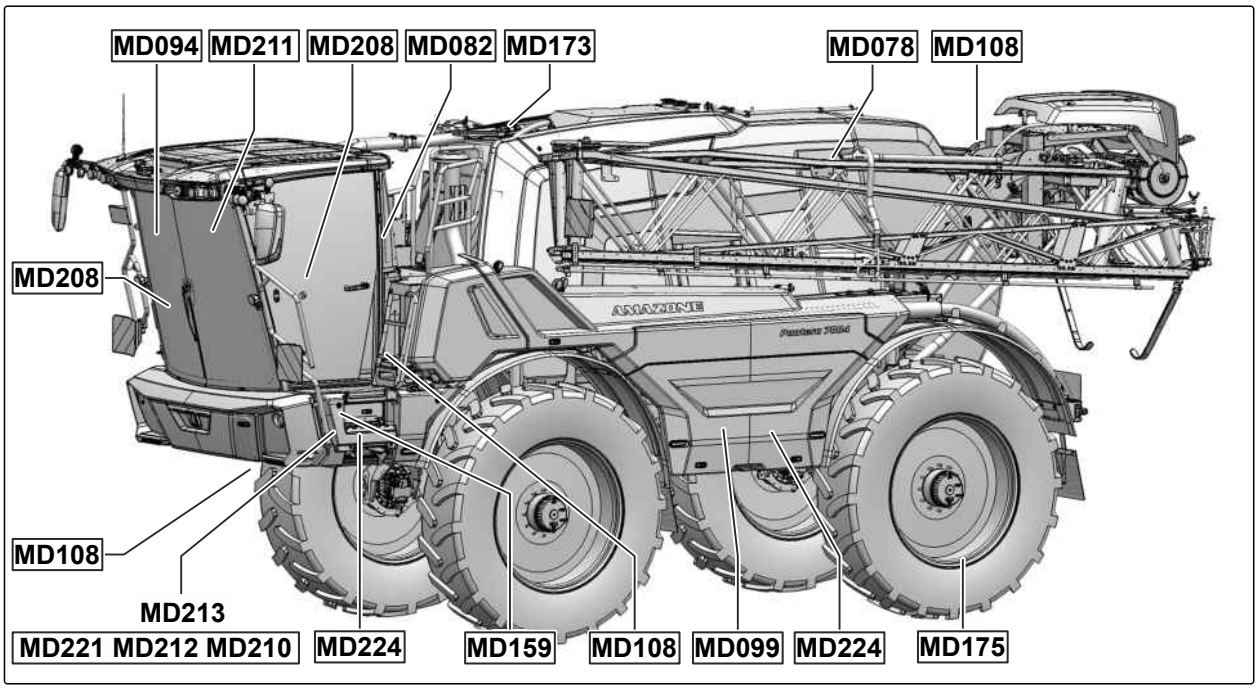
CMS-I-00008963

4.5 Warning symbols

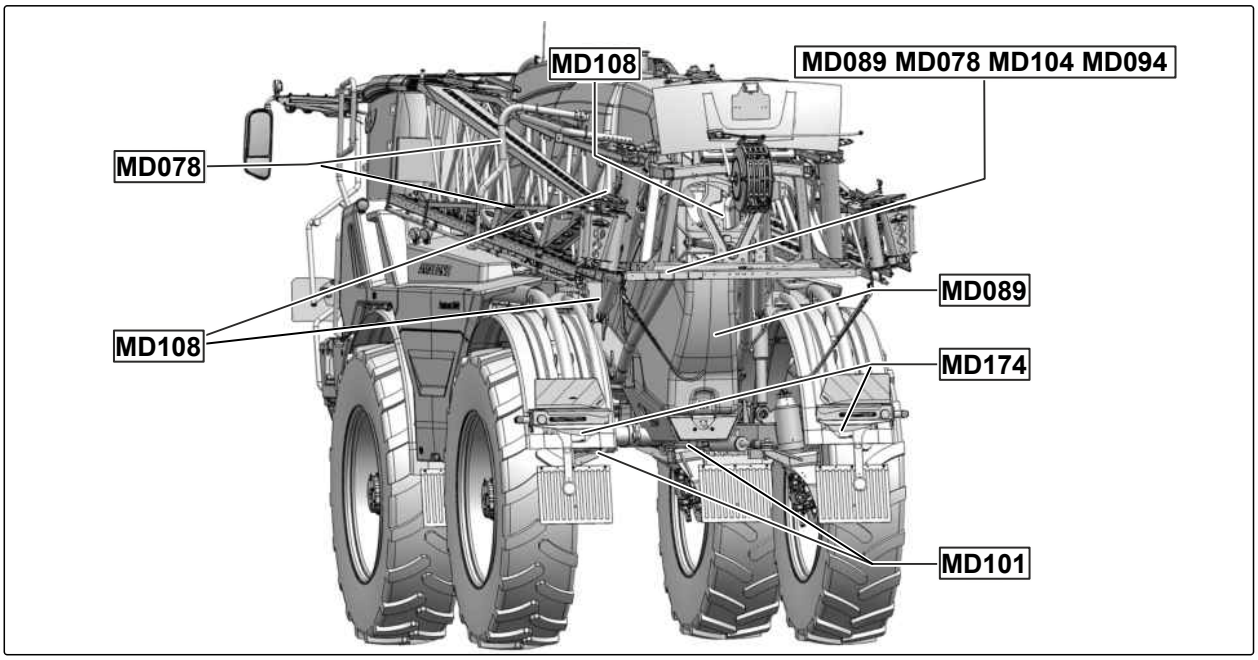
CMS-T-00014368-A.1

4.5.1 Positions of the warning symbols

CMS-T-00014370-A.1



CMS-I-00009363



CMS-I-00009364

CMS-I-00007607

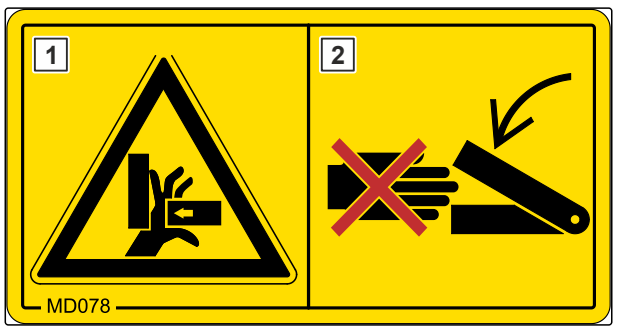
4.5.2 Layout of the warning symbols

CMS-T-000141-D.1

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

A warning symbol consists of two fields:

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



CMS-I-00000416

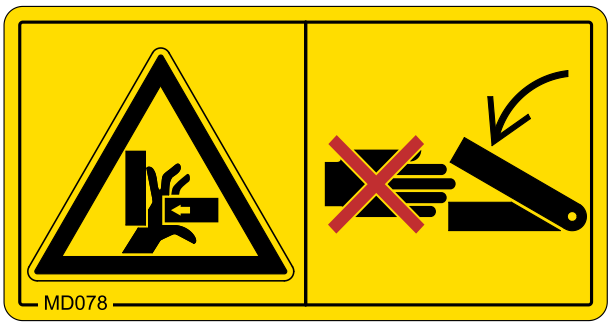
4.5.3 Description of the warning symbols

CMS-T-00014369-A.1

MD 078

Risk of crushing fingers or hands

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

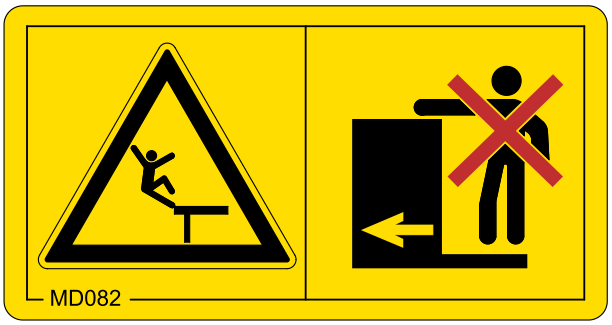


CMS-I-000074

MD 082

Risk of falling from tread surfaces and platforms

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

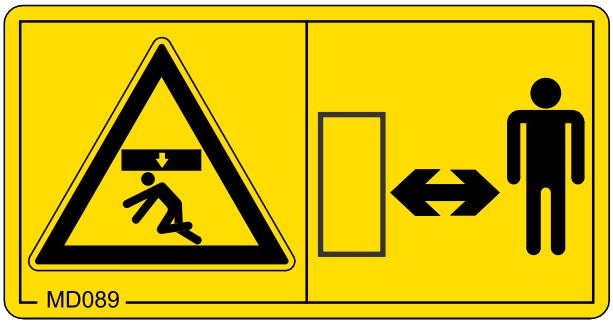


CMS-I-000081

MD089

Risk of crushing from the machine parts unintentionally lowering

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

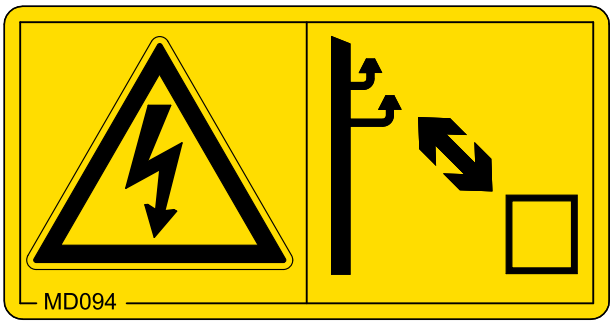


CMS-I-00003027

MD094

Danger due to transmission lines

- Never touch transmission lines with the implement.
- Maintain an adequately safe distance from electrical transmission lines, especially when folding or unfolding implement parts.
- Please note that the voltage can flash over when the distance is too small.

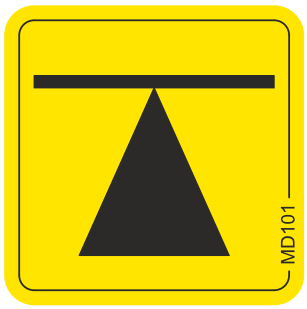


CMS-I-000692

MD 101

Risk of accidents due to improperly attached lifting equipment

- Only attach the lifting equipment at the marked positions.

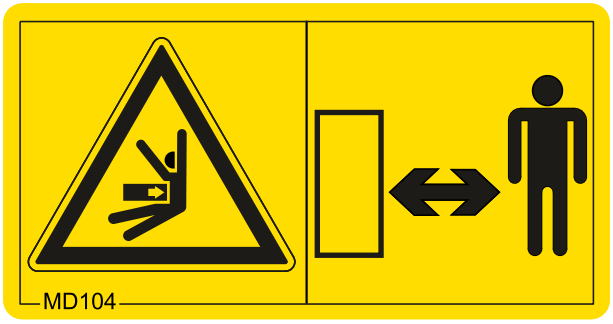


CMS-I-00002252

MD104

Risk of crushing die to swivelling parts of the implement

- *As long as the tractor engine is running,* maintain an adequate safety distance from swivelling implement parts.
- Make sure that there is nobody standing close to swivelling parts.

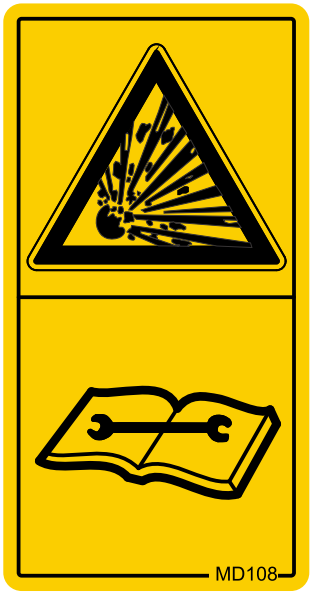


CMS-I-00003312

MD 108

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

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

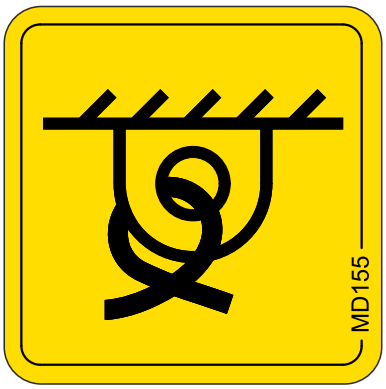


CMS-I-00004027

MD 155

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

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



CMS-I-00000450

MD 159

Mortal danger due to crop protection products in the hand wash tank

- ▶ Fill the hand wash tank only with drinking water and never with crop protection product.

CMS-I-00007606

MD 173

Mortal danger due to vapours in the spray liquid tank

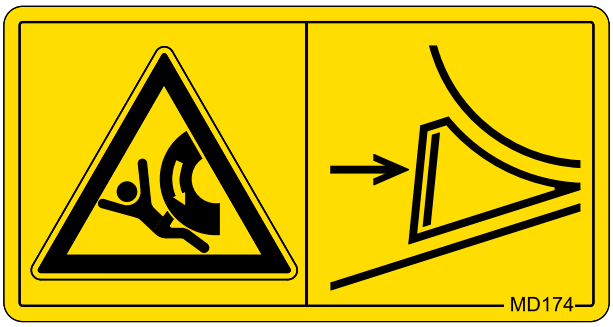
- ▶ Never climb into the spray liquid tank.

CMS-I-00007613

MD 174

Risk of rolling over due to unsecured implement

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



CMS-I-00000458

MD 175

Risk due to improperly tightened bolted connections

- ▶ Tighten the bolted connections with the required torque.

CMS-I-00008105

MD 192

Severe injuries due to incorrect handling of the pressure relief valve

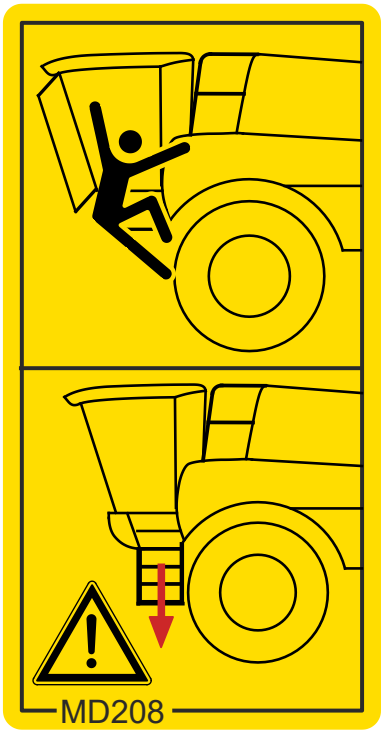
- ▶ Have the pressure relief valve checked, adjusted, and repaired by a qualified specialist workshop only.

CMS-I-00007612

MD 208

Risk of falling down when leaving the cab if the ladder is not swivelled down

- Swivel the ladder down before leaving the cab.

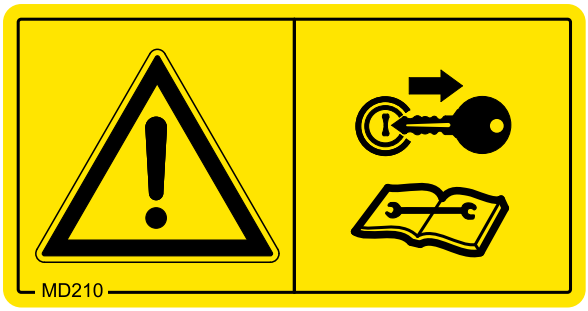


CMS-I-00009127

MD210

Risk due to unintentional starting and unintentional rolling away of the implement

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

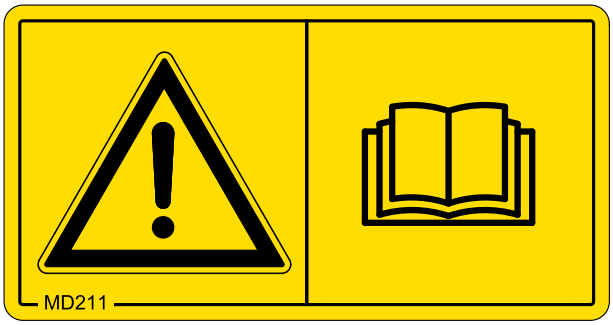


CMS-I-00002251

MD211

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

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

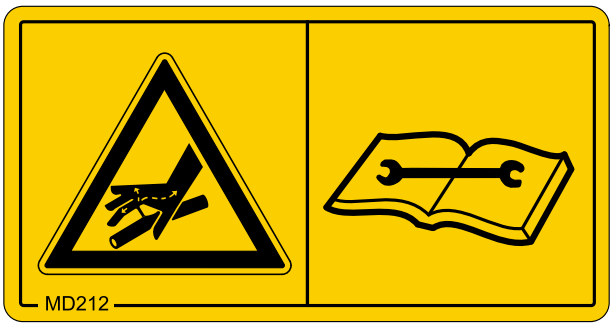


CMS-I-00003658

MD212

Risk of infection from escaping hydraulic fluid under high pressure

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



CMS-I-00004384

MD 224

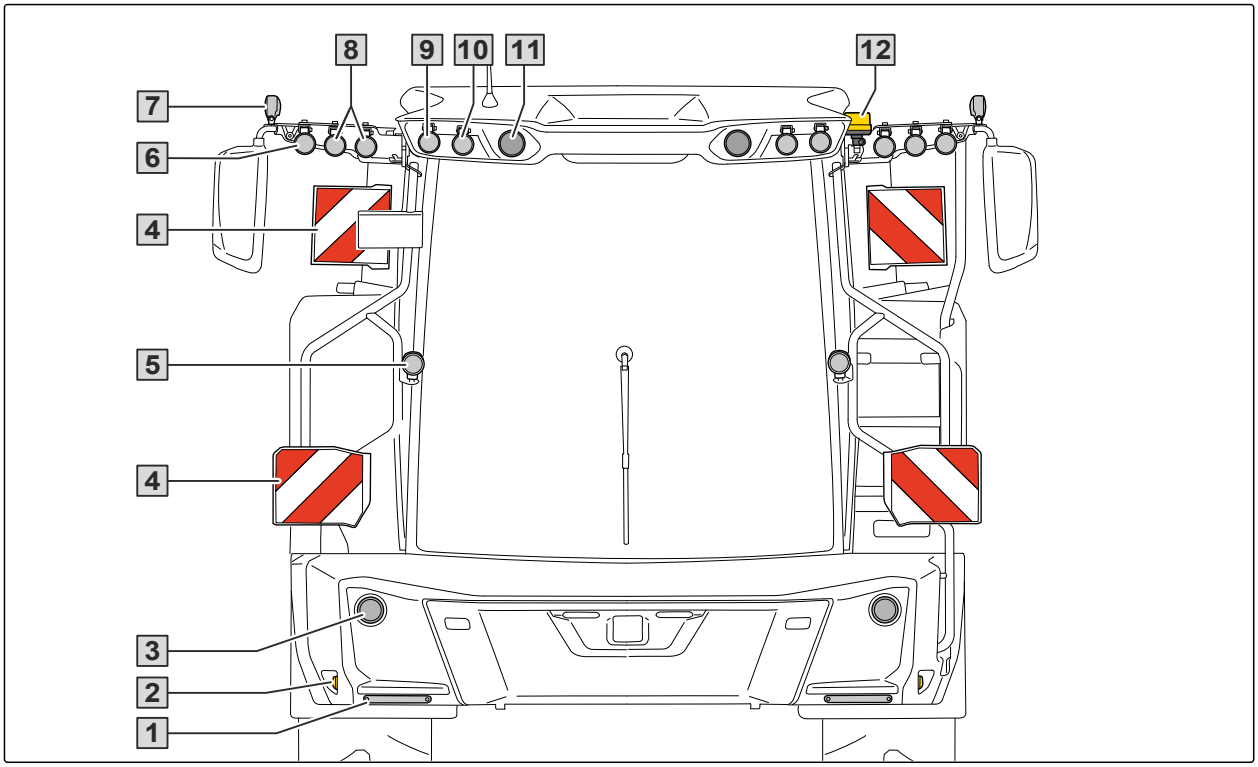
Health hazard due to water from the hand wash tank

- Never use the water from the hand wash tank as drinking water.

CMS-I-00005073

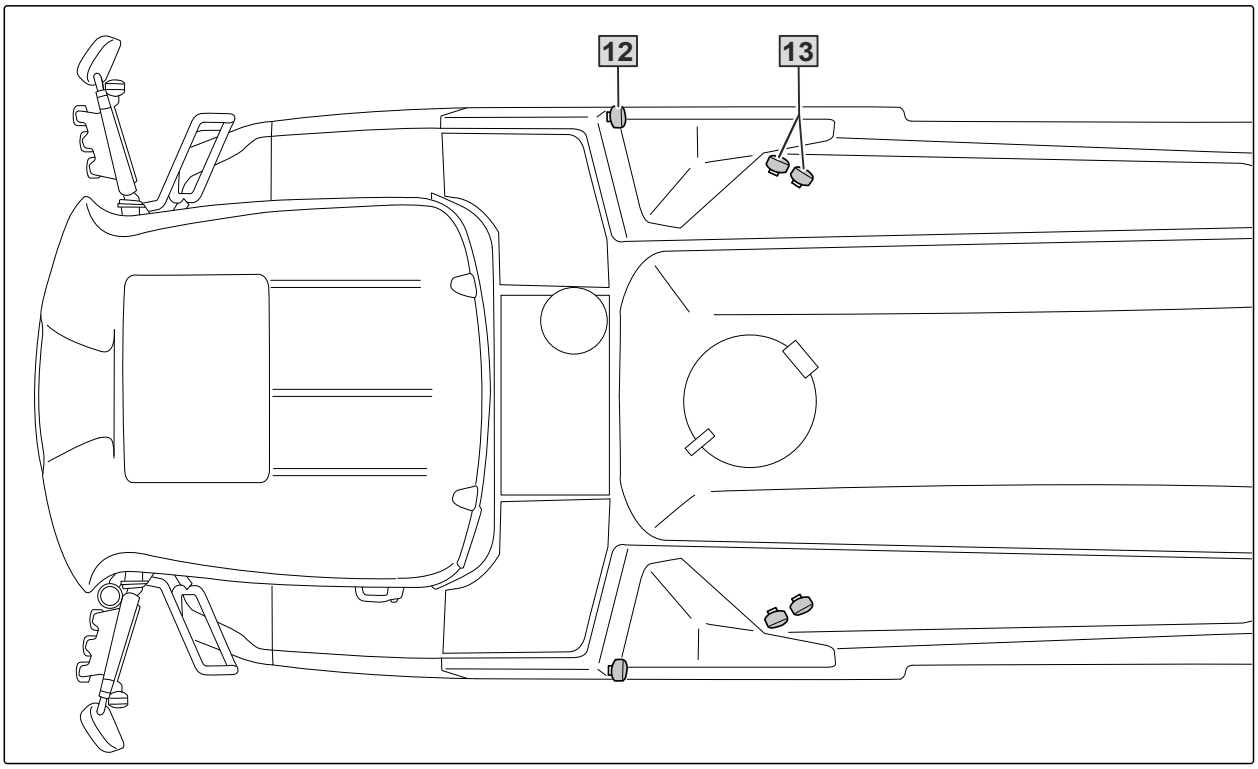
4.6 Driving lights, identification and work floodlights

CMS-T-00013928-A.1



CMS-I-00008667

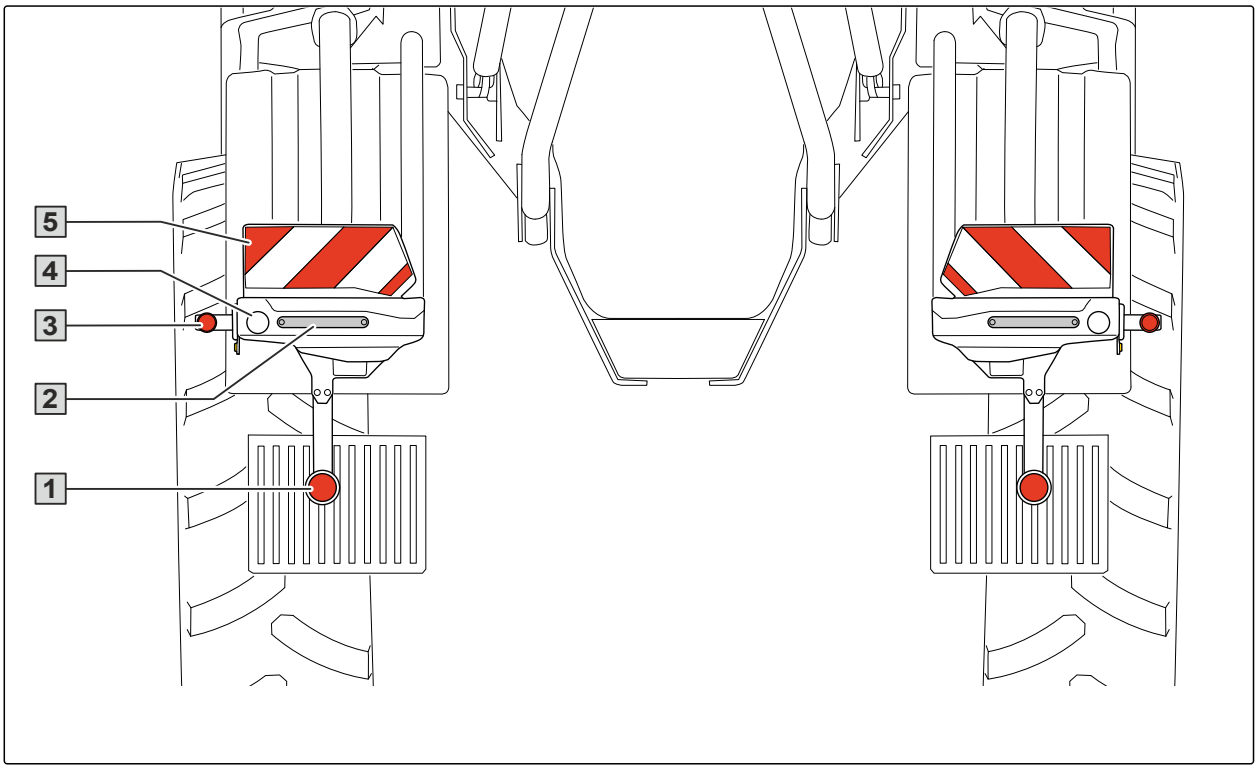
1 Marker light and turn indicator	2 Turn indicator
3 Dipped headlights	4 Warning sign
5 Full-beam headlights	6 Work floodlights, close range
7 Work floodlights, side lighting close range	8 Work floodlights, front area far range
9 Work floodlights, front area far range	10 Work floodlights, close range
11 Work floodlights, front area far range	12 Warning beacon



CMS-I-00008666

12 Work floodlights, machine contour close range

13 Work floodlights on the boom, far range



CMS-I-00008955

1 Reflector

2 Tail light, brake light and turn indicator

3 Marker light

4 Reversing light

5 Warning sign

4.7 Service box

CMS-T-00013827-A.1

The service box is located in the cab.

The service box contains the following items:

- Documents
- Aids

CMS-I-00008809

4.8 Rating plates

CMS-T-00014673-A.1

4.8.1 Rating plate on the implement

CMS-T-00014674-A.1

1 Implement number

2 Vehicle ID number

3 Product

4 Permissible technical implement weight

5 Tare weight

6 Model year

7 Year of manufacture

CMS-I-00009315

4.8.2 Additional rating plate

CMS-T-00005949-B.1

1 Note for type approval

2 Note for type approval

3 Vehicle identification number

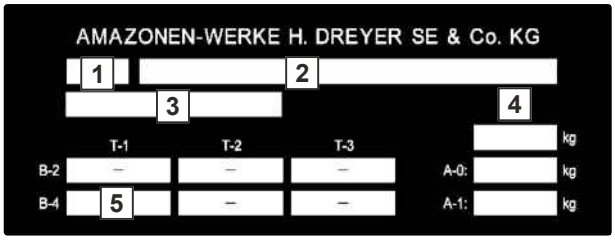
4 Permissible technical total weight

5 Permissible technical trailer load for a drawbar trailer vehicle with pneumatic brake

A0 Permissible technical drawbar load

A1 Permissible technical axle load for axle 1

A2 Permissible technical axle load for axle 2



CMS-I-00005056

4.9 Personal protective equipment safety kit

CMS-T-00011765-A.1

The safety kit is in the case for personal protective equipment for handling crop protection products.

CMS-I-00007635

4.10 Carrier system

CMS-T-00013859-A.1

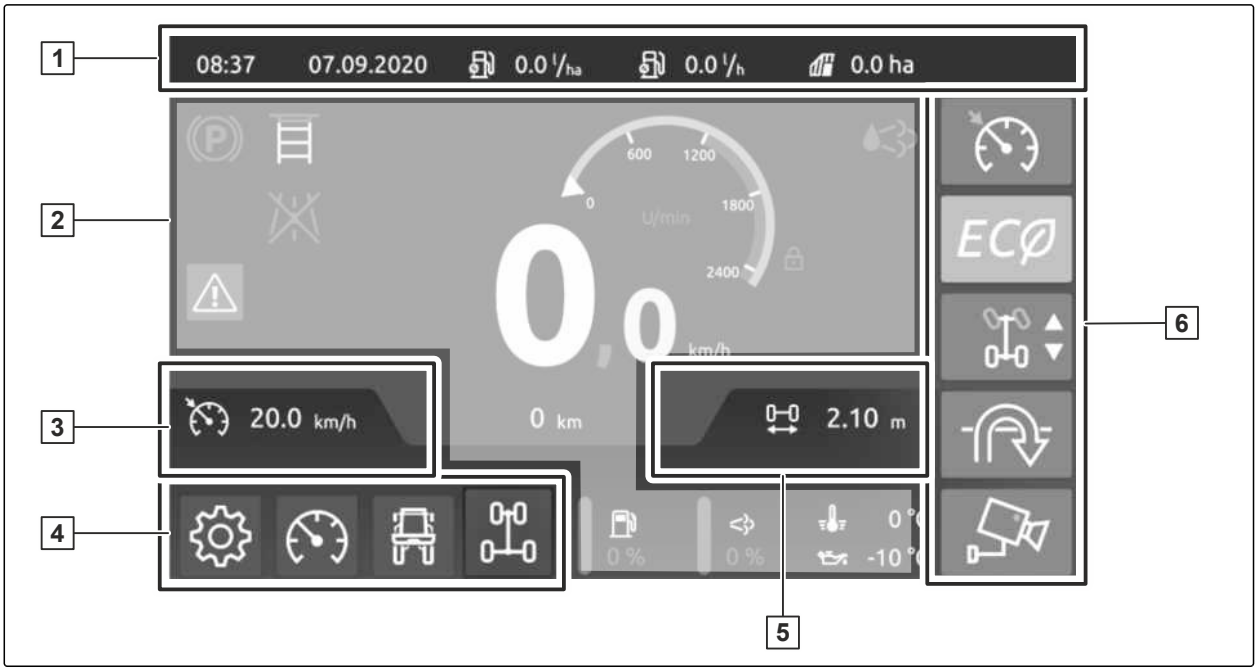
4.10.1 AmaDrive vehicle terminal

CMS-T-00013861-A.1

4.10.1.1 Work screen

CMS-T-00013863-A.1

The AmaDrive vehicle terminal is used for adjusting and monitoring the carrier system. It is operated via the touch-sensitive function fields.



CMS-I-00008783

1 Status line
2 Indicator lights
3 Quick adjustment of the cruise control
4 Submenus

5 Quick adjustment of the track width

6 Buttons

4.10.1.2 Indicator lights

CMS-T-00013864-A.1

Indicator lights in the central area of the work screen

1 Tachometer, red area = current speed limit

2 Forward speed

3 Total distance travelled

4 Exhaust aftertreatment, red = fault

CMS-I-00008784

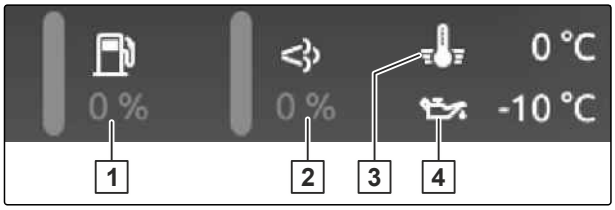
Indicator lights in the lower area of the work screen

1 Diesel fill level

2 DEF fill level

3 Cooling water temperature

4 Hydraulic oil temperature



CMS-I-00008844

Indicator lights in the left area of the work screen

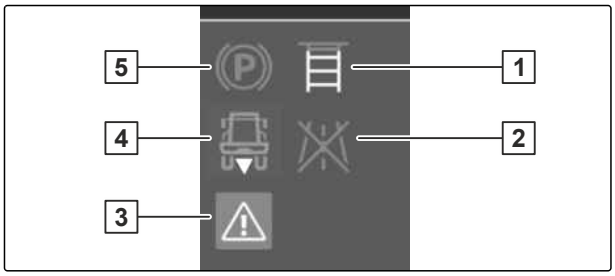
1 Ladder

2 Mode

3 Error messages

4 Height adjustment (Pantera 4504 H only)

5 Parking brake



CMS-I-00008845

Ladder indicator light 1	
	Ladder raised: display is blue when driving, red when stationary
	Ladder lowered: display is red when driving, blue when stationary
	While raising
	While lowering

Mode indicator light 2	
	Field mode
	Road mode

Error messages indicator light 3	
OK	None
	Error messages present

Height adjustment indicator light 4	
	Running gear lowered
	Running gear raised

Parking brake indicator light 5	
	Released (white)
	Auto Hold activated (red)
	Machine is braked (red)

4.10.1.3 Buttons

CMS-T-00013865-A.1

CMS-I-00008785

1 Cruise control function

2 ECO mode

3 Type of steering

4 Headland control

5 Camera

Functions are switched on and off using the buttons.
When a function is switched on, the button is yellow.
When the function is switched off, the button is grey.

Symbol for the cruise control function button 1	
	Switching the cruise control function on and off in field mode: press and hold the button for 5 seconds to switch over.

ECO mode button 2	
	Switching ECO mode on and off. The ECO mode is active after starting the engine and after switching from road to field.

Type of steering button 3	
	Front-wheel steering for the tramline
	Four-wheel steering for the headlands
	Manual four-wheel steering Manual four-wheel steering is used for counter-steering of the rear axle on slopes. The rear wheels can be steered using the buttons on the AmaPilot+ multi-function stick.  Pressing the button again switches the manual four-wheel steering off.
	Automatic four-wheel steering (crab steering) Crab steering enables driving transverse to the vehicle axle. The front and rear wheels are steered in the same way using the steering wheel.  To activate crab steering mode, press and hold the button for 3 seconds.  Switch crab steering on and off as required.  To deactivate crab steering mode, press and hold the button for 3 seconds.

Headland control button 4	
	Switching headland control on and off **When headland control is switched on:** ● Drive on the headlands with four-wheel steering. ● Drive in the tramline with front-wheel steering. The type of steering can be overridden in the headlands management.

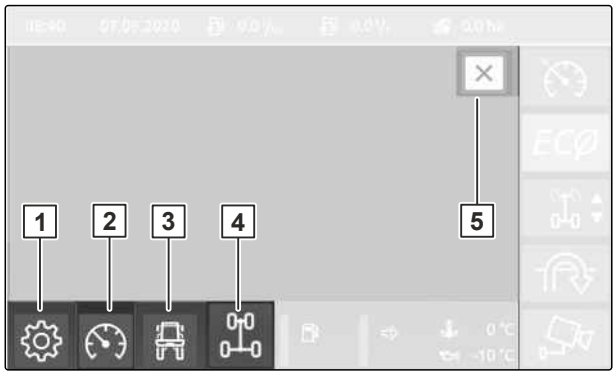
Camera button 5	
	Switching the camera on and off The camera view appears on the display.

4.10.1.4 Submenus

CMS-T-00013991-A.1

4.10.1.4.1 Overview of the submenus

CMS-T-00013866-A.1



CMS-I-00008846

1 Settings: general settings and display for diagnosis

2 Drive settings

3 Running gear settings for track width and height (only for Pantera 4504)

4 Offset track driving

5 ✕ Close the submenu and go back to the work screen.

4.10.1.4.2 Drive settings submenu

CMS-T-00013992-A.1

Cruise control area:

CMS-I-00009026

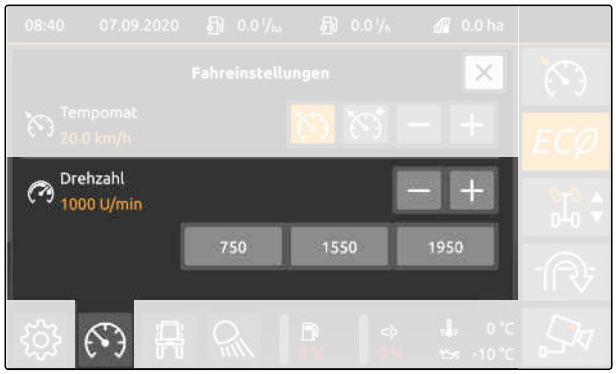
Call up the drive settings.

Select cruise control: for fuel-efficient driving

Select cruise control+ for higher power requirements: for performance-optimised driving

Adjust the cruise control speed.

Speed area:



CMS-I-00009025

Set the engine speed.

750 Direct selection of the engine speed. To assign a field, adjust the engine speed with the +/- buttons and press the desired field for 3 seconds.

4.10.1.4.3 Settings submenu

CMS-T-00014023-A.1

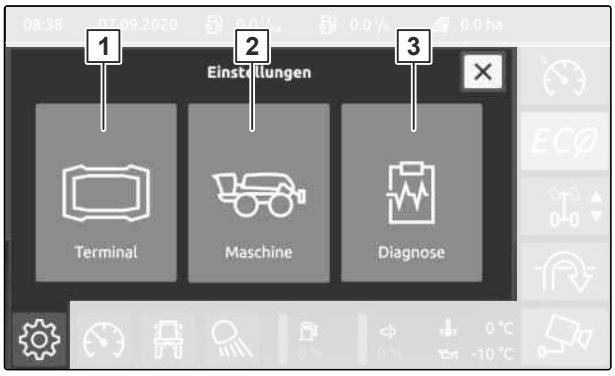
Settings submenu:

Call up the Settings.

1 Terminal submenu

2 Machine submenu

3 Diagnosis submenu



CMS-I-00008847

Terminal submenu:

Find the setting.

1 Set the time shown in the status bar.

2 Set the date shown in the status bar.

3 Configure the display of the status bar, see below.

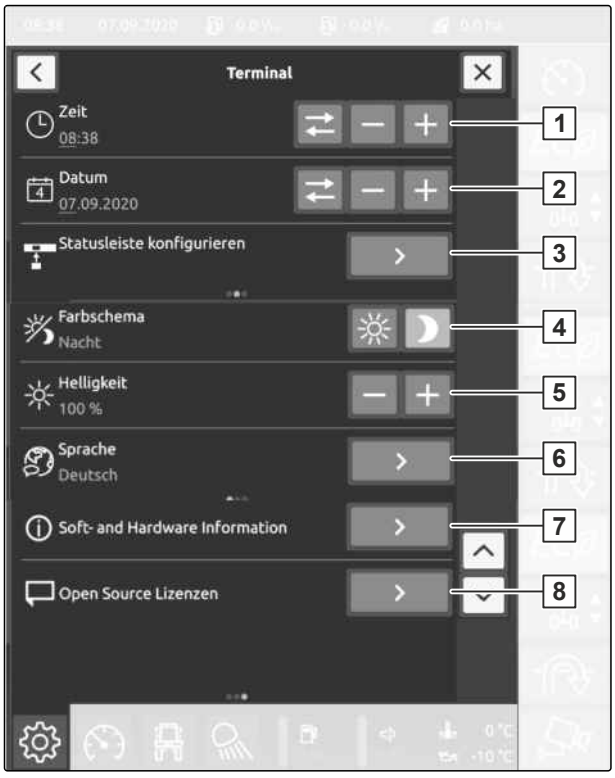
4 Select day view or night view.

5 Brightness

6 Language

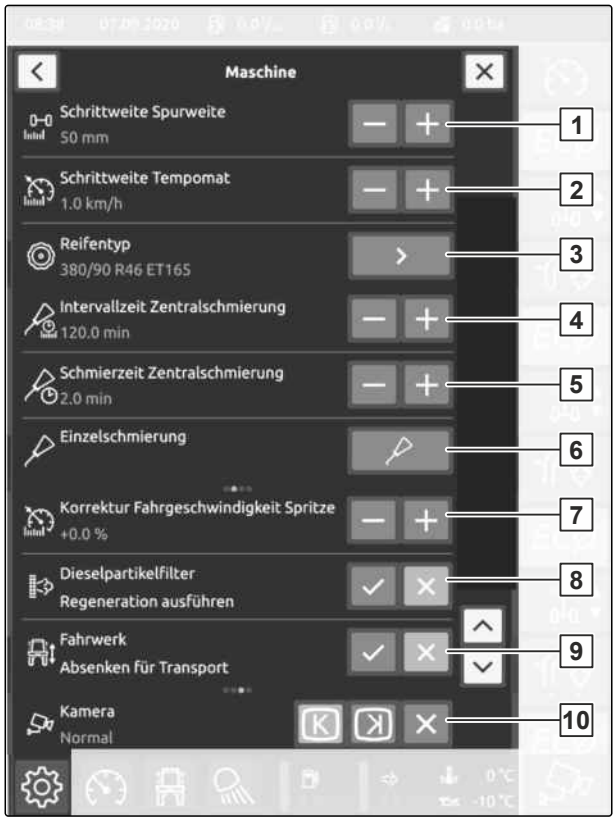
7 Information on the software and hardware (only for service personnel)

8 Open Source licences (only for service personnel)



CMS-I-00008851

Machine submenu:



CMS-I-00008850

Find the setting.

1 Set the increment for track width.

2 Set the increment for cruise control.

3 Enter the type of tyres. The tyre size must be selected correctly so that the set track width corresponds with the real track width.

4 Set the interval time for the central lubrication.

5 Set the lubrication time for the central lubrication.

6 Perform single lubrication.

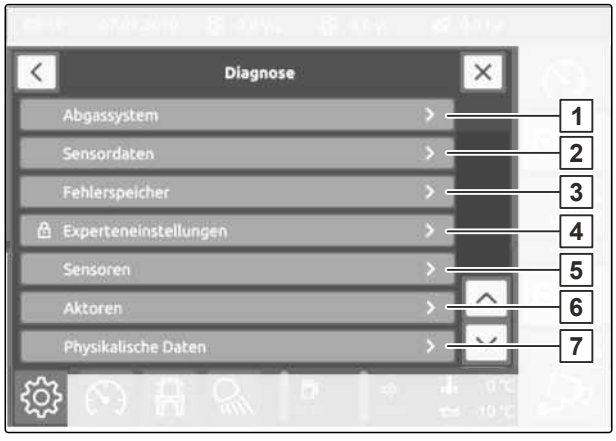
7 Correction of the forward speed. The speed transmitted to the ISOBUS can be corrected to compensate for slippage of the wheels on the field.

8 Perform regeneration of the diesel particle filter. After 500 operating hours, the regeneration must be started manually with the engine running. Do not start the regeneration in buildings.

9 Lower the running gear for transport (loading of the machine on a flat-bed trailer).

10 Switch the camera. Displays: normal view, mirrored view, camera not installed.

Diagnosis submenu:



CMS-I-00008848

Find the diagnosis data.

1 Data for the exhaust system

2 Sensor data

3 Error memory

4 Expert settings, secured

5 Data for the sensors

6 Data for the actuators

7 Physical data

Error memory:

Find the error.

1 Clear the error memory.

2 Show all errors.

3 Show only active errors.

CMS-I-00008849

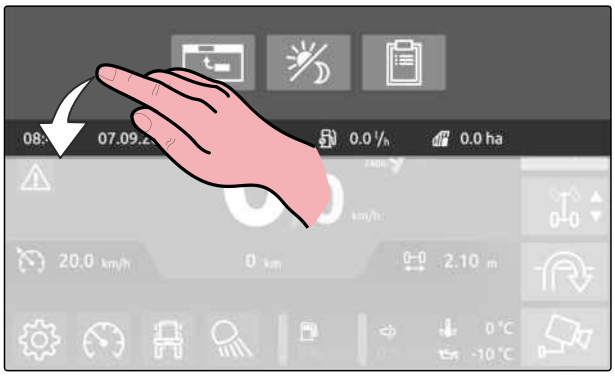
4.10.1.5 Status line

CMS-T-00013867-A.1

The status line shows up to 5 freely configurable data.

CMS-I-00008854

Three submenus can be called up by "pulling down" the status line.



CMS-I-00008855

Overview of the status line:

1 Configuring the status line

2 Changing from day view to night view

3 Showing the operating data

CMS-I-00008856

Configure the status line submenu:

CMS-I-00008857

1 Diesel tank fill level [%]

2 Average consumption [l/ha]

3 Actual consumption [l/h]

4 Average consumption [l/h]

5 Driving lever position [%]

6 Drive pressure [bar]

7 Speed of the diesel engine [1/min]

8 Utilisation of the diesel engine [%]

9 Total worked area [ha]

10 Date

11 Time

NOTE

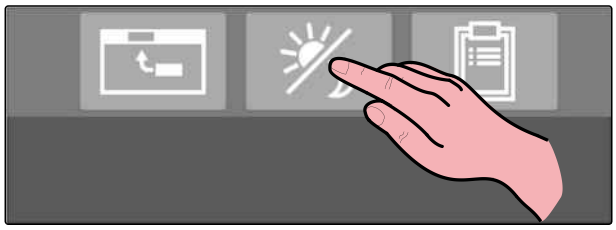
A maximum of 5 values are shown in the status line.

X If necessary, a display must be removed from the status line to make room for another display.

To display a value in the status line, drag the desired value into the status line. Then close the window by "pulling up".

Day view and night view submenu:

Select day view or night view



CMS-I-00008858

Pull down the status line, select the desired view, and close the window by "pulling up".

Operating data display submenu:

Find the desired operating data

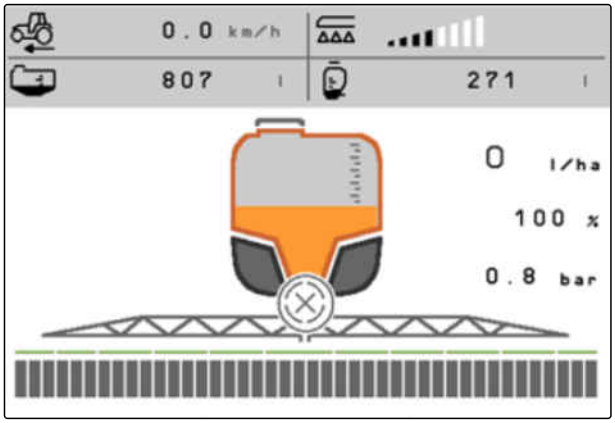
CMS-I-00008853

Pull down the status line, view the operating data, and close the window again by "pulling up".

4.10.2 ISOBUS software

CMS-T-00011764-A.1

The machine is operated with the ISOBUS software and an ISOBUS control terminal.



CMS-I-00007636

4.10.3 Non-certified camera system

CMS-T-00013828-A.1

NOTE

Equipment with a non-certified camera system does not replace the marshalling person in road traffic.

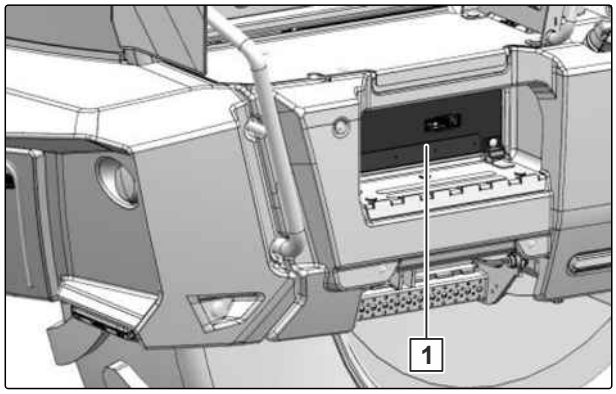
The non-certified camera system contains one camera or multiple cameras on the machine.

The camera system is used for monitoring the surroundings and as a manoeuvring aid.

4.10.4 Covers and compartments outside the cab

CMS-T-00014221-A.1

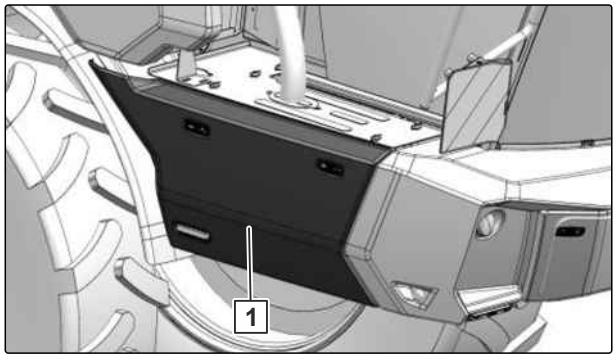
On the left side of hte vehicle, there is a small storage bin under the cab step behind the folding cover 1.



CMS-I-00009028

The compartment behind the cover that can be removed upwards 1 on the right side of the vehicle contains:

- Battery
- Wiper water tank
- Fire extinguisher



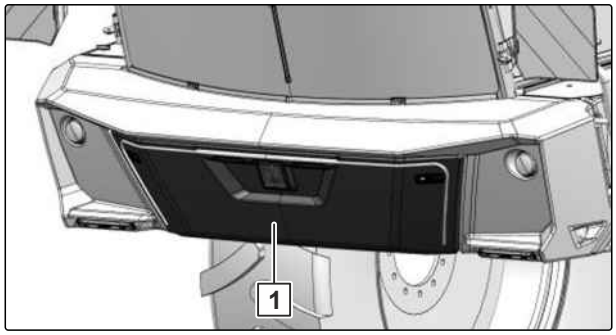
CMS-I-00009029

NOTE

Before the cover is removed, the cable plug on the inside must be disconnected.

The compartment at the front behind the folding cover 1 contains:

- Pressure filling connection
- Chock
- Towing device
- Platform for spray agent canister, with removable protective brace to secure the load

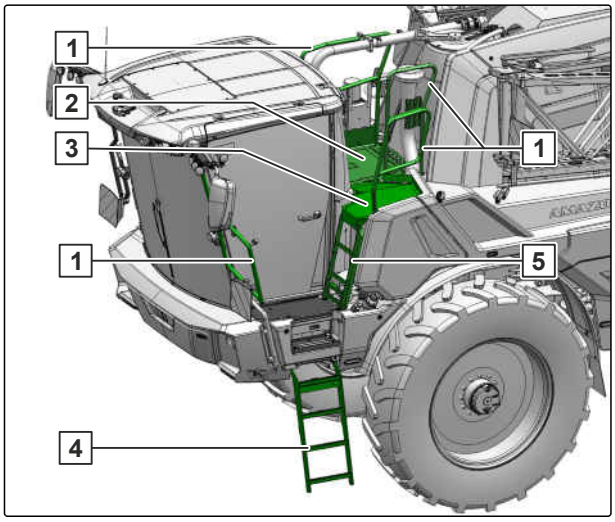


CMS-I-00009030

The maximum payload is 100 kg.

4.10.5 Service platform with ladder

CMS-T-00014223-A.1



CMS-I-00009031

1 Railing to protect against falling

2 Maintenance flap

3 Service platform

4 Hydraulically swivelling ladder with switch on the dashboard

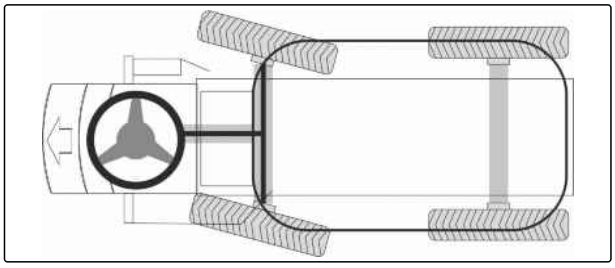
5 Hand rail on the ladder

The maintenance flap 2 can be opened using a square spanner. The square spanner is located in the storage box in the driver's cab.

4.10.6 Steering system

CMS-T-00013772-A.1

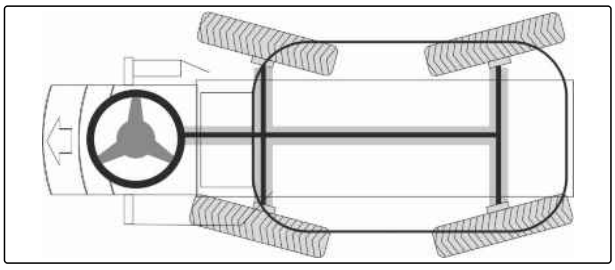
The type of steering is set on the AmaDrive vehicle terminal.



CMS-I-00008570

Front-wheel steering:

Front-wheel steering is possible in road mode and in field mode, and is used to drive in the tramline. The front wheels are steered using the steering wheel. The automatic steering system keeps the rear wheels parallel to the longitudinal axle.



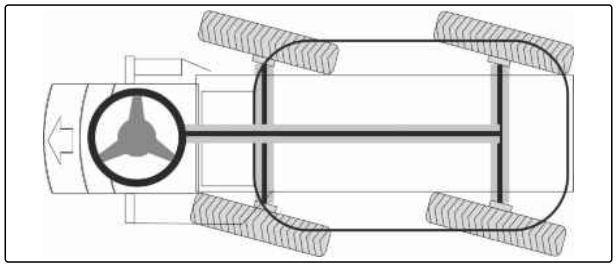
CMS-I-00008571

Four-wheel steering:

Four-wheel steering is only possible in field mode and is used for driving on the headlands. All 4 wheels are steered using the steering wheel. Four-wheel steering is limited above 6 km/h, and is switched off above 12 km/h.

Crab steering with automatic rear-wheel steering:

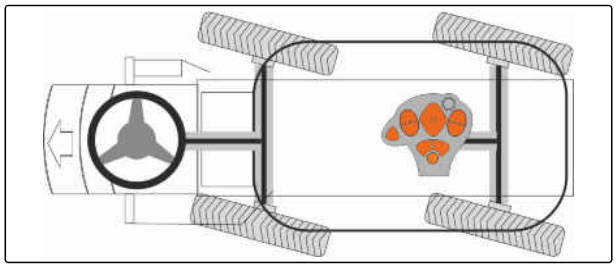
Crab steering is only possible in field mode and is used for driving transverse to the orientation of the machine. All 4 wheels are steered using the steering wheel.



CMS-I-00008572

Manual rear-wheel steering:

Manual rear-wheel steering is only possible in field mode and is used for driving along the contour lines. The front wheels are steered using the steering wheel. The rear wheels are steered manually using AmaPilot.



CMS-I-00008573

When the driver leaves their seat, the rear-wheel steering is deactivated as a safety function. When rear-wheel steering is switched on again, the rear wheels can be steered immediately.

4.10.7 Vehicle drive

CMS-T-00013855-A.1

NOTE

See separate operating manual for Deutz engine.

A Deutz diesel engine serves as the vehicle drive.

The diesel engine can be operated in 2 states:

ECO mode:

- Use ECO mode as the default drive version.
- Requirement-orientated adjustment of the engine speed with regard to an optimum fuel consumption and maximum power
- Reduced speed level
- Moderate driving dynamics
- Idling speed 800 1/min

Dynamic mode:

- Use the dynamic mode as a drive version for high power requirements.
- Full driving dynamics
- Maximum engine speed of 2,000 1/min possible
- Manual adjustment of the engine speed in field mode

4.10.8 Manoeuvring device for trailers

CMS-T-00013868-A.1

The manoeuvring device enables manoeuvring of trailers with the Pantera.

It is forbidden to use the manoeuvring device as a towing device on public roads.

A guide is required for coupling the trailer.

CMS-I-00009388

Observe the technical data:

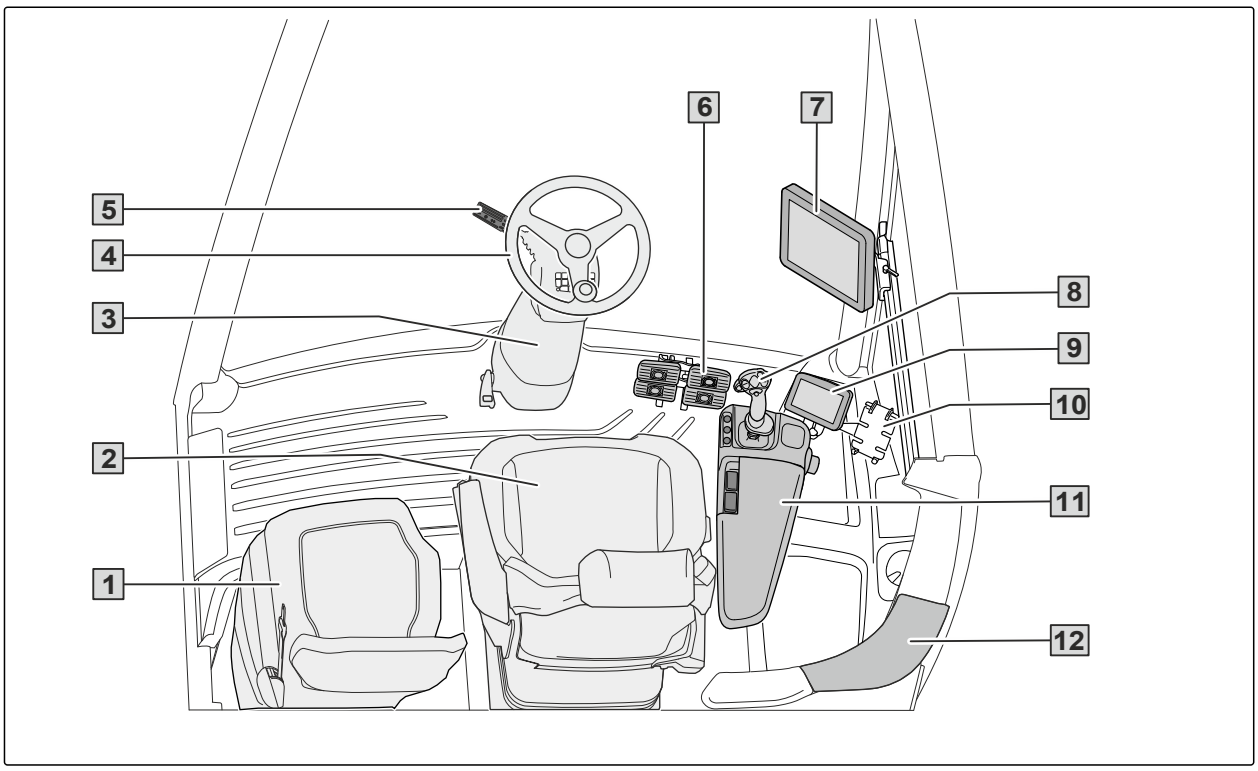
- The manoeuvring device is only approved for manoeuvring work with a maximum speed of 5 km/h.
- For trailers with a maximum permissible total weight of 16,000 kg
- For trailers without drawbar load
- For trailers with drawbar eye 40 DIN 74054

4.11 Driver's cab

CMS-T-00014131-A.1

4.11.1 Overview

CMS-T-00013935-A.1



CMS-I-00008733

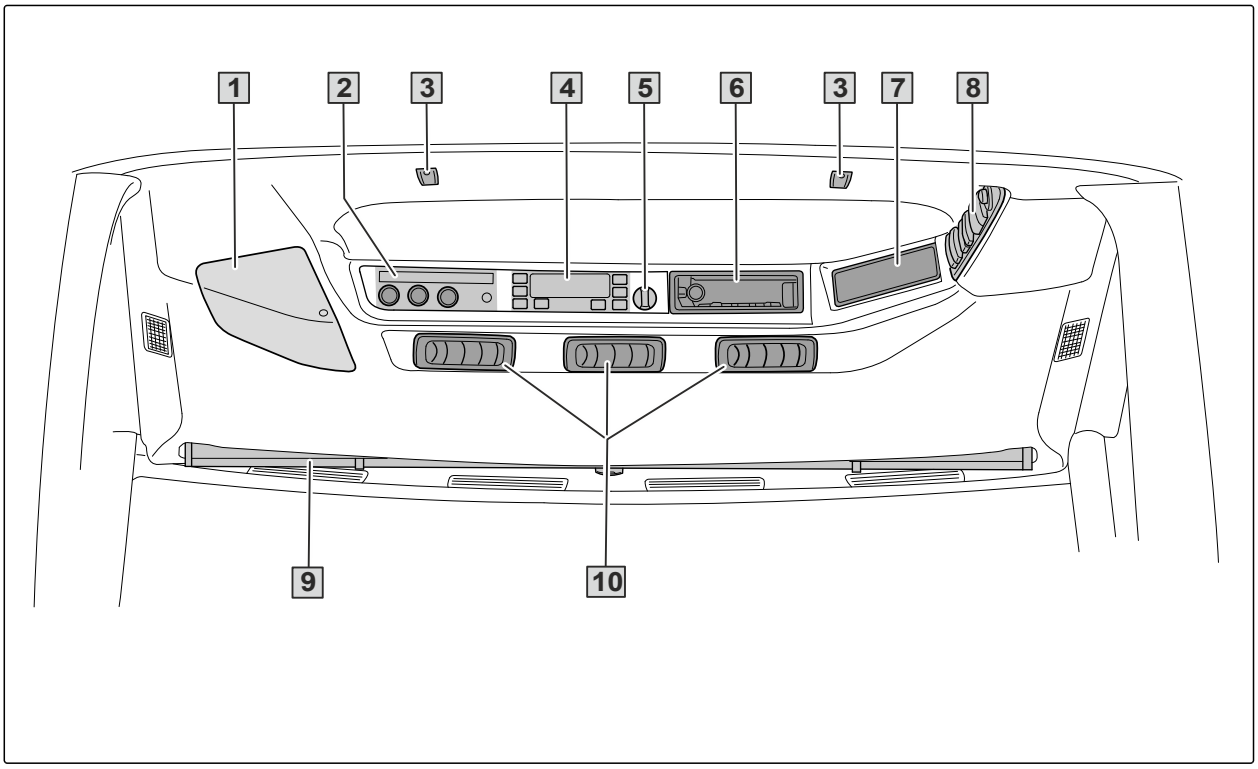
1 Passenger seat and cool box underneath

2 Driver's seat

3 Steering column

4 Steering wheel

5 Multi-function switch
6 Brake pedal
7 ISOBUS control terminal
8 Driving lever with AmaPilot multi-function stick
9 AmaDrive vehicle terminal
10 Holder for tablet or smartphone
11 Control panel with armrest
12 B-pillar control panel



CMS-I-00008732

1 Air-conditioned storage bin
2 Air conditioning system control panel
3 Cab lighting and reading lamp
4 Work floodlights control elements
5 Rotary switch for driving light and parking light
6 Radio
7 Space for a radio device
8 Roof panel control elements
9 Sunblind
10 Air vents

4.11.2 Filter category of the cab

CMS-T-00014137-A.1

In the standard version, the driver's cab meets filter category 1 with cab air filters against dust. The driver's cab does not offer protection against hazardous substances.

NOTE

With filter category 1, the machine may not be used under conditions that require protection against hazardous substances.

The driver's cab can be equipped with filter category 4 as an option. The driver's cab offers protection against dust, aerosols and vapours when using spray agents.

The filtering system consists of category 4 cab air filters, a fresh air fan and a differential pressure sensor for monitoring the cab internal pressure.

A category 4 driver's cab is marked with a sticker **1**. This confirms the tightness of the driver's cab.

The category 4 cab air filters are included loosely. As a standard, the cab is always equipped with standard cab air filters against dust.

CMS-I-00008960

NOTE

Before beginning work, the correct filter elements for the substances to be applied must be used, see page 96. For the cab air filter requirements, observe the safety data sheet and the label of the substance being applied.

4.11.3 Control elements and display elements

CMS-T-00013934-A.1

4.11.3.1 Control elements for steering column and brake pedal

CMS-T-00013942-A.1

1 Steering wheel

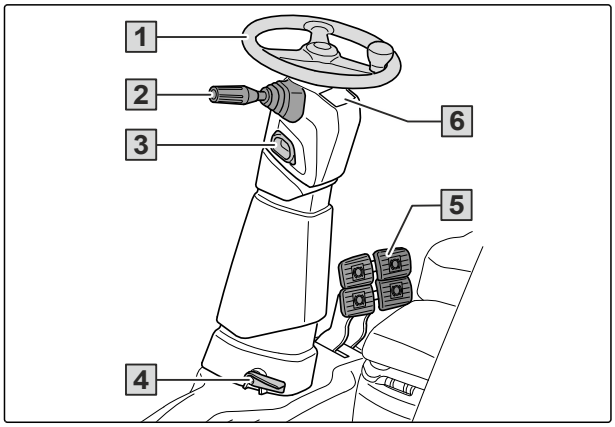
2 Multi-function stick

3 Control lever for bending the steering column and steering wheel height adjustment

4 Control lever to swivel the steering column

5 Brake pedal

6 Control lamps and warning lamps



CMS-I-00008753

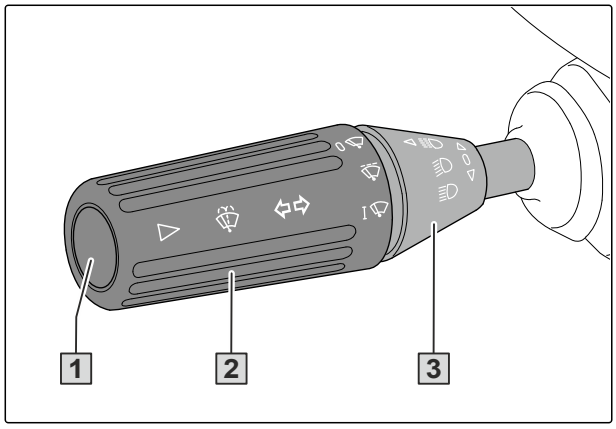
4.11.3.2 Multi-function stick

CMS-T-00014007-A.1

1 Horn button

2 Rotary switch for windscreen wipers and button for windscreen washer system

3 Switch for turn indicator, full-beam headlights and headlight flasher



CMS-I-00008750

4.11.3.3 Control lamps and warning lamps

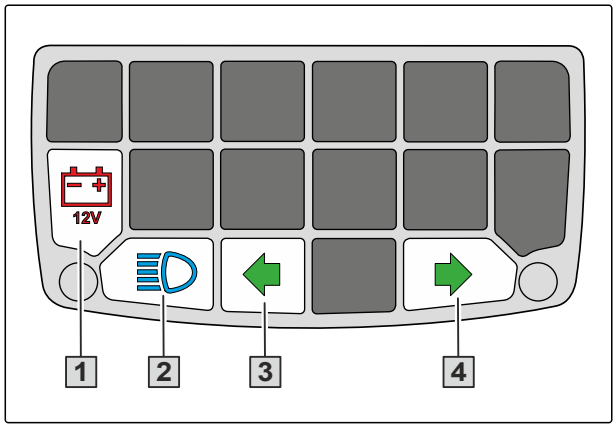
CMS-T-00013943-A.1

1 Battery voltage warning lamp

2 Control lamp for full-beam headlights

3 Control lamp for left turn indicator

4 Control lamp for right turn indicator



CMS-I-00008746

4.11.3.4 Armrest control panel

CMS-T-00013936-A.1

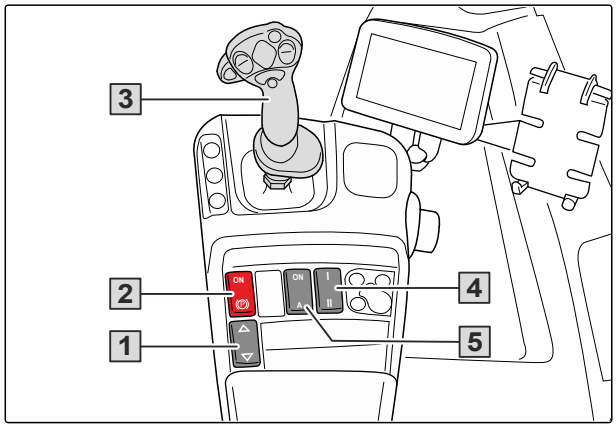
1 Button for extending and retracting the cab access ladder

2 Button for applying and releasing the parking brake

3 Driving lever with AmaPilot multi-function stick

4 Button for aligning the track

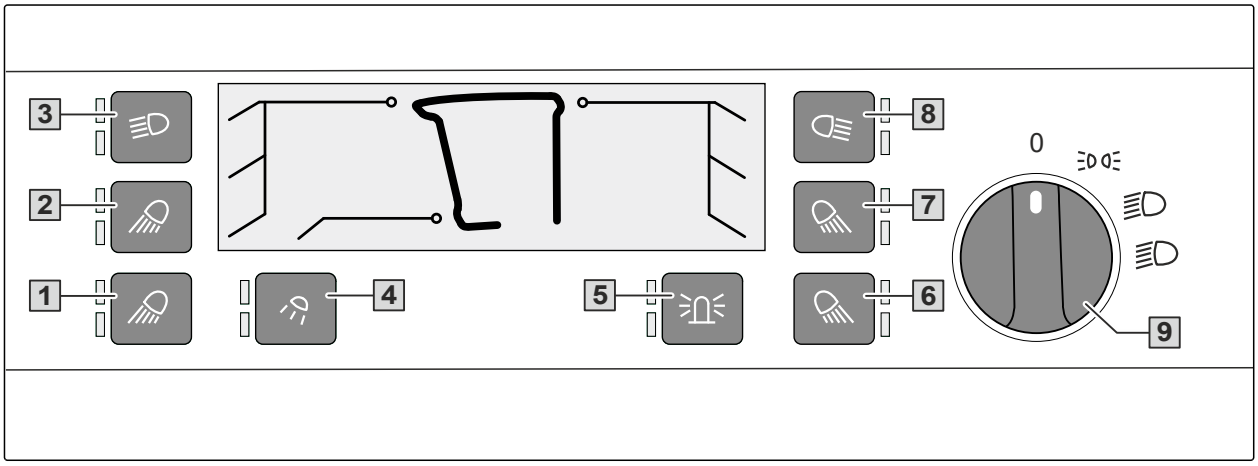
5 *"AutoHold"* button, as an assistant when starting to drive on slopes



CMS-I-00008862

4.11.3.5 Control elements for driving lights and work floodlights

CMS-T-00013937-A.1



CMS-I-00008665

1 Operating button for work floodlights, front area far range

2 Operating button for work floodlights, close range and front area far range

3 Operating button for work floodlights, front area

4 Spare without function

5 Operating button for the warning beacon

6 Spare without function

7 Operating button for work floodlights, machine contour

8 Operating button for work floodlights, boom

9 Rotary switch for parking light, driving light and work floodlights

4.11.3.6 Roof panel control elements

CMS-T-00013939-A.1

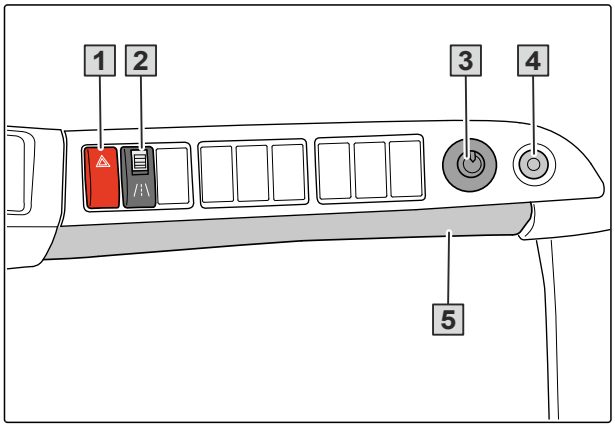
1 Hazard warning signal switch

2 Switch for field travel or road travel

3 Switch for adjusting the exterior rearview mirror

4 Press button for opening the roof electrical system cover

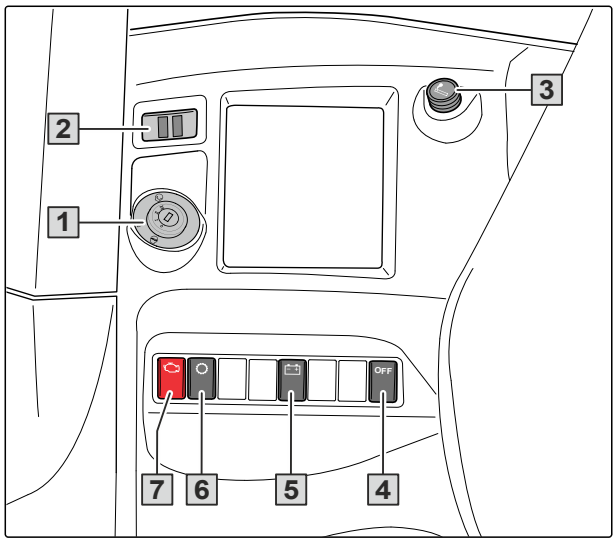
5 Roof electrical system cover



CMS-I-00008867

4.11.3.7 B-pillar control panel control elements

CMS-T-00013940-A.1



CMS-I-00008861

1 Ignition lock

2 USB charging sockets

3 Cigarette lighter

4 Switch to disconnect the power supply prematurely

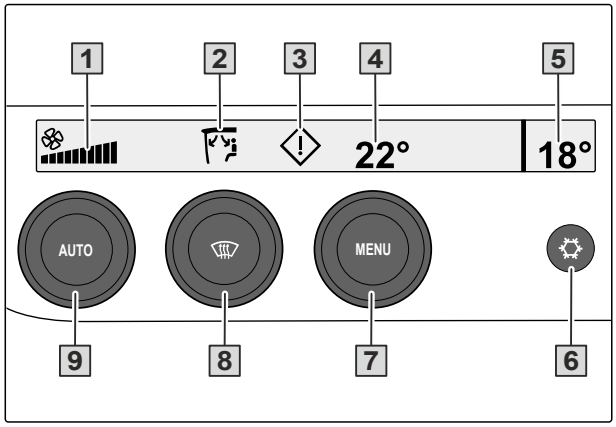
5 Power supply switch

6 Emergency actuation button, for bypassing safety errors

7 Override button, for bypassing engine errors

4.11.4 Functions of the air conditioning system

CMS-T-00013666-A.1



CMS-I-00008523

1 Fan speed symbol

2 Air current distribution symbol

3 Error message symbol

4 Setpoint for the cab temperature

5 Outside temperature

Operating button	Actuation	Mode	Functions
6	Press	--	Switches the air conditioner compressor on or off.
7	Press	Menu	• Maintenance counter reading of the air conditioning system circulation filter • Automatic air conditioning system normal mode • Automatic air conditioning system with higher fan speed mode
7	Turning	Menu	Counter-clockwise: lowers the setpoint for the cab temperature. Clockwise: increases the setpoint for the cab temperature.

Operating button	Actuation	Mode	Functions
8	Press	DEFROST	Below 2 °C outside temperature: de-ice the cab windscreens with constant operation of the air conditioner compressor at the maximum fan speed, heating capacity and air current on the windows.
8	Press	DEMIST	Above 2 °C outside temperature: dry the cab windscreens with constant operation of the air conditioner compressor at the maximum fan speed.
8	Turning	Manual	Selects the air current distribution: ● Person ● Windscreen ● Person and windscreen
9	Press	Automatic	● Fan control ● Temperature control ● Air current control
9	Turning	Manual	Counter-clockwise: Reduces the fan speed until the air conditioning system is switched off. *"OFF"* appears on the display 5. Clockwise: increases the fan speed.

4.12 Field sprayer

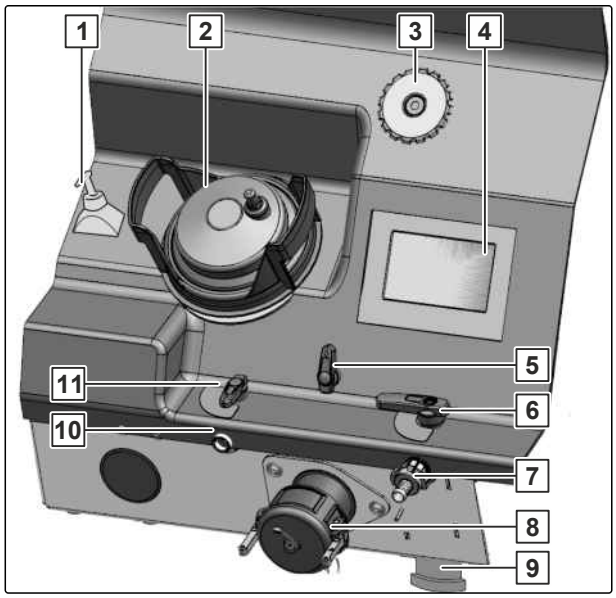
CMS-T-00014577-A.1

4.12.1 Control panel

CMS-T-00014181-A.1

4.12.1.1 Control panel overview

CMS-T-00014132-A.1



CMS-I-00009042

1 Soap dispenser

2 Suction filter

3 Pressure filter

4 TwinTerminal

5 Switch tap QU: selection of the source for the induction bowl

6 Switch tap FS: pressure filling for the flushing water tank

7 Filling connection (pressure) for the flushing water tank

8 Filling connection (suction) for the spray liquid tank and the flushing water tank

9 Quick emptying: draining of the suction filter, draining of the final residual quantities with RM stop tap

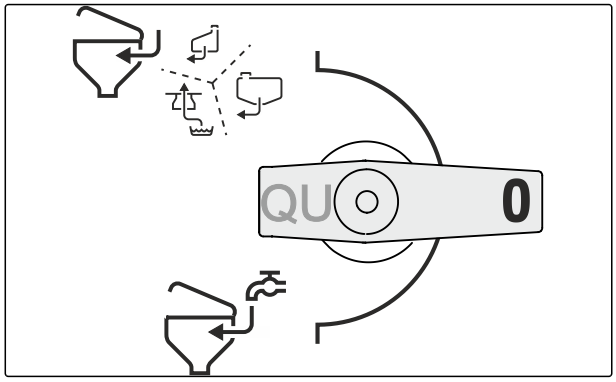
10 Washing nozzle for hands and small parts, and at the same time, filling connection for the hand wash tank

11 Switch tap for the hand wash unit

4.12.1.2 Switch tap QU: source for induction bowl

CMS-T-00014148-A.1

	Use liquid from the suction valve chest for the induction bowl
	Use filling water from the pressure connection for the induction bowl

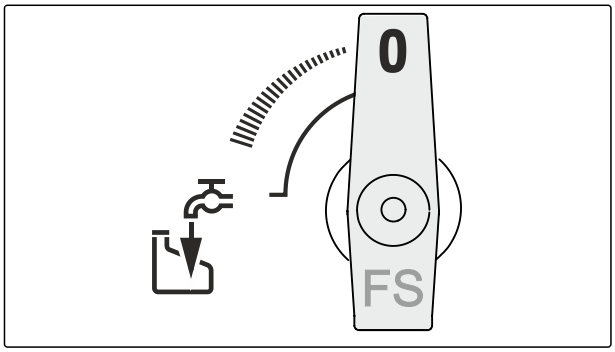


CMS-I-00008601

4.12.1.3 Switch tap FS: pressure filling for the flushing water tank

CMS-T-00014150-A.1

	Fill the flushing water tank with pressure filling



CMS-I-00008602

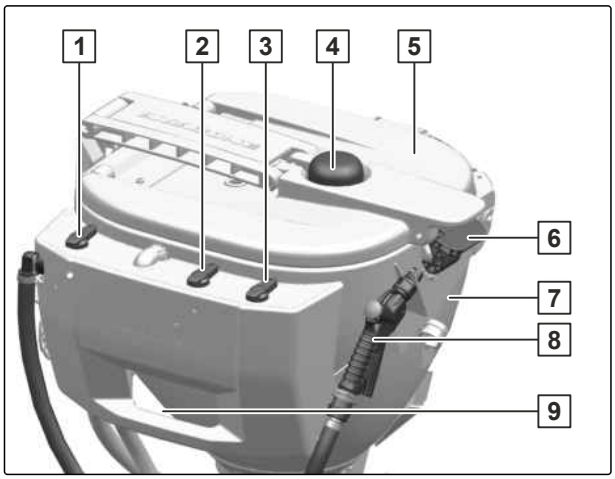
4.12.2 Induction bowl

CMS-T-00014176-A.1

4.12.2.1 Induction bowl overview

CMS-T-00014177-A.1

View from the outside:



CMS-I-00009043

1 Switch tap EA

2 Switch tap EB

3 Switch tap EP: injector intensity

4 Canister cleaning nozzle press button

5 Folding cover, can be used as a shelf when open

6 Locking mechanism for the folding cover

7 Swivelling induction bowl for pouring, dissolving and drawing in crop protection agents and urea

8 Spray pistol for cleaning the control panel

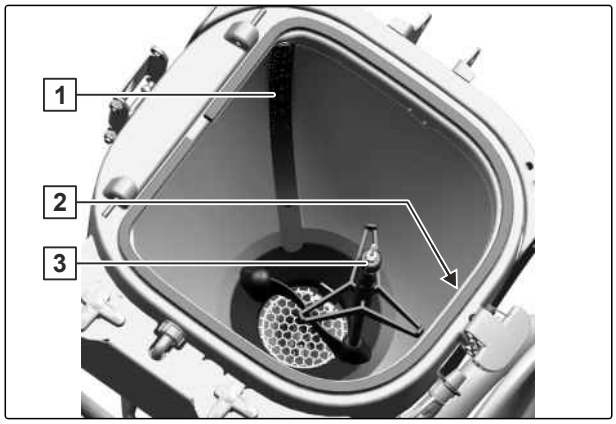
9 Handle for swivelling the induction bowl into working position or transport position

View from the inside:

1 Scale to show the contents

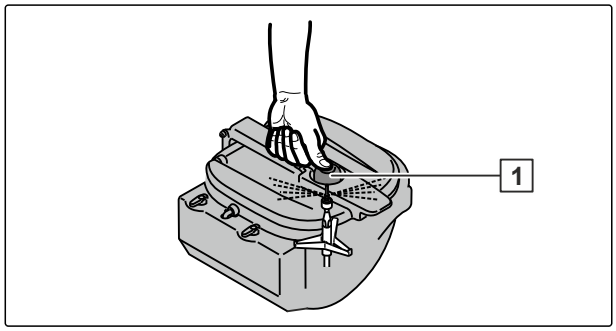
2 Tank cleaning nozzle

3 Canister cleaning nozzle with pressure plate



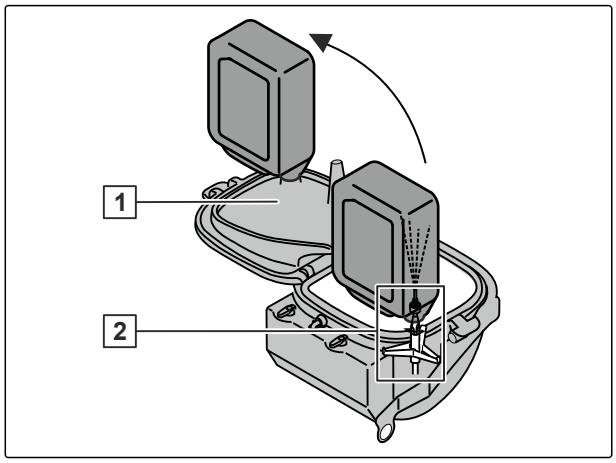
CMS-I-00008582

To flush the induction bowl, the press button 1 must be acutated with the folding cover closed.



CMS-I-00008581

To flush the spray agent canister, the canister opening must be placed over the canister cleaning nozzle 2. After flushing, the spray agent canister can be placed on the folding cover of the induction bowl 1 to dry.

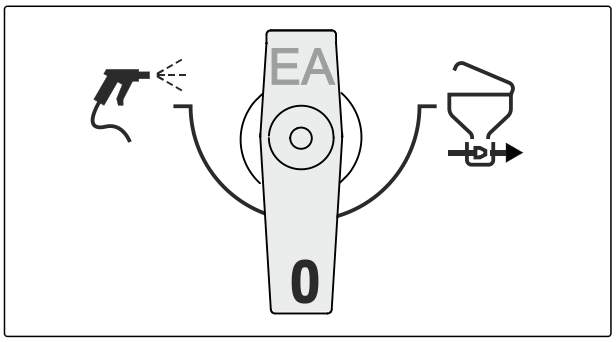


CMS-I-00008678

4.12.2.2 Switch tap EA

CMS-T-00014143-A.1

	External cleaning of induction bowl
	Dissolve agent via the mixing nozzle.

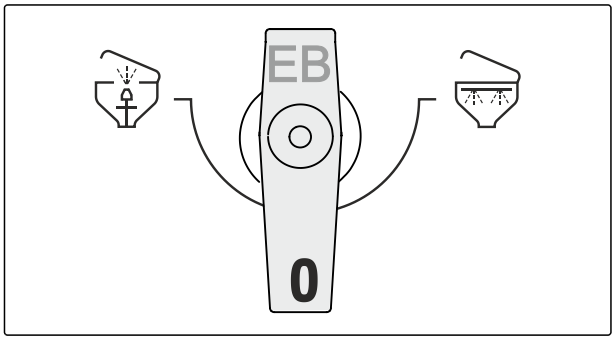


CMS-I-00008583

4.12.2.3 Switch tap EB

CMS-T-00014144-A.1

	Clean the spray agent canister or the induction bowl.
	Flushing via ring line

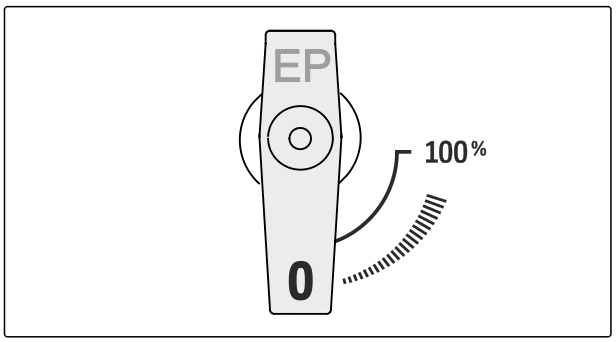


CMS-I-00008584

4.12.2.4 Switch tap EP

CMS-T-00014180-A.1

0 %	The injector is switched off.
100 %	The injector is running at the maximum suction capacity.



CMS-I-00009245

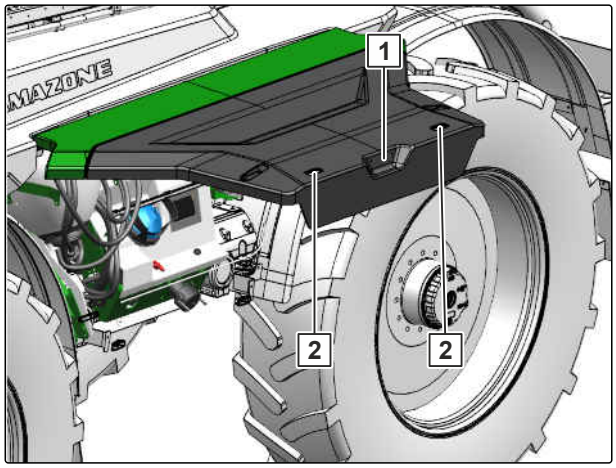
4.12.3 Cover for the control panel

CMS-T-00013886-A.1

The cover keeps the control panel clean.

1 Handle

2 Lock



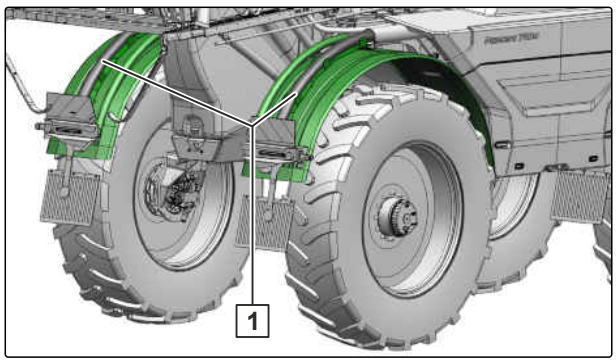
CMS-I-00009128

4.12.4 Suction hose

CMS-T-00013755-A.1

The two connectable 3-inch suction hoses 1, each 4 m long, are used to fill the spray liquid tank and the flushing water tank.

In parking position, the suction hoses are fastened on the left and right with hose clamps on the mudguards.

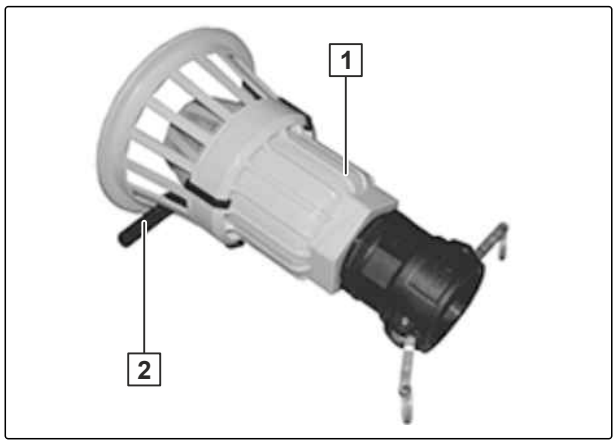


CMS-I-00008560

The suction filter 1 with non-return valve filters the suctioned water.

With the hand lever 2, the non-return valve can be unlocked to allow water remaining in the hose to drain out.

In parking position, the suction filter is stowed in the storage bin under the cab.

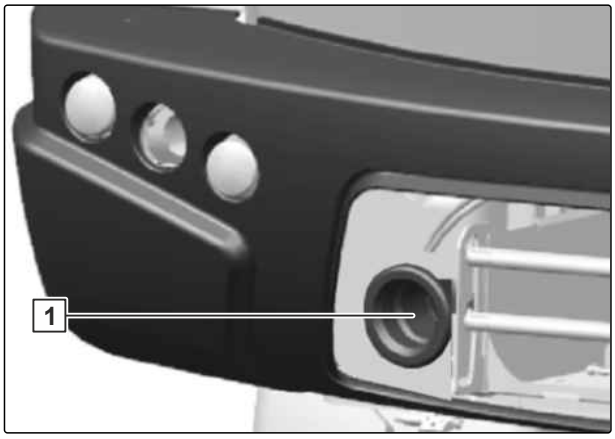


CMS-I-00008562

4.12.5 Filling connection for pressure filling

CMS-T-00013756-A.1

The filling connection 1 is used for pressure filling of the spray liquid tank and flushing water tank.



CMS-I-00008563

4.12.6 Filter equipment

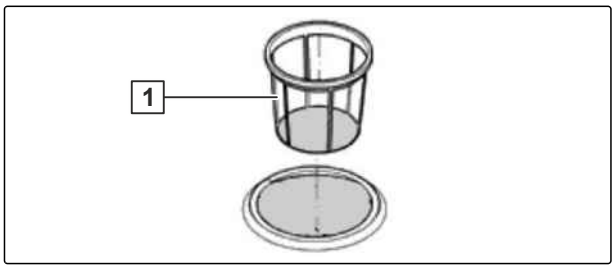
CMS-T-00013887-A.1

4.12.6.1 Sieve against foreign objects

CMS-T-00013888-A.1

The sieve against foreign objects 1 prevents contamination of the spray liquid tank through the inspection hatch.

The mesh size is 1 mm.



CMS-I-00008767

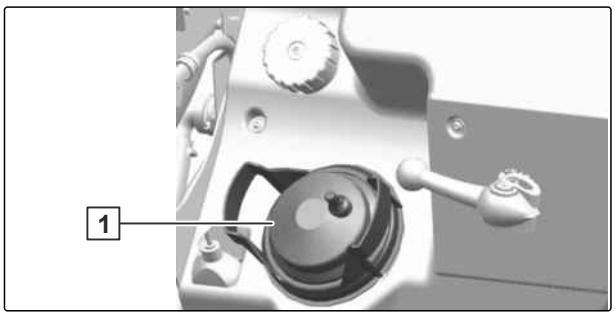
4.12.6.2 Suction filter

CMS-T-00013889-A.1

The suction filter 1 filters the spray liquid during spraying operation.

The suction filter filters the water when filling via the suction hose and when flushing.

- Filter area: 660 mm²
- Mesh size: 0.6 mm



CMS-I-00008766

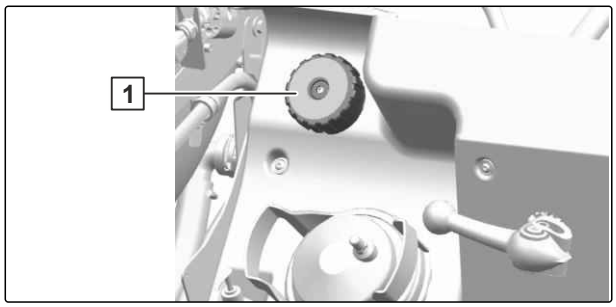
4.12.6.3 Self-cleaning pressure filter

CMS-T-00013890-A.1

The self-cleaning pressure filter [1] prevents the nozzle filter upstream of the spraying nozzle from becoming blocked.

The mesh size must be smaller than the mesh size of the suction filter and the nozzle filter.

When the agitator is switched on, the inside surface of the pressure filter insert is constantly flushed through, and undissolved particles of spray agent as well as dirt are conveyed back to the spray liquid tank.



CMS-I-00008765

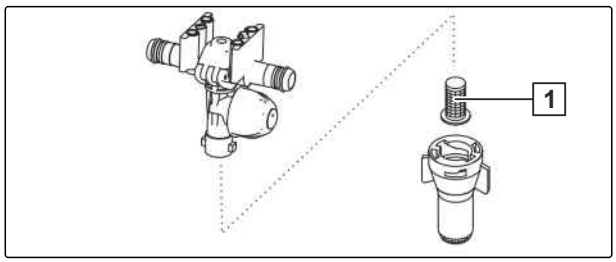
Overview of the pressure filter inserts				
Mesh per inch	**Colour**	**Nozzle size**	**Filter area**	**Mesh size**
Standard: 50	Blue	03 and larger	216 mm²	0.35 mm
80	Yellow	02	216 mm²	0.2 mm
100	Green	015 and smaller	216 mm²	0.15 mm

4.12.6.4 Nozzle filter

CMS-T-00013891-A.1

The nozzle filters [1] prevent clogging of the spray nozzles.

The mesh size must be smaller than the nozzle opening of the utilised nozzles.



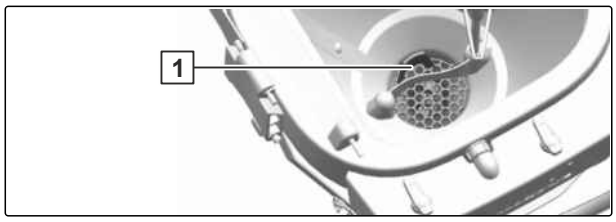
CMS-I-00008780

Overview of the nozzle filters		
Mesh per inch	**Nozzle size**	**Mesh size**
24	06 and larger	0.5 mm
Standard: 50	02 to 05	0.35 mm
100	015 and smaller	0.15 mm

4.12.6.5 Bottom sieve in the induction bowl

CMS-T-00013892-A.1

The bottom sieve [1] in the induction bowl prevents lumps and foreign objects from being drawn in.



CMS-I-00008764

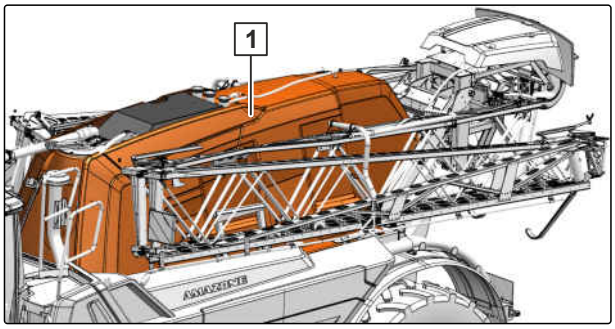
4.12.7 Spray liquid tank

CMS-T-00014367-A.1

Water or liquid fertiliser is filled into the spray liquid tank 1 through the filling connection.

Spray agents are flushed into the spray liquid tank through the induction bowl.

The spray liquid tank contains 2 hydraulic agitators and nozzles for internal cleaning.



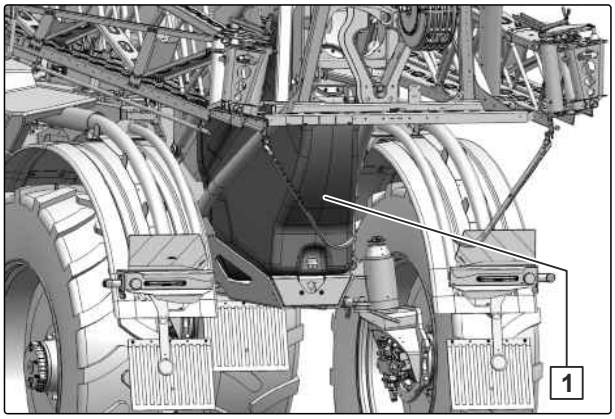
CMS-I-00009129

4.12.8 Flushing water tank

CMS-T-00013784-A.1

Clear fresh water 1 is carried in the flushing water tank. The water is used for the following purposes:

- Diluting residual quantities in the spray liquid tank.
- Internal cleaning and external cleaning of the machine on the field.
- Cleaning of the spray liquid circuit and the spray lines when interrupting work with a filled spray liquid tank.

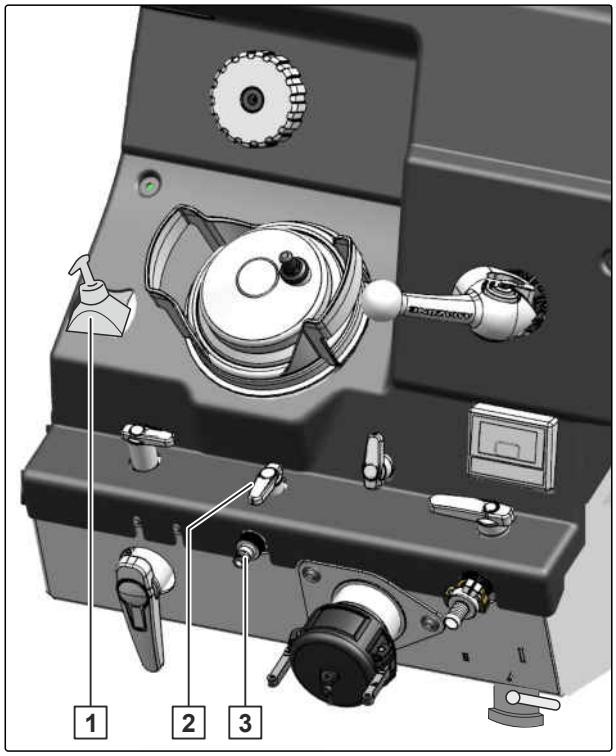


CMS-I-00008592

4.12.9 Hand wash unit

CMS-T-00013785-A.1

The hand wash unit is used to clean hands and the spraying nozzles.



CMS-I-00008591

1 Soap dispenser

2 Stop tap

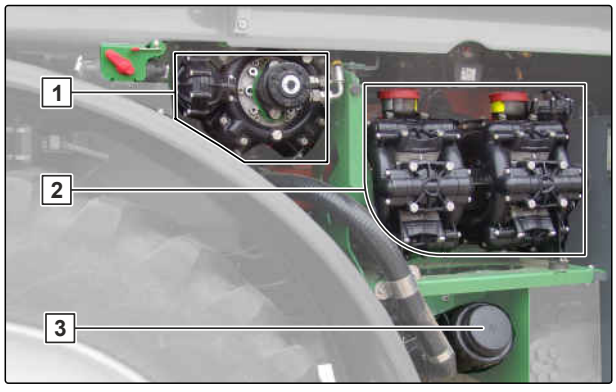
3 Water drain and filling connection

4.12.10 Spray liquid pumps

CMS-T-00013786-A.1

The spray liquid pumps are located under the cover on the right side of the machine.

The spray liquid pumps are automatically or manually switched on and off via the TwinTerminal or via the ISOBUS control terminal.



CMS-I-00008593

1 Flushing water pump

2 Spray liquid pump and agitator pump

3 Suction filter of the flushing water pump

4.12.11 HighFlow equipment

CMS-T-00014353-A.1

With the HighFlow equipment, the application rate for liquid fertiliser can be increased. The maximum

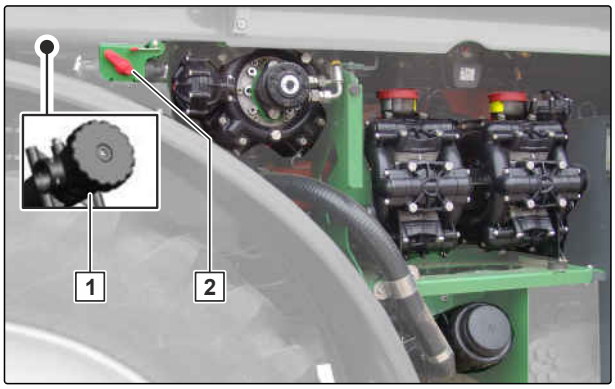
application rate is 400 l/min. The high-output application of liquid fertiliser is switched on and off via the control terminal.

The agitator pump is used to increase the application rate. The remaining pump capacity of the agitator pump is also used to stir the spray liquid.

The valve chest of the HighFlow equipment is located under the covers on the right side of the machine.

1 Additional pressure filter

2 Switch tap for secondary agitator or for draining the residual quantity from the pressure filter

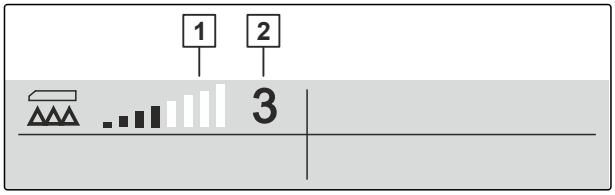


CMS-I-00009130

Symbol	Meaning
	Switch on the agitator at the maximum level
0	Switch off the agitator
	Drain the pressure filter

The multi-function display on the control terminal shows the following:

- The position of the flow control valve as a bar diagram **1**. This display provides information as to whether the forward speed and therefore the application rate can be increased or the agitator capacity must be reduced. The more bars are marked, the greater the application rate that is delivered to the boom.
- The numbers **2** (value 1 to 6) show the portion of the pump capacity that is used by the agitator pump for spraying.



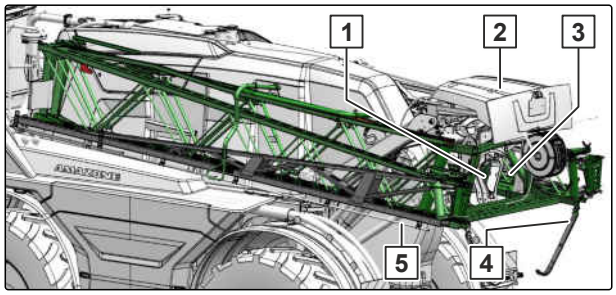
CMS-I-00009132

4.12.12 Sprayer boom

CMS-T-00013893-A.1

4.12.12.1 Super-L sprayer boom

CMS-T-00013894-A.1



CMS-I-00009300

1 Vibration compensation

2 Boom valve chest

3 Valve and switch tap for the DUS pressure circulating system

4 Spacer

5 Nozzle protection tube

The sprayer boom has a fixed section behind the machine and 2 folding sections with up to 5 booms.

In transport position, the folding booms are folded onto the spray liquid tank and are secured with U-bolts.

In working position, the boom is unfolded and lowered to the working height.

The sprayer boom is operated using the ISOBUS control terminal.

Depending on the machine equipment, the following functions can be performed via the *"Boom kinematics"* function group:

- Folding and unfolding the sprayer boom
- Hydraulic height adjustment
- Hydraulic tilt adjustment
- One-sided sprayer boom folding
- One-sided, independent angling up and down of the sprayer boom / boom sections
- Automatic boom guidance

4.12.12.2 Boom section lock

CMS-T-00014371-A.1

Boom section locks protect the boom from damage when hitting obstacles.

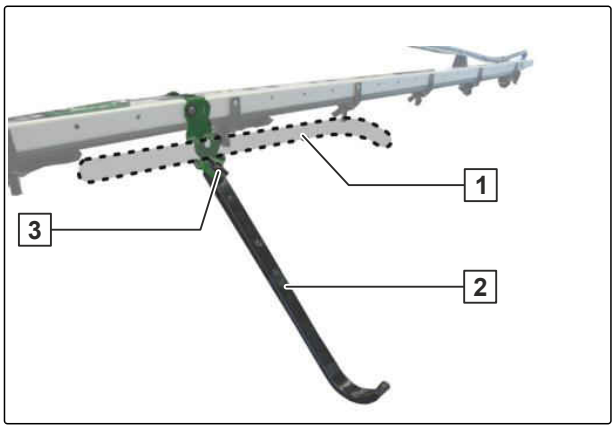
The outer boom section lock automatically folds back into its initial position. The centre boom section lock of the Flex-folding must be hydraulically folded back into the initial position.

4.12.12.3 Spacer

CMS-T-00014372-A.1

The spacers 2 prevent collisions of the boom with the ground.

When using certain nozzles, the spacers are within the spray cone. In this case, the spacers must be fastened with the wing screw 3 in a horizontal position 1 on the carrier.



CMS-I-00009298

4.12.12.4 Automatic boom guidance

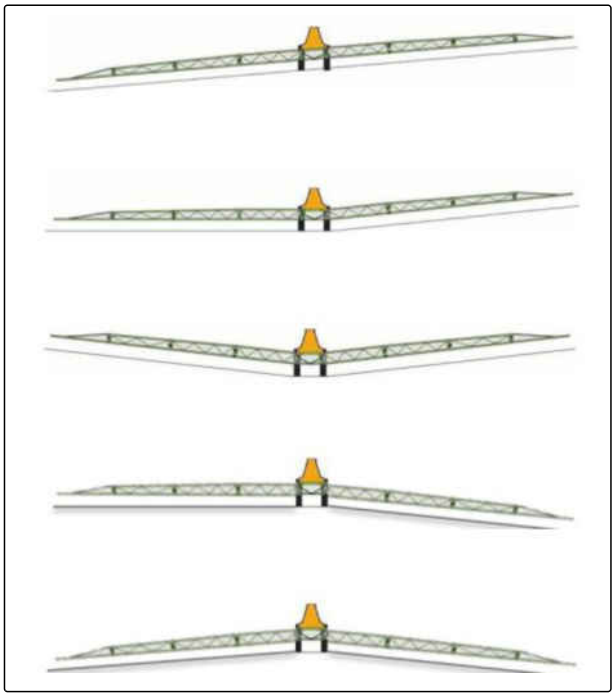
CMS-T-00014373-A.1

There are 2 versions of the automatic boom guidance:

- ContourControl with pressure monitoring of the boom hydraulic system
- DistanceControl with spring-damper system in the boom

The automatic boom guidance automatically keeps the sprayer boom parallel at the desired distance from the target surface.

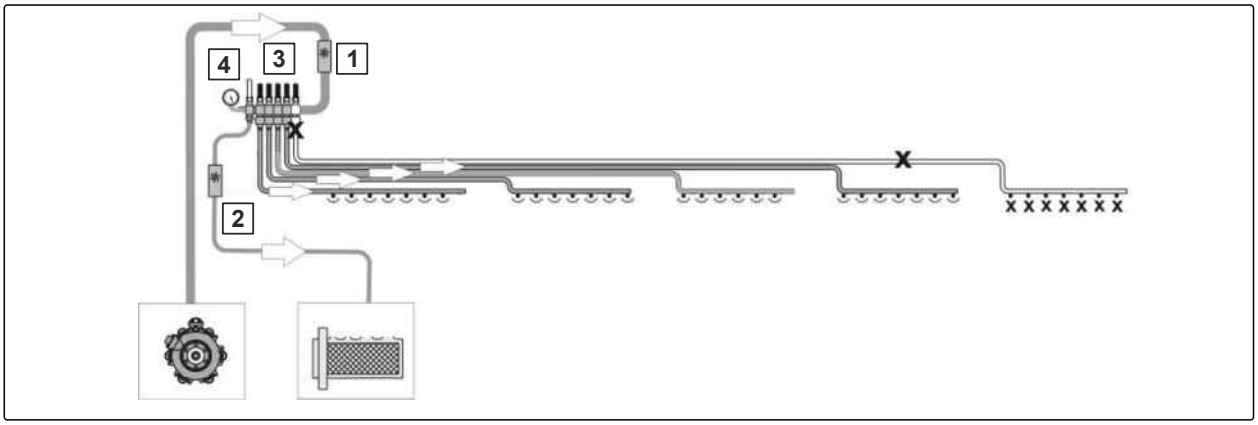
When switching off at the headlands, the sprayer boom is automatically lifted. When it is switched on, the sprayer boom is lowered back to the calibrated height.



CMS-I-00009299

4.12.12.5 Spray lines

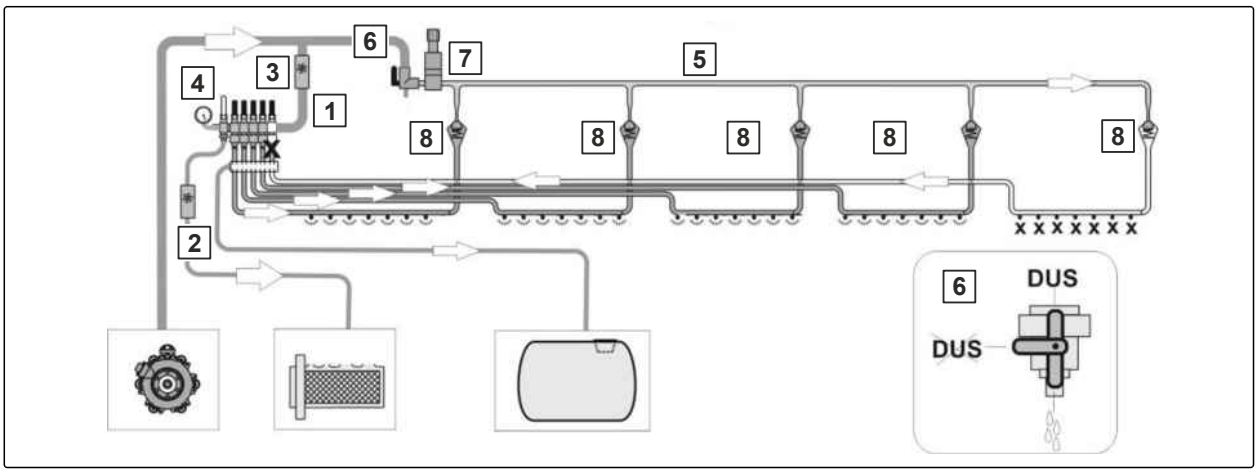
CMS-T-00014374-A.1



CMS-I-00009359

Spray lines with part-width section valves

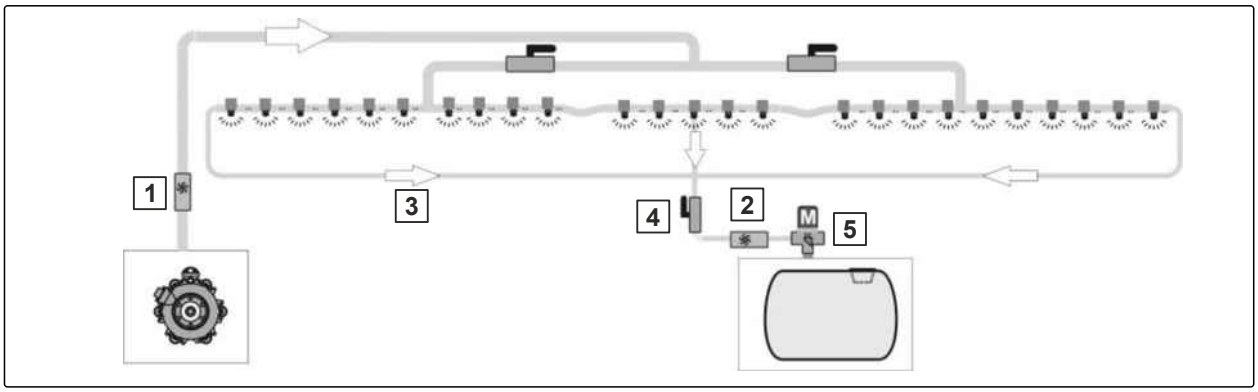
1	Flow meter	2	Flow meter in the return flow
3	Part-width section valves	4	Bypass valve for low application rates



CMS-I-00009360

Spray lines with part-width section valves and DUS pressure circulating system

1	Flow meter	2	Flow meter in the return flow
3	Part-width section valves	4	Bypass valve for low application rates
5	Pressure circulation line	6	DUS stop tap
7	Pressure relief valve	8	Non-return valve



CMS-I-00009358

Spray lines with single nozzle control and DUS Pro high-pressure circulation system

- 1 Flow meter
- 2 Flow meter in the return flow
- 3 Pressure circulation line
- 4 DUS stop tap
- 5 Pressure relief valve

4.12.12.6 DUS pressure circulating system

CMS-T-00014375-A.1

The pressure circulating system ensures constant liquid circulation in the spray line. This prevents the spray line from getting clogged.

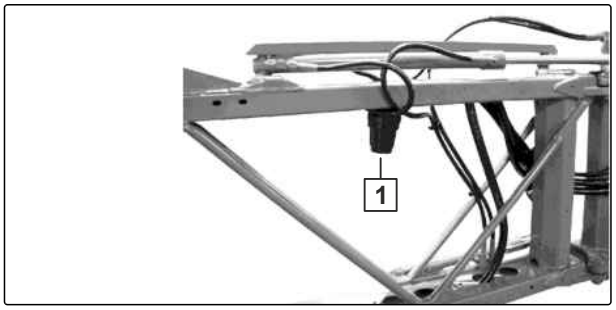
Spray liquid is available at every spray nozzle immediately after the sprayer boom is switched on.

4.12.12.7 Line filters for spray lines

CMS-T-00014376-A.1

The line filter 1 is an additional measure to prevent contamination of the spraying nozzles.

With part-width section control, a line filter is installed in the spray lines in each part-width section. With single nozzle control, a line filter is installed in each spray line on the left and right.



CMS-I-00009361

Overview of the filter inserts:

- Blue: filter insert with 50 mesh/inch
- Grey: filter insert with 80 mesh/inch
- Red: filter insert with 100 mesh/inch

4.12.12.8 Nozzle body with diaphragm valve

CMS-T-00013895-A.1

At a spray pressure of less than 0.5 bar, the spring element 3 presses the diaphragm valve onto the diaphragm seat in the nozzle body. This prevents dripping when the nozzles are switched off.

Depending on the nozzle body model, the spring element is screwed or equipped with a sliding diaphragm mount.

1 Nozzle body

2 Diaphragm valve

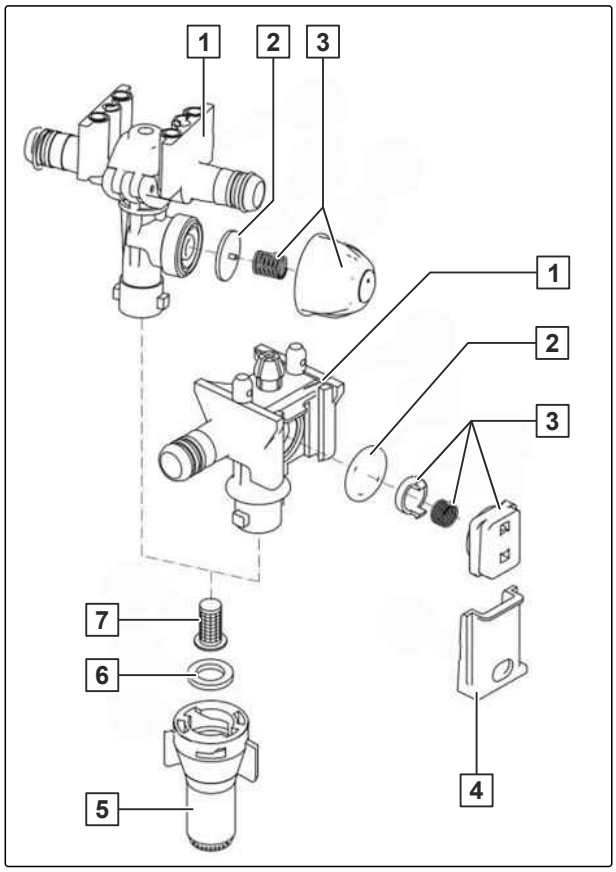
3 Spring element

4 Sliding diaphragm valve mount

5 Nozzle with bayonet cap

6 Gasket

7 Nozzle filter



CMS-I-00008769

4.12.12.9 Multiple nozzle body

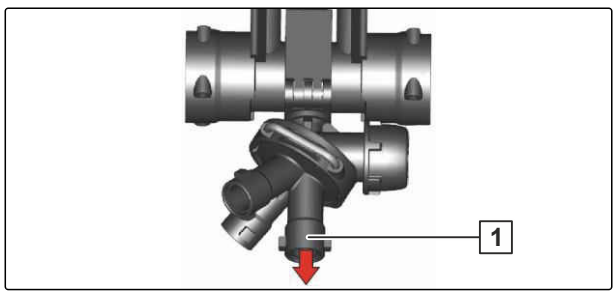
CMS-T-00013896-A.1

To use a different nozzle, the nozzle head is turned counter-clockwise.

In the intermediate positions, the multiple nozzle head is switched off. This can reduce the working width of the boom.

Triple nozzle body

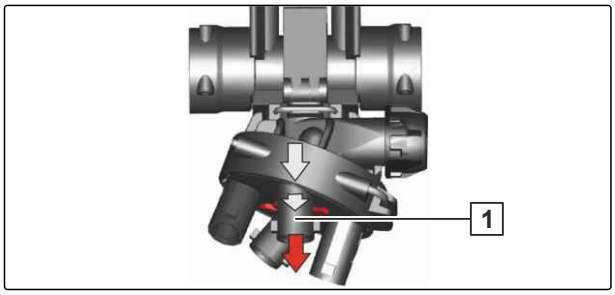
1 The vertically positioned nozzle is supplied.



CMS-I-00008964

Quadruple nozzle body

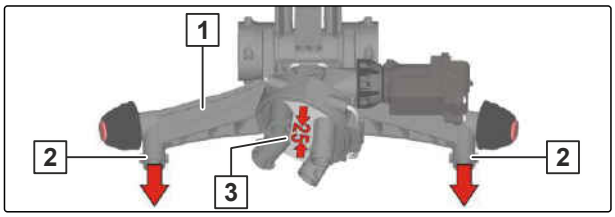
1 The nozzle marked with the arrow is supplied.



CMS-I-00008965

To achieve a nozzle spacing of 25 cm, a 25 cm-nozzle mount 1 can be installed on the quadruple nozzle body.

The nozzle spacing of 25 cm is set when the arrow on the housing is pointing to the label *"25"* 3. Then the nozzles 2 are supplied.

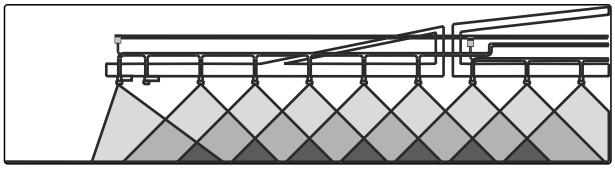


CMS-I-00008966

4.12.12.10 Edge nozzles

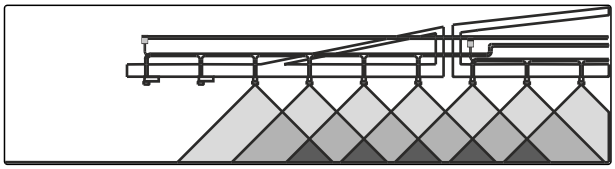
CMS-T-00013897-A.1

With boundary nozzle control, the last nozzle is switched off and the additional edge nozzle is switched on using the control terminal.



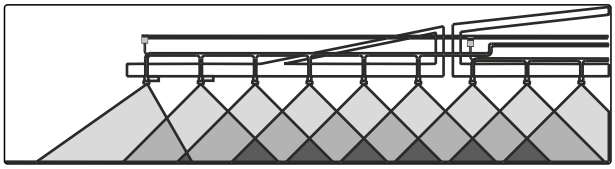
CMS-I-00008968

With end nozzle control, up to three of the outer nozzles close to open waters are switched off using the control terminal.



CMS-I-00008967

With the extra nozzle control, another outer nozzle is switched on using the control terminal. This increases the working width by 1 m.



CMS-I-00008969

4.12.12.11 Automatic single nozzle control

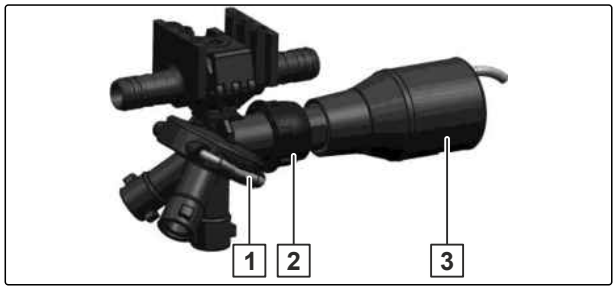
CMS-T-00014408-A.1

With the electric single nozzle control, 50 cm part-width sections can be controlled separately. In combination with the Section Control automatic part-width section control, overlapping can be reduced to minimal areas.

1 Triple nozzle body, can be manually switched

2 Union nut with diaphragm seal

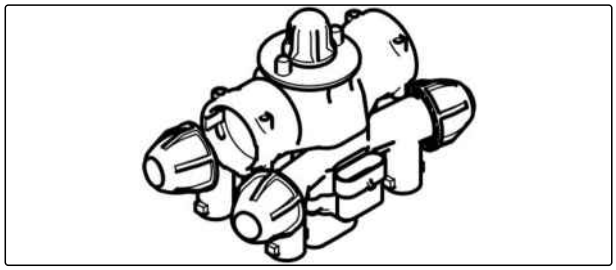
3 Motor valve



CMS-I-00009133

With AmaSwitch single nozzle control, each nozzle can be switched on and off separately via Section Control.

With the AmaSelect quadruple single nozzle control, the sprayer boom is equipped with quadruple nozzle bodies that are each actuated with an electric motor.



CMS-I-00009134

- Nozzles can be switched on or off as required, depending on Section Control.
- With the quadruple nozzle bodies, multiple nozzles can be simultaneously active in a nozzle body.
- For edge treatment, an extra nozzle body can be separately configured.
- An LED single nozzle illumination integrated into the nozzle body.
- A nozzle spacing of 25 cm is possible.

With manual nozzle selection, the nozzle or nozzle combination is selected via the control terminal.

With automatic nozzle selection, the nozzle or nozzle combination is automatically selected during spraying operation in accordance with the entered boundary conditions.

4.12.13 Equipment for liquid fertilising

CMS-T-00014557-A.1

4.12.13.1 3-hole nozzles

CMS-T-00014558-A.1

The use of 3-hole nozzles for applying liquid fertiliser is beneficial if the liquid fertiliser needs to be taken up more by the roots of the plant rather than through the leaves.

Thanks to its 3 openings, the dosing aperture, which is integrated into the nozzle, ensures a coarse-dropped, almost pressureless distribution of the liquid fertiliser. This prevents an undesirable spray mist and the formation of small drops. The coarse drops

produced by the 3-hole nozzle hit the plants with low energy and roll off their surface. Although this avoids damage from burns to the greatest extent possible, drag hoses should be used instead of 3-hole nozzles for late top dressing.

For all 3-hole nozzles listed in the following, only the black bayonet nuts may be used.

3-hole nozzle	Application range at 8 km/h
Yellow	50 l/ha to 80 l/ha UAN
Red	80 l/ha to 126 l/ha UAN
Blue	115 l/ha to 180 l/ha UAN
White	155 l/ha to 267 l/ha UAN

4.12.13.2 7-hole nozzles and FD nozzles

The same conditions apply for using 7-hole nozzles and FD nozzles as for the 3-hole nozzles. In contrast to the 3-hole nozzle, the outlets on the the 7-hole nozzle and FD nozzles are not oriented downwards, but instead point to the side. This allows very large drops to be produced on the plants using only slight impact forces.

CMS-T-00014559-A.1

CMS-I-00009246

7-hole nozzle	Application range at 8 km/h
SJ7-02-CE	74 l/ha to 120 l/ha UAN
SJ7-03-CE	110 l/ha to 180 l/ha UAN
SJ7-04-CE	148 l/ha to 240 l/ha UAN
SJ7-05-CE	184 l/ha to 300 l/ha UAN
SJ7-06-CE	222 l/ha to 411 l/ha UAN
SJ7-08-CE	295 l/ha to 480 l/ha UAN

FD nozzle	Application range at 8 km/h
FD 04	150 l/ha to 240 l/ha UAN
FD 05	190 l/ha to 300 l/ha UAN
FD 06	230 l/ha to 360 l/ha UAN
FD 08	300 l/ha to 480 l/ha UAN
FD 10	370 l/ha to 600 l/ha UAN

4.12.14 Boom lifting unit

CMS-T-00014560-A.1

With the boom lifting unit, the sprayer boom can be lifted by an additional 70 cm up to a nozzle height of 3.2 m.

The working height of the machine is then 4.5 m.

The boom lifting unit is lifted or lowered via the control terminal when the sprayer boom is unfolded.

CMS-I-00009247

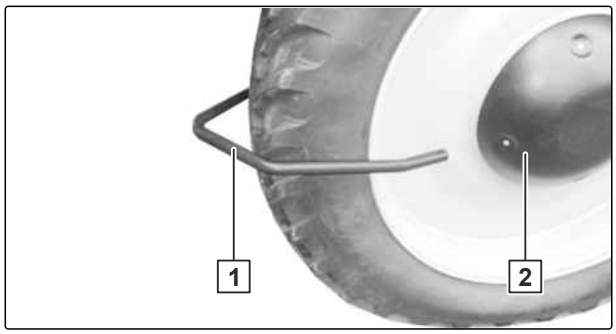
4.12.15 Equipment for crop protection

CMS-T-00014561-A.1

1 Stalk dividers

2 Wheel gear cover

Flexible underbody panelling, 80 cm wide



CMS-I-00009248

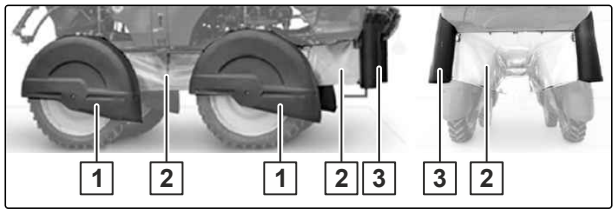
The wheel gear cover **2** is recommended when the wheel gear protrudes beyond the rim.

SunflowerKit

1 Wheel housing

2 Underbody panelling

3 Stalk dividers



CMS-I-00009249

The sunflower kit is suitable for Pantera-H with tyres with a maximum width of 380 mm and maximum height of approx. 1,950 mm.

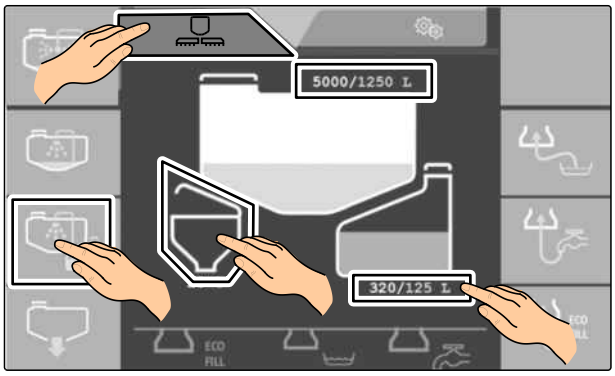
4.13 TwinTerminal

CMS-T-00014455-A.1

4.13.1 Operator interface

CMS-T-00014456-A.1

The TwinTerminal has touch-sensitive fields for starting and stopping functions, for entering values and to navigate in the menu.



CMS-I-00009169

4.13.2 Number field

CMS-T-00014458-A.1

1 Limit value

2 Input value

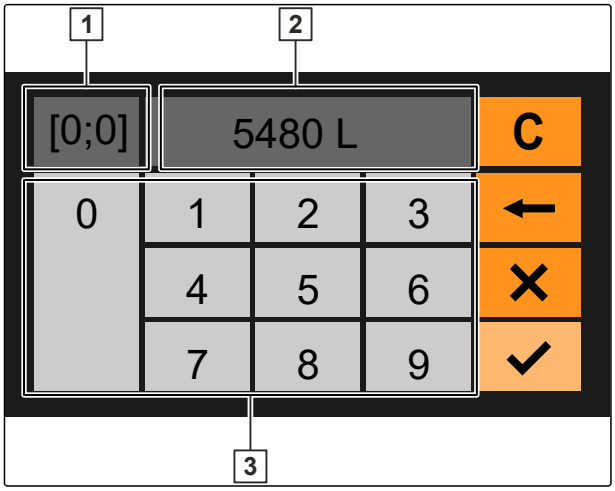
3 Digits

C Delete the entry

Delete the last digit

Close the input window

Confirm the entry



CMS-I-00009187

4.13.3 Main menus

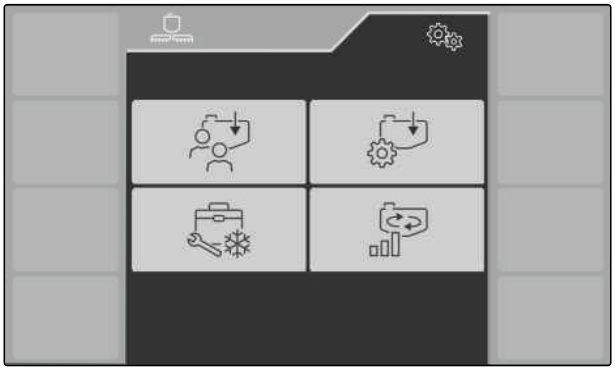
CMS-T-00014459-A.1

The two Main menus are the *"Work"* menu and the *"Special functions"* menu. The *"Work"* menu is active after switching on the TwinTerminal.

"Work" menu

CMS-I-00009188

"Special functions" menu



CMS-I-00009391

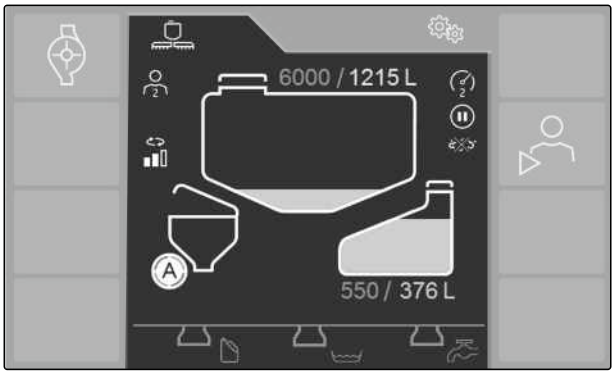
4.13.4 Work menu

CMS-T-00014460-A.1

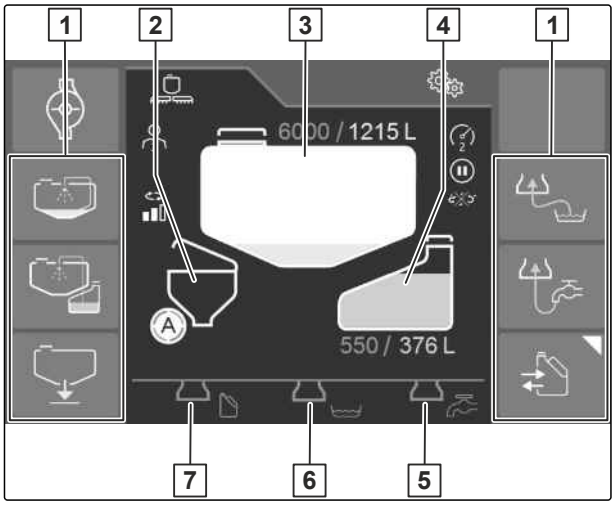
Functions in the Work menu

Start or stop the spray liquid pump

Start filling with a previously saved filling profile



CMS-I-00009188



CMS-I-00009186

1 Selectable functions (changing assignment)

2 *"Induction bowl"* menu

3 *"Spray liquid tank"* menu

4 *"Flushing water tank"* menu

Filling connections:

5 Pressure connection

6 Suction connection

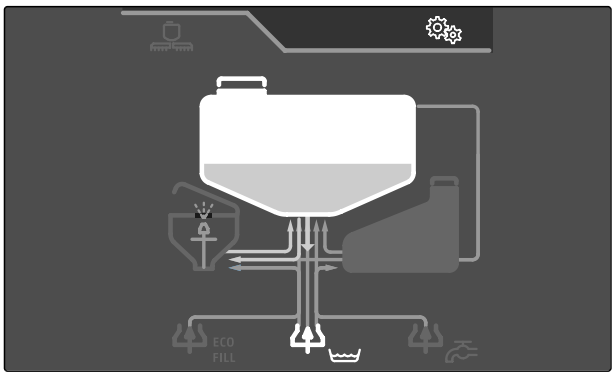
7 Connection for spray agent from containers (closed transfer system)

The submenu with the functions for the respective tank is opened by selecting a tank. The active submenu is shown with a white background. In the 3 submenus, each function can be started and can run simultaneously.

STOP Stop of all active functions

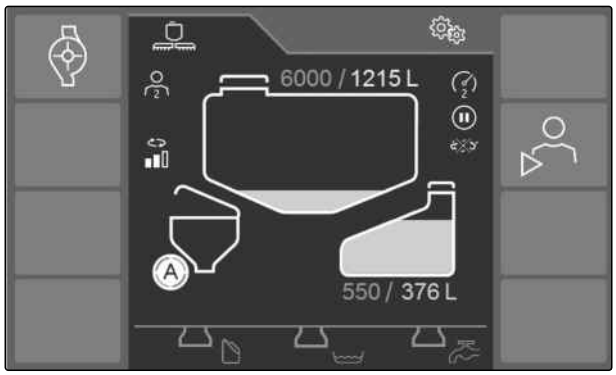
The current liquid circulation is shown with arrows in the *"Work"* menu.

- Green: spray liquid
- Blue: flushing water
- Grey: function selected, but not active



CMS-I-00009213

Status displays in the Work menu



CMS-I-00009224

Filling profile 1 or 2

Agitator capacity

Filling capacity level 1, 2 or 3

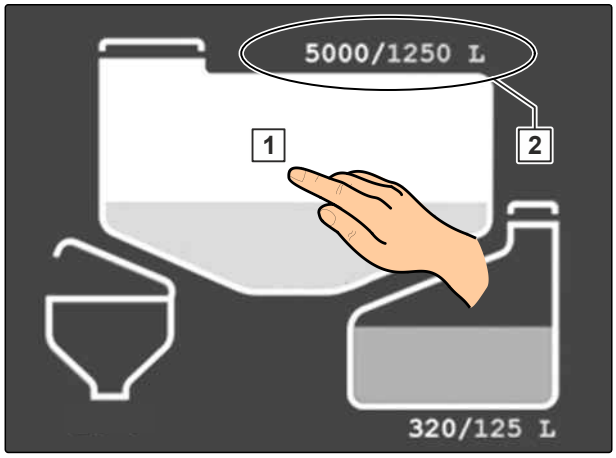
Filling pause active

Foam prevention active

External washing active

Automatic cleaning of the induction bowl after lifting into transport position

Spray liquid tank menu



CMS-I-00009221

1 *"Spray liquid tank"* menu

2 Entry of the target fill level, display of the target fill level / current fill level

Filling:

Start or stop filling via the suction connection

Start or stop filling via the pressure connection

Cleaning:

Start or stop circulation cleaning with spray liquid

Start or stop cleaning with flushing water

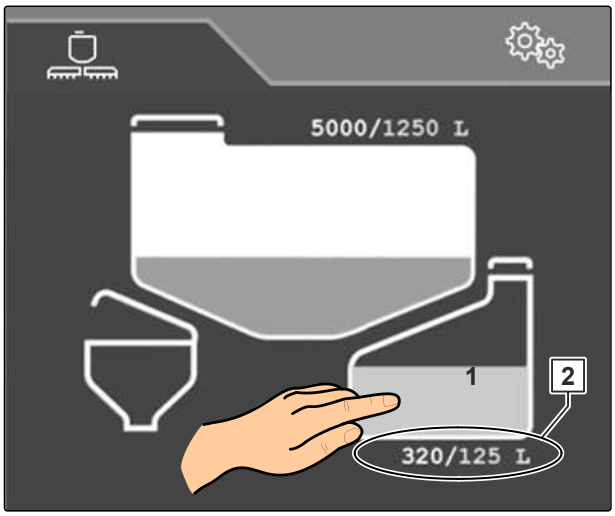
Emptying:

Start or stop the quick emptying

Flushing water tank menu

1 *"Flushing water tank"* menu

2 Entry of the target fill level, display of the target fill level / current fill level



CMS-I-00009219

Filling:

Start or stop filling via the suction connection

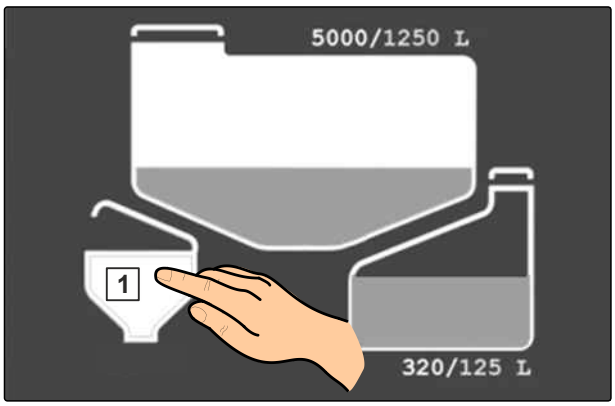
Start or stop filling via the pressure connection

External cleaning:

Start or stop external cleaning with flushing water and spray lance on the boom

Induction bowl menu

1 *"Induction bowl"* menu



CMS-I-00009212

Start or stop cleaning of the induction bowl

During the cleaning process, first the liquid is suctioned out, then the cleaning with flushing water

is performed, and then the flushing liquid is suctioned out. The spray agent canister, ring line and spray pistol are not cleaned in this cleaning process.

Alternatively, automatic cleaning after lifting the induction bowl can be set in the *"Special functions"* menu.

Increase the water pressure for cleaning empty spray agent canisters

Operate the induction bowl with flushing water

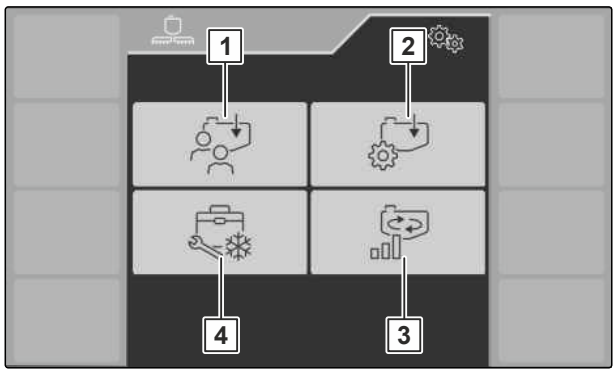
Operate the induction bowl with water from the suction connection

Operate the induction bowl with spray liquid. Canister cleaning, ring line and spray pistol are contaminated after use. The induction bowl should preferably be operated with flushing water.

4.13.5 Special functions menu

CMS-T-00014461-A.1

Functions in the Special functions menu



CMS-I-00009189

1 Selection of the filling profile

2 Selection of the filling option

3 Setting of the agitator

4 Cleaning, winterising

Back to the *"Special functions"* menu

STOP Immediate stop of all active functions

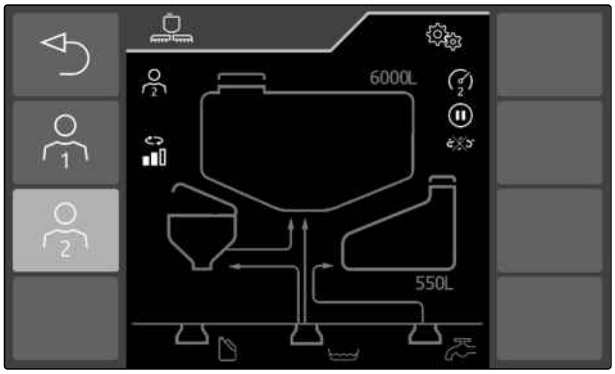
Selection of the filling profile:

The filling profiles are created in the ISOBUS software.

The filling procedure starts according to the selected filling profile:

- When lowering the induction bowl,
- When the start button is pressed.

The filling procedure stops when the target fill level that was stored in the filling profile is reached.



CMS-I-00009223

Filling profile 1

Filling profile 2

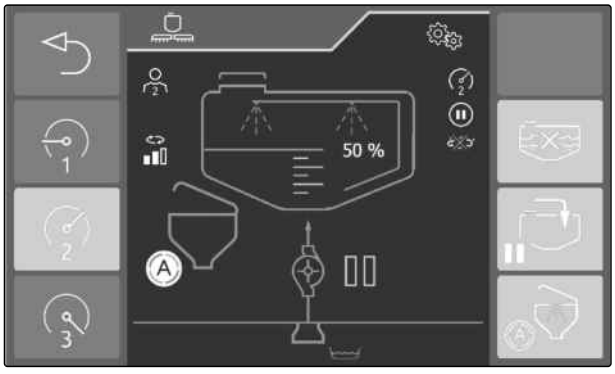
- The selected filling profile is shown with arrows.
- The selected fill levels are shown.

NOTE

The filling profile configuration can be changed in the *"Work"* menu before starting the filling procedure.

The changed configuration is maintained until a restart is performed.

Selection of the filling option:



CMS-I-00009211

Selection of the filling capacity:

- 1 - Standard filling capacity with low agitator pressure for minimal foaming
- 2 - Increasing the filling capacity via increased agitator pressure
- 3 - Increasing the filling capacity via the injector

Foam prevention: Reduce foaming for foam-forming spray agents through active internal cleaning

Filling pause for suction filling

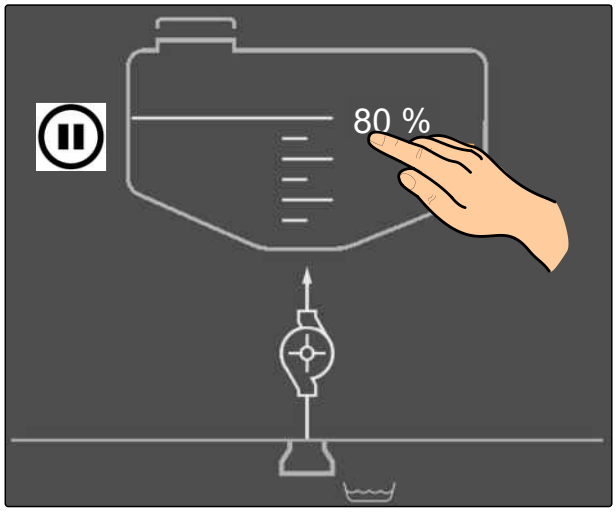
Automatic cleaning of the induction bowl

Filling pause for suction filling:

The filling pause enables automatic pausing of the filling procedure.

This is sensible if the flushing procedure would not be complete before the filling procedure is finished.

The filling procedure is only interrupted when the induction bowl is lowered.



CMS-I-00009214

Automatic cleaning of the induction bowl:

The induction bowl is automatically cleaned after it is lifted.

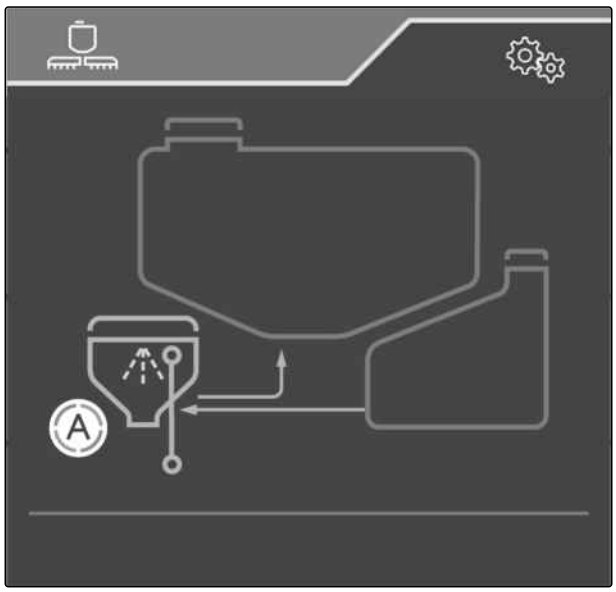
Activated function for automatic cleaning of the induction bowl

NOTE

If the induction bowl was operated with liquid spray agent: the canister cleaning, the ring line and the spray pistol must be cleaned separately.

NOTE

If automatic cleaning of the induction bowl is active, the filling procedure is interrupted 20 l before the target fill level is reached.



CMS-I-00009215

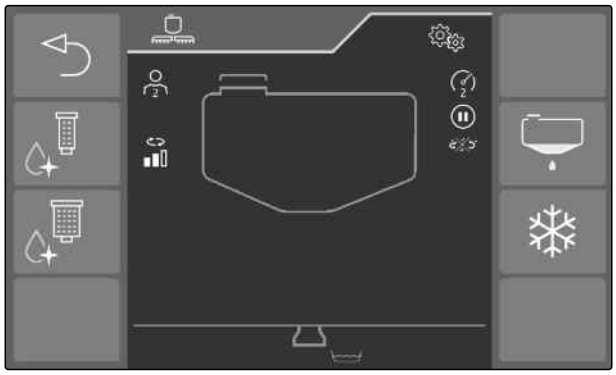
Cleaning, winterising:

Cleaning of the pressure filter when the tank is full

Cleaning of the suction filter when the tank is full

Final residual emptying

Winterising



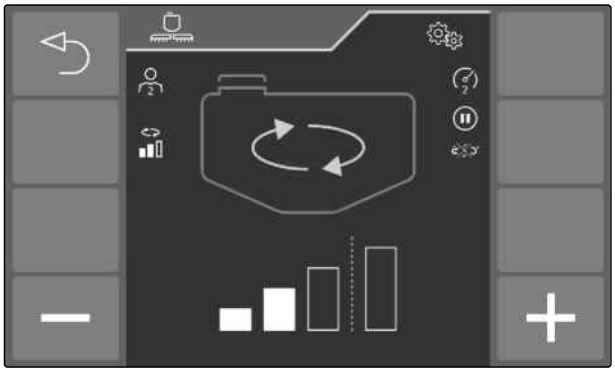
CMS-I-00009216

Setting of the agitator:

The agitator capacity is shown with a bar diagram.


Reduce agitator capacity


Increase agitator capacity



CMS-I-00009217

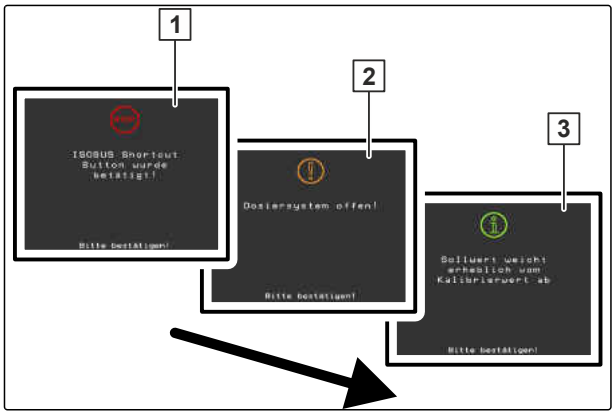
4.13.6 Alarm, warning and notification

CMS-T-00014457-A.1

1 Alarm

2 Warning

3 Notification



CMS-I-00009210

Full-screen messages must always be acknowledged.

Technical data

5

CMS-T-00013431-B.1

5.1 Tank volume

CMS-T-00013433-A.1

Spray liquid tank nominal volume	6,600 l
Spray liquid tank actual volume	7,000 l
Flushing water tank volume	500 l
Induction bowl volume	60 l

5.2 Dimensions

CMS-T-00013432-A.1

Working width	24 m to 45 m
Spraying height	0.5 m to 2.75 m
Transport height	Maximum 3.95 m, depending on the tyres
Transport width	2.55 m
Length	10 m
Turning radius	4.5 m
Minimum track width	2 m, depending on the tyres
Maximum track width	2.75 m, depending on the tyres

5.3 Forward speed

CMS-T-00013434-A.1

Optimal working speed	6 km/h to 16 km/h
Maximum working speed	20 km/h
Maximum working speed additional licence 30 km/h	30 km/h

5.4 Cab

CMS-T-00013726-A.1

Air filtration	Category 4
Available seats	One operater seat One guide seat

5.5 Deutz engine

CMS-T-00013727-A.1

Power	225 kW/306 hp
Emission stage	Euro 5/EPA Tier 4 With oxidation catalytic converter, diesel particle filter, DEG (SCR)

5.6 Running gear

CMS-T-00013728-A.1

Traction control	Automatic traction control with permanent regulation of the wheel motors
Level control	Automatic level regulation device independent of the load status

5.7 Spray liquid pumps

CMS-T-00013730-A.1

Speed	
Maximum permissible pump speed	540 1/min
Operating speed	400 1/min to 540 1/min

Delivery capacity	**Agitator pump**	**Spray liquid pump**
Theoretical delivery capacity	350 l/min	260 l/min
Delivery capacity at 540 1/min, 0 bar	330 l/min	240 l/min
Delivery capacity at 540 1/min, 10 bar	315 l/min	225 l/min

5.8 Maximum application rate

CMS-T-00013731-A.1

Technically possible maximum application rate	200 l/min
Technically possible maximum application rate with HighFlow	400 l/min
Maximum permissible application rate	260 l/min at an agitator capacity of 5 % of the spray liquid tank volume per minute

5.9 Operating liquids

CMS-T-00014562-B.1

Fuel **Diesel:** ● DIN 51628 or EN 590 with sulphur content up to max. 10 mg/kg ● ASTM D 975 grade 1-D S15 or ASTM D 975 grade 2-D S15 with sulphur content up to max. 15 mg/kg **Light heating oil:** ● According to EN 590 with sulphur content up to max. 10 mg/kg	290 l
Fuel, with auxiliary diesel tank	400 l
DEF	25 l
Engine oil for Deutz engine	Approx. 23 l, see operating manual for Deutz engine
Cooling liquid for Deutz engine	Approx. 38 l
Hydraulic oil in the hydraulic system Finke AVIATICON HV 46 Viscosity index of at least 150 **Purity class:** ● 9 according to NAS 1638 ● 18/16/13 according to ISO 4406/1999	Approx. 120 l in the hydraulic oil tank Approx. 180 l in the overall system
Wheel transmission oil EP oils MIL-L-2105 C or API GL5, SAE 80 W/90	Approx. 1.2 l
Air conditioning system	870 g Coolant 5 g Contrast medium 25 g Compressor oil

Oil for the spray liquid pump SAE 15W 40	2 x 1.7 l

5.10 Permissible payload

CMS-T-00011015-C.1

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

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

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

5.11 Residual quantity of spray liquid

CMS-T-00014563-A.1

Technically dilutable residual quantity in the machine without the boom	
On level ground	24 l
15° across the slope, direction of travel to the left	27 l
15° across the slope, direction of travel to the right	21 l
15° up the slope	32 l
15° down the slope	32 l

Technical residual quantities in the boom – part-width section control					
Working width	Number of part-width sections	Part-width section control without DUS		Part-width section control with DUS	
		A	B	A	B
30 m	9	5.5 l	18 l	24 l	2.5 l
	11	5.5 l	23 l	29 l	2.5 l
	13	6 l	26 l	34 l	2.5 l
32 m	9	5.5 l	18.5 l	24 l	2.5 l
	11	6 l	22.5 l	28.5 l	2.5 l
	13	6 l	26.5 l	34 l	2.5 l

Technical residual quantities in the boom – part-width section control					
Working width	Number of part-width sections	Part-width section control without DUS		Part-width section control with DUS	
		A	B	A	B
33 m	9	5.5 l	19 l	25 l	2.5
	11	6 l	23 l	29.5 l	2.5
	13	6 l	27 l	34 l	3
36 m	7	5 l	16 l	21.5 l	3 l
	9	5.5 l	19.5 l	25.5 l	3 l
	11	6 l	23 l	29.5 l	3 l
	13	6.5 l	27 l	34 l	3 l
39 m	9	5.5 l	20.5 l	26.5 l	3 l
	11	6 l	24 l	30.5 l	3 l
	13	6.5 l	28 l	35 l	3 l
40 m	9	5.5 l	21 l	27 l	3 l
	11	6 l	24 l	30.5 l	3 l
	13	6.5 l	28 l	35 l	3 l

Technical residual quantities in the boom – single nozzle control		
Working width	A	B
30 m	24.6 l	2.5 l
32 m	27.9 l	2.5 l
33 m	27.6 l	2.5 l
36 m	29.3 l	3 l
39 m	33.7 l	3 l
40 m	34 l	3 l
45 m	39.6 l	3 l

Legend: A dilutable, in the liquid circuit; B not dilutable, in the sprayer boom

5.12 Workplace-related emission values

CMS-T-00013734-A.1

Noise level	75 dB(A) Measuring device: OPTAC SLM 5
Daily vibration exposure	0.44 m/s^2 Measuring device: Piezotronics 356B41

5.13 Drivable slope inclination

CMS-T-00013735-A.1

	Across the slope	Up the slope and down the slope
Driving on slopes with a full spray liquid tank	15 %	15 %
Driving on slopes with max. half-filled spray liquid tank	15 %	20 %
Application of residual quantities	15 %	15 %
Turning	15 %	15 %
Folding the sprayer boom	20 %	20 %

Preparing the machine

6

CMS-T-00014580-B.1

6.1 Preparing the cab and driver's platform

CMS-T-00013498-A.1

6.1.1 Adjusting the driver's seat

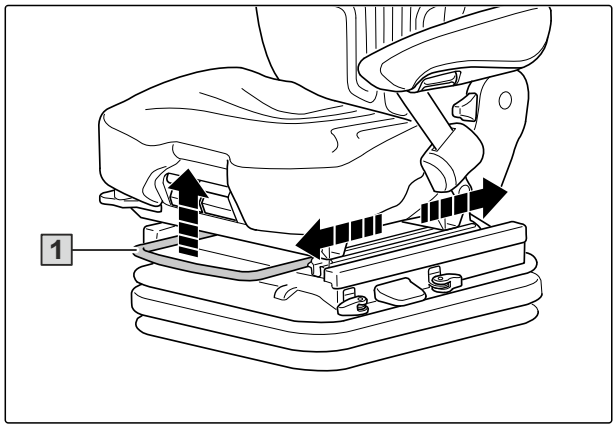
CMS-T-00014069-A.1

6.1.1.1 Longitudinal setting

CMS-T-00014071-A.1

1. Pull the lever **1** up and hold it.
2. Push the seat into the desired position.
3. Release the lever.

➡ The lever engages perceptibly and audibly. The seat is locked in the set position.



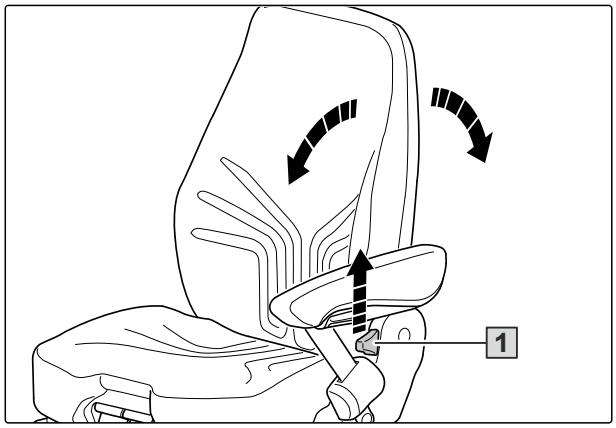
CMS-I-00008886

6.1.1.2 Adjusting the backrest

CMS-T-00014073-A.1

1. Pull the lever **1** up and hold it.
2. Move the backrest to the desired position by pushing and releasing.
3. Release the lever.

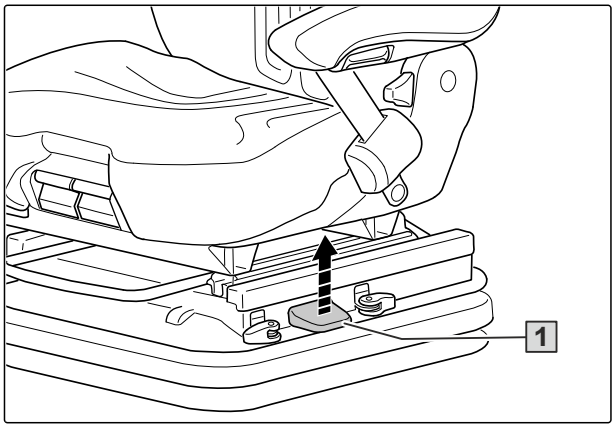
➡ The lever engages perceptibly and audibly. The backrest is locked in the desired position.



CMS-I-00008885

6.1.1.3 Adjusting the seat height

CMS-T-00014079-A.1



CMS-I-00008884

The seat height can be infinitely adjusted with air support.

1. Set the shock absorber setting to *"Soft"*, see page 92.

2. *To adjust the seat height:*
   Pull the lever **1** up

   or

   press the lever down.

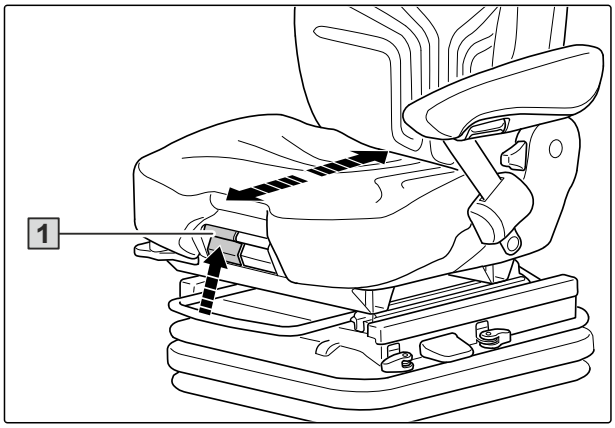
➡ When the upper or lower end stop is reached during adjustment, the height is automatically adjusted to ensure a minimum suspension travel.

NOTE

To avoid damage, actuate to compressor for no more than 1 minute.

6.1.1.4 Adjusting the seat level

CMS-T-00014075-A.1



CMS-I-00008879

1. Pull the handle **1** up and hold it.

2. Push the seat surface into the desired position.

3. Release the handle.

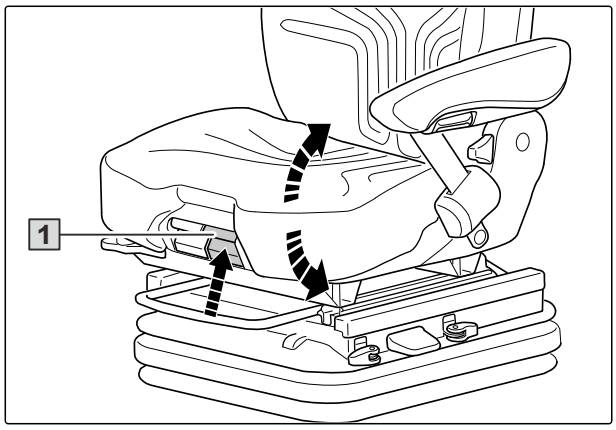
➡ The handle engages perceptibly. The seat surface is locked in the set position.

6.1.1.5 Adjusting the seat tilt

CMS-T-00014076-A.1

1. Pull the handle **1** up and hold it.
2. Tilt the seat surface into the desired position by pushing and releasing.
3. Release the handle.

➡ The handle engages perceptibly. The seat surface is locked in the set position.



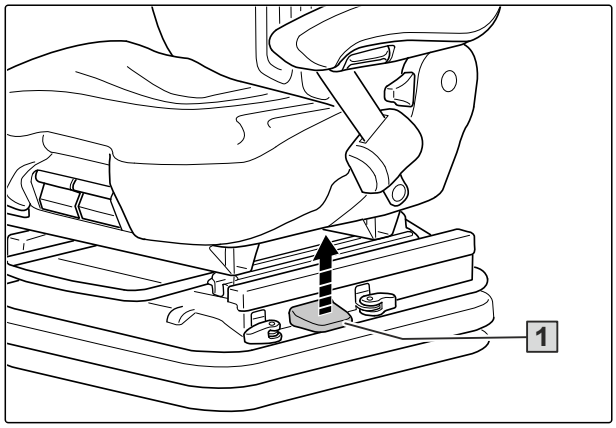
CMS-I-00008880

6.1.1.6 Setting the driver's weight for the air suspension

CMS-T-00014070-A.1

For proper functioning of the air suspension, the weight of the driver must be set while the driver's seat is occupied.

1. Sit on the driver's seat.
2. Set the shock absorber setting to *"Soft"*: see page 92.
3. Remain sitting still on the driver's seat.
4. *To set the driver's weight:*
   Briefly pull the lever **1** up.



CMS-I-00008884

6.1.1.7 Adjusting the armrests

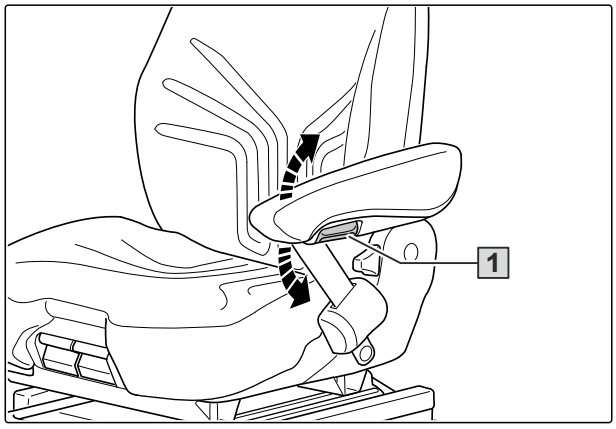
CMS-T-00014074-A.1

The slant of the armrests can be adjusted using the hand wheel **1**.

▶ *To raise the armrest:*
turn the hand wheel outwards

or

To lower the armrest:
turn the hand wheel inwards.

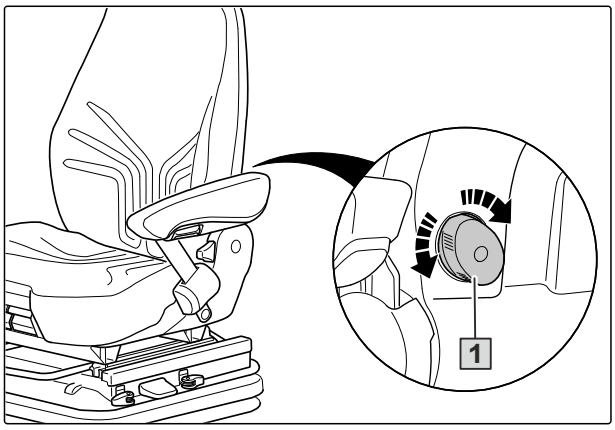


CMS-I-00008882

6.1.1.8 Adjusting the lumbar support

CMS-T-00014072-A.1

► *To adjust the height and thickness of the lumbar support:*
Turn the hand wheel **1** to the left or right.



CMS-I-00008878

6.1.1.9 Using the horizontal suspension

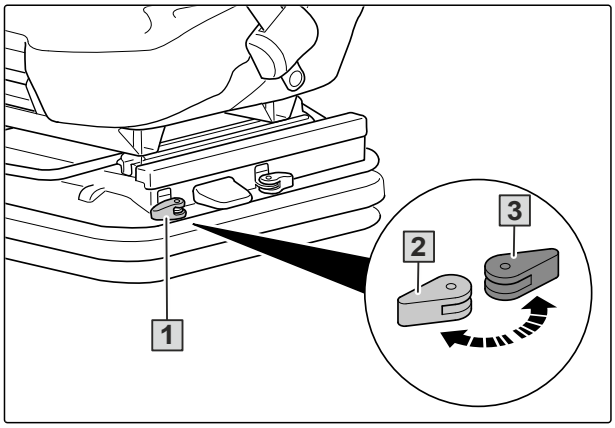
CMS-T-00014078-A.1

1. *To switch on the horizontal suspension:*
Turn the lever **1** to position **3**.

2. *To switch off the horizontal suspension:*
Turn the lever to position **2**.

➡ After switching off, the lever must be engaged.

3. Push the driver's seat to the rear until it engages audibly.



CMS-I-00008883

6.1.1.10 Adjusting the shock absorber

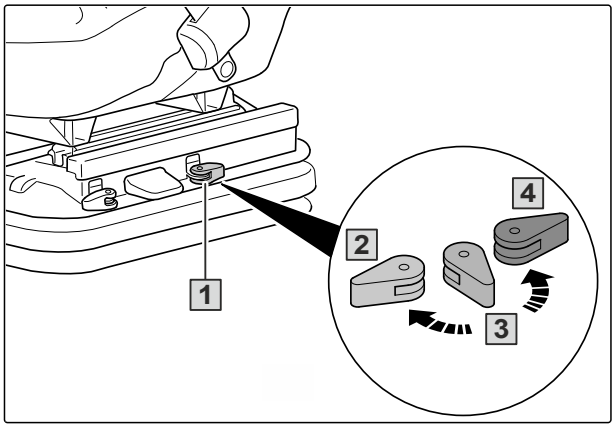
CMS-T-00014077-A.1

The damping of the driver's seat can be adjusted in 3 stages.

- **2** Soft setting
- **3** Medium setting
- **4** Hard setting

The **2** setting is the recommended basic setting for average driver weight.

► *To adjust the strength of the shock absorber:*
Turn the lever **1** to the desired position.



CMS-I-00008881

6.1.2 Adjusting the operating panel

CMS-T-00013503-A.1

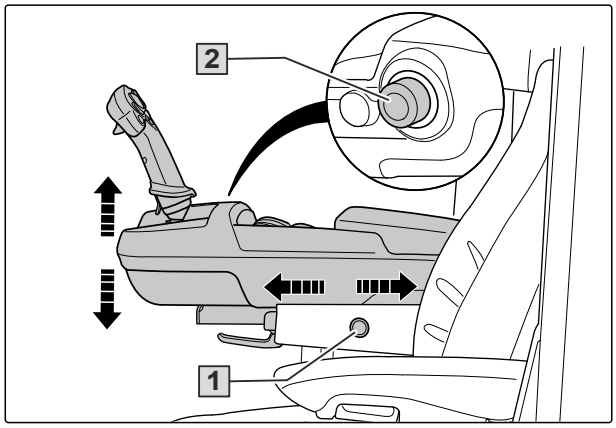
WARNING

Risk of accident

- Do not adjust the operating panel while driving.

The operating panel can be adjusted horizontally and vertically.

1. *To adjust the operating panel horizontally:*
   Pull locking pin 1.
2. Adjust the operating panel horizontally.
3. Allow the locking pin to engage after the adjustment.
4. *To adjust the operating panel vertically:*
   Press the button 2.
5. Adjust the operating panel vertically. Adjustments are made with support from a gas spring.
6. Release the button after the adjustment.



CMS-I-00008464

6.1.3 Adjusting the monitors

CMS-T-00013651-A.1

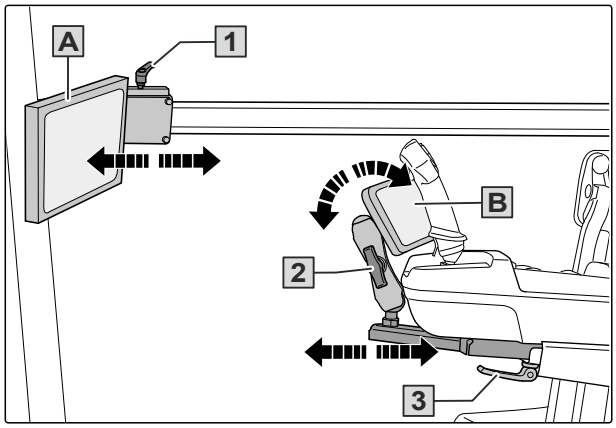
WARNING

Risk of accident

- Do not adjust the monitors while driving.

The monitor A can be moved. The monitor B can be tilted, swivelled and moved.

1. *To move the monitor A:*
   Loosen the locking screw 1.
2. Move the monitor on the rail to the desired position.
3. Tighten the locking screw.
4. *To adjust the tilt on the monitor B:*
   Loosen the locking screw 2.



CMS-I-00008525

5. Set the monitor to the desired position.
6. Tighten the locking screw.
7. *To move the monitor* **B**:
   Loosen the clamping lever **3**.
8. Set the holder to the desired position.
9. Fasten the clamping lever.

6.1.4 Adjusting the steering column

CMS-T-00013504-A.1

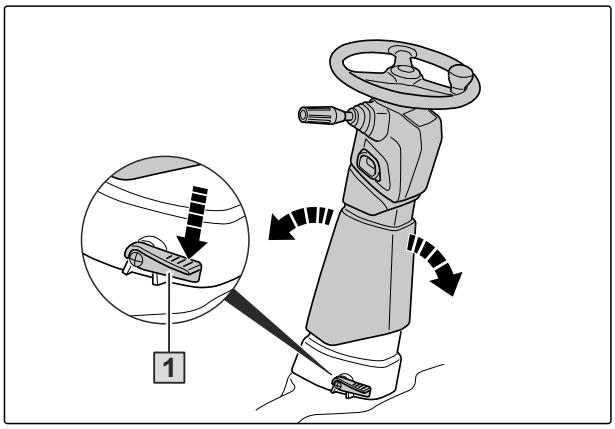
WARNING

Risk of accident

- Do not adjust the steering column while driving.

1. *To swivel the steering column:*
   Hold the steering wheel tightly with your hand.
2. Actuate the lever **1** at the rear end with your foot.
3. Swivel the steering column by hand in the desired position.
4. Release the lever **1**.

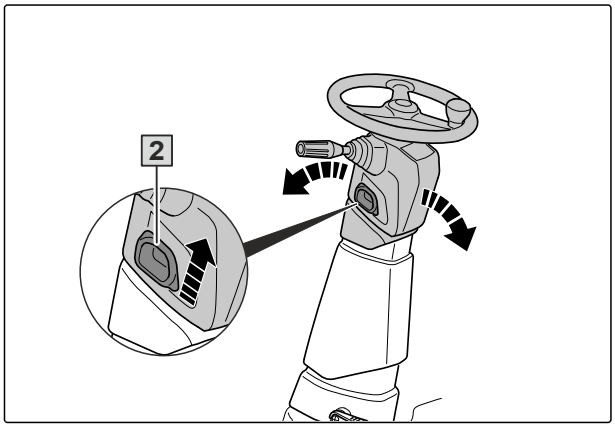
➡ The desired position is locked.



CMS-I-00008455

5. *To bend the steering column:*
   Hold the steering wheel tightly with your hand.
6. Push the lever **2** up.
7. Bend the steering column by hand in the desired position.
8. Release the lever **2**.

➡ The desired position is locked.



CMS-I-00008454

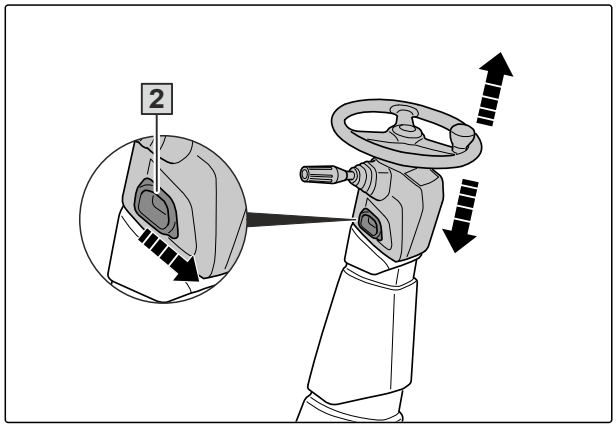
9. *To adjust the height of the steering wheel:*
   Hold the steering wheel tightly with your hand.

10. Pull the lever **2** to the rear.

11. Set the steering wheel to the desired position by hand.

12. Push the lever **2** to the front.

➥ The desired position is locked.



CMS-I-00008456

6.1.5 Adjusting the mirror

CMS-T-00013505-A.1

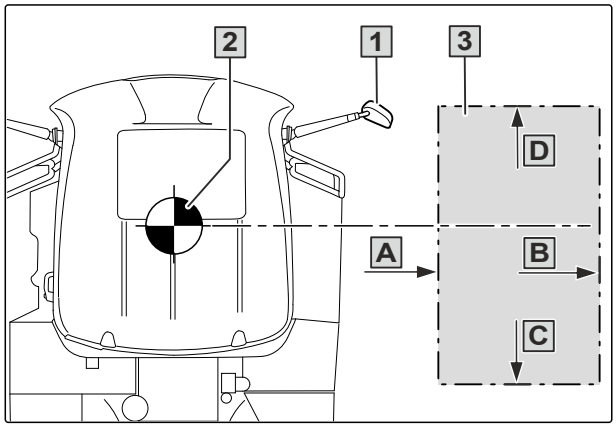
6.1.5.1 Mirror setting specifications

CMS-T-00013506-A.1

NOTE

The specifications only apply for adjusting the close-proximity mirror.

Item	Distance/designation
1	Close-proximity mirror
2	Eyes of the driver
3	Field of vision
A	0.2 m
B	1 m
C	1.25 m
D	1 m



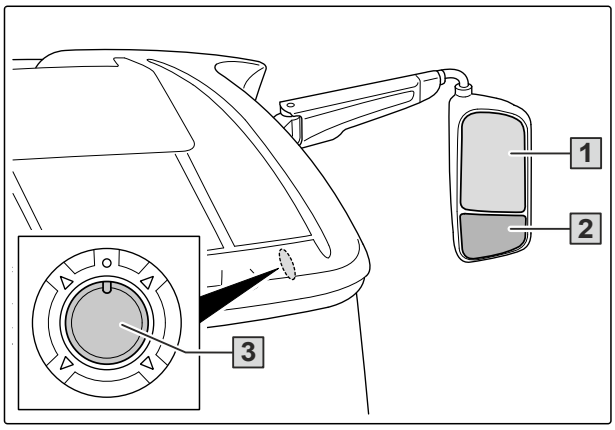
CMS-I-00008458

▶ Adjust the close-proximity mirrors on the left and right according to the specifications.

6.1.5.2 Adjusting the electric mirror

CMS-T-00013500-A.1

1. Switch on the ignition.
2. Adjust the main mirror 1 with the rotary switch 3.
3. Switch off the machine and secure it.
4. Adjust the close-proximity mirrors 2 by hand according to the specifications, see page 95.



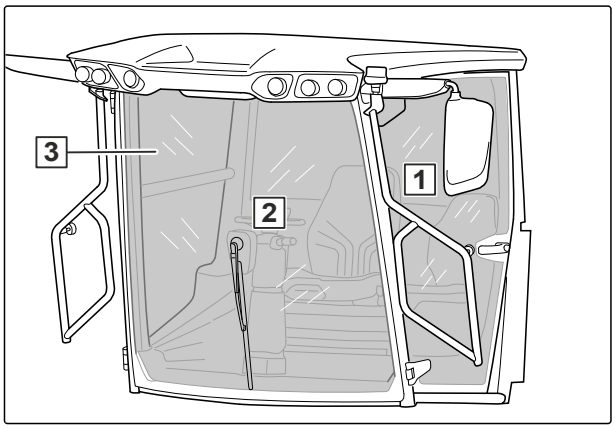
CMS-I-00008459

6.1.6 Checking the fields of vision

CMS-T-00013502-A.1

When driving on roads, the fields of vision 1, 2 and the right field of vision 3 must be unobstructed.

1. Clean the windows 1 to 3.
2. Remove all objects from the fields of vision.



CMS-I-00008457

6.1.7 Adjusting the cab air filter

CMS-T-00014139-A.1

6.1.7.1 Checking the cab air filter

CMS-T-00014138-A.1

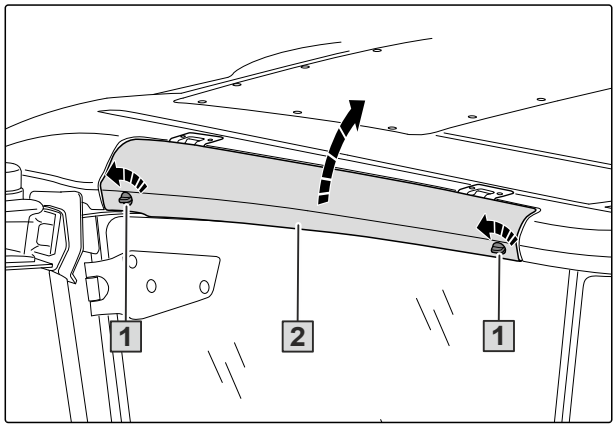
WARNING

Health hazard due to dust and toxic substances

- When the filter system is open, wear breathing protection, gloves and suitable protective clothing.

For user protection when applying spray agents, category 4 cab air filters are required. Observe the safety data sheet or label of the substance being applied.

1. Switch off the machine and secure it.
2. Release the locks **1**.
3. Open the cover **2**.

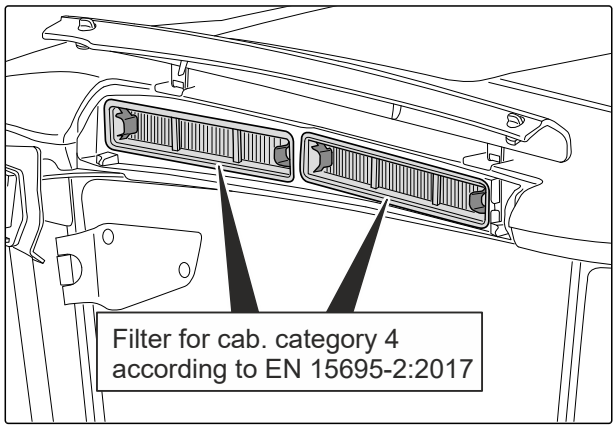


CMS-I-00008973

4. *If category 4 cab air filters are required for operation:*
   Check the label.

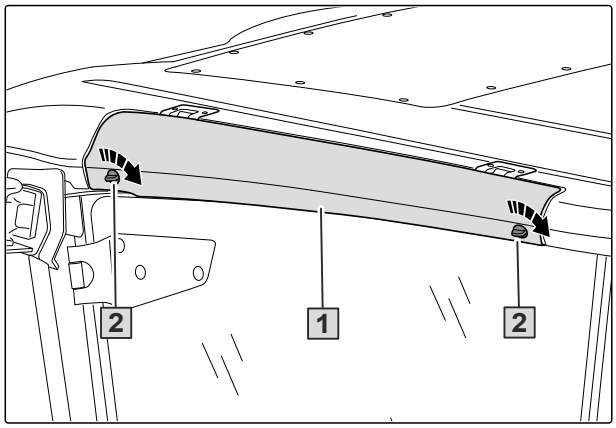
➡ The cab air filters must be labeled as *"Filter for cab category 4 according to EN 15695-2:2017"*.

5. *If the cab air filters do not correspond to the label:*
   Use category 4 cab air filters, see page 98.
6. *When making changes to the filter system:*
   Adjust the label for the cab category.



CMS-I-00008975

7. Close the cover **1**.
8. Engage the locks **2**.

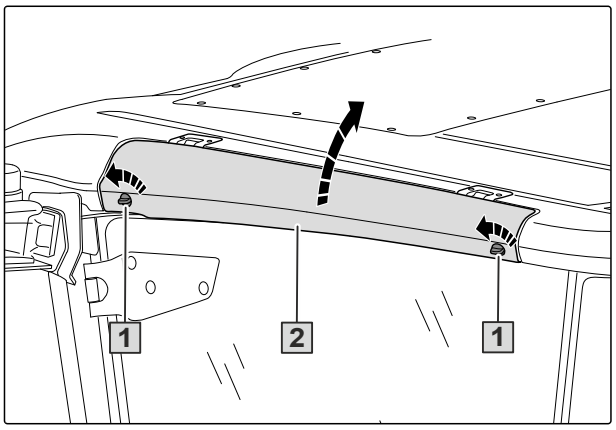


CMS-I-00008972

6.1.7.2 Using category 4 cab air filters

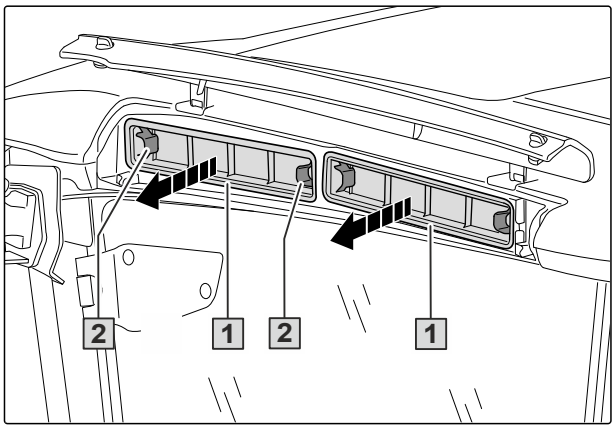
CMS-T-00014140-A.1

1. Release the locks **1**.
2. Open the cover **2**.



CMS-I-00008973

3. Pull out both standard cab air filters **1** by the loops **2**.



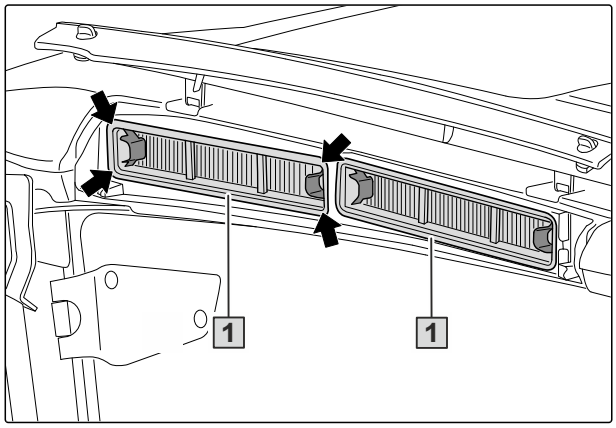
CMS-I-00008986

4. Make sure that the cab air filters are labeled as *"Filter for cab category 4 according to EN 15695-2:2017"*.
5. Make sure that the packaging of the cab air filter is not damaged.
6. Make sure that the expiry date has not been exceeded.

➡ The manufacturing data is printed on the filter label. Use the cab air filter within 30 months from the date of manufacture.

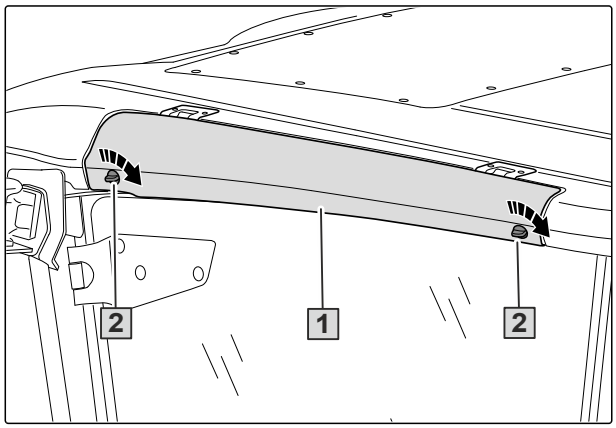
7. Insert both category 4 cab air filters **1**.
8. Press both cab air filters in on the 4 corners.

➡ The cab air filters must be completely flush and sealed.



CMS-I-00008974

9. Close the cover **1**.
10. Engage the locks **2**.



CMS-I-00008972

6.2 Preparing the implement for operation

CMS-T-00014581-B.1

6.2.1 Refuelling diesel

CMS-T-00014401-A.1

NOTE

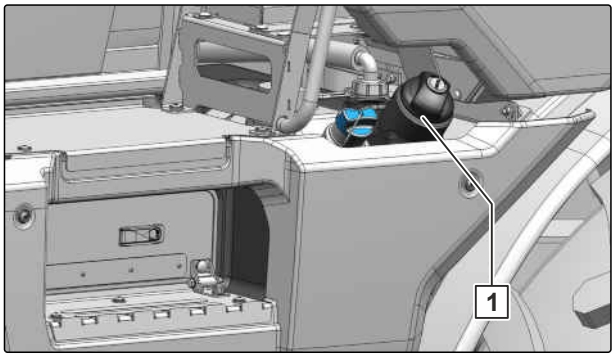
To avoid the formation of condensation water, it is best to fill the diesel tank in the evening after finishing work.

NOTE

Refuel with winter diesel in the winter.

The diesel tank is located on the left side of the machine.

1. Stop the engine.
2. Clean the sealing cap 1 and the area around the filler neck.
3. Screw the sealing cap open.
4. Fill in diesel fuel. Make sure that dirt does not enter the diesel tank.
5. Screw the sealing cap closed.



CMS-I-00009275

6.2.2 Refuelling DEF

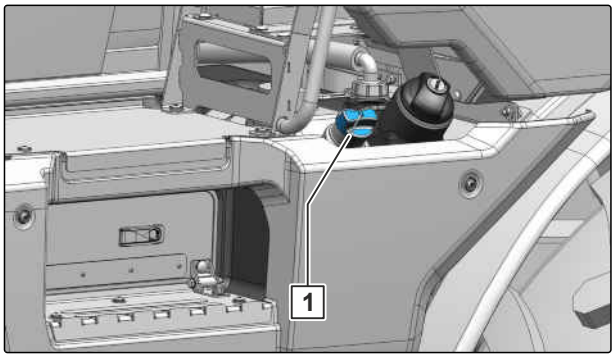
CMS-T-00014402-A.1

NOTE

The DEF urea solution is sold e.g. under the brand names AdBlue, AUS 32 and Aria 32.

The DEF tank is located on the left side of the machine.

1. Stop the engine.
2. Put on protective gloves. Put on safety glasses.
3. Screw the sealing cap 1 open.
4. Refill the DEF.
5. Screw the sealing cap closed.



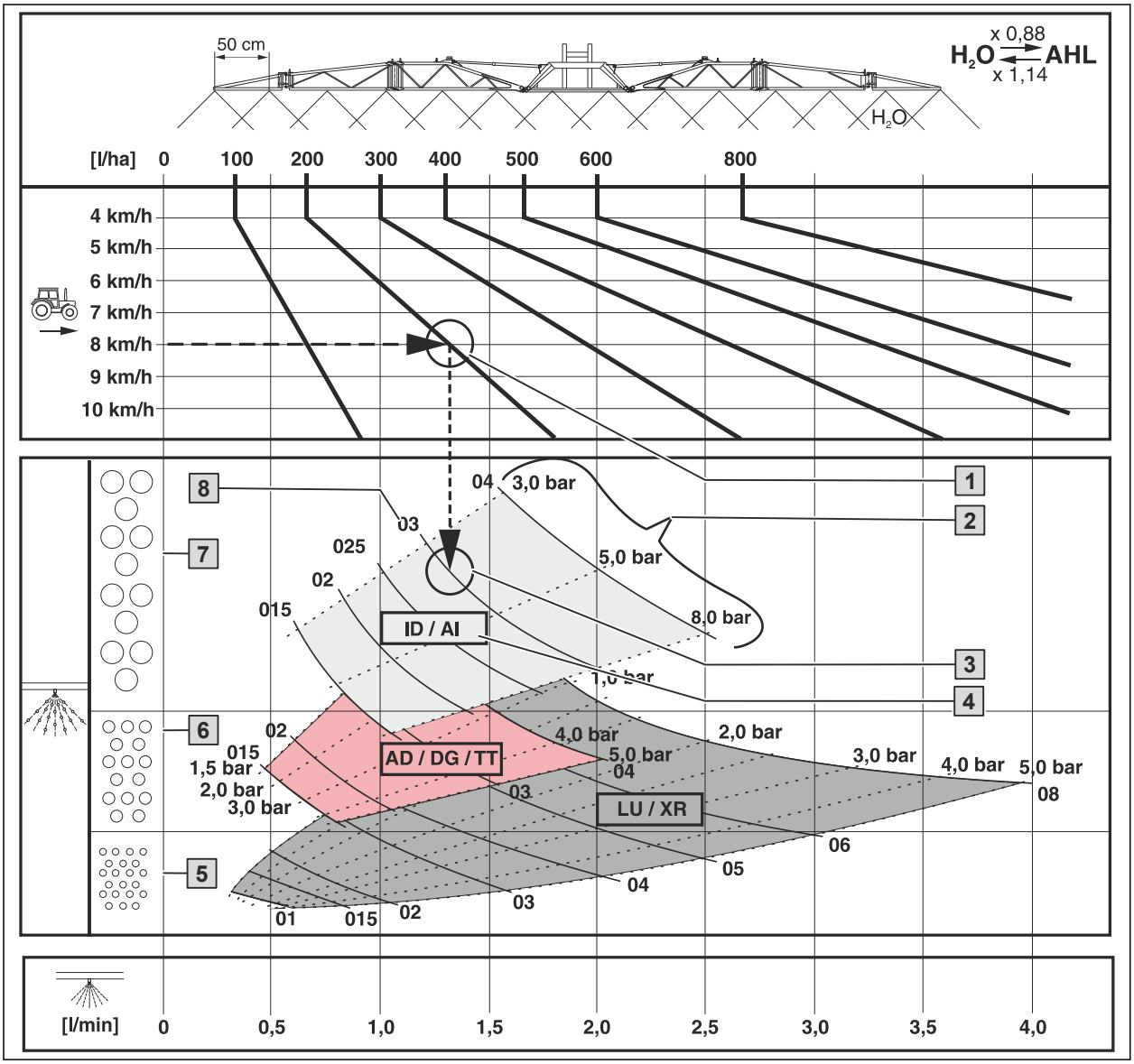
CMS-I-00009274

6.2.3 Selecting the spraying nozzles

CMS-T-00014708-A.1

To be able to select the required spraying nozzle for the crop protection measure, the following information must be known:

- Application rate in l/ha
- Working speed in km/h
- Atomisation characteristic



1. Find the operating point **1** for the application rate and the working speed.

2. Draw a vertical line down from the operating point, until it intersects with the characteristic curve for the nozzle cross-section **3** of the require nozzle type **4**.

➡ Nozzle type with atomisation characteristic: fine droplets **5**, medium droplets **6** or coarse droplets **7**

➡ Nozzle cross-section: 01 to 08

3. Read the nozzle type **4**, nozzle cross-section **8** and the possible spray pressure range **2** from the diagram.

6.2.4 Replacing spraying nozzles

CMS-T-00014710-A.1

WARNING

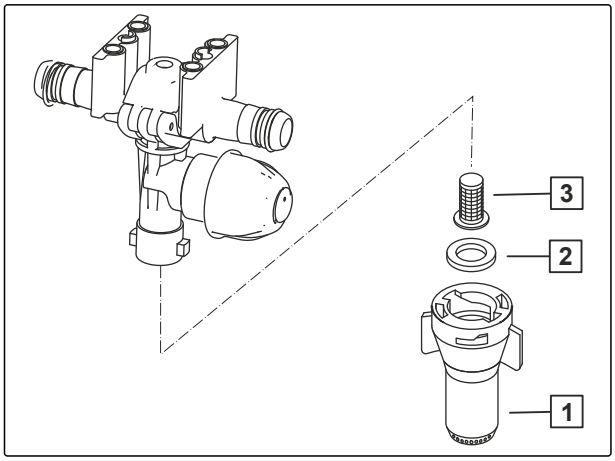
Risks due to accidental contact with spray liquid

- ▶ Before working on the nozzle bodies, flush the nozzles with flushing water.

NOTE

Different nozzle sizes are marked with bayonet caps of different colours.

1. Unscrew the bayonet cap **1** with integrated nozzle.
2. Take off the bayonet cap with the seal **2** and the nozzle filter **3**.
3. Insert the nozzle filter into the nozzle body from below.
4. Press the seal into the seat of the bayonet cap.
5. Screw the bayonet cap onto the bayonet lock up to the stop.



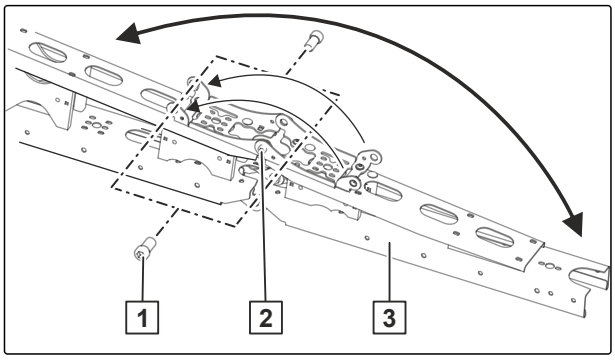
CMS-I-00009357

6.2.5 Reducing the working width using a folding reduction joint

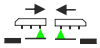
CMS-T-00013411-A.1

Using the reduction joint **2**, the outer element of the outer boom section can be folded manually to reduce the working width.

1. Remove the bolts **1**.
2. Fold or unfold the outer element **3** by hand.
3. Secure the position of the reduction joint with the bolts.



CMS-I-00008811

4. *When the number of nozzles of reduction joint is equal to the number of nozzles on the outer part-width section:*
    Switch off the outer part-width sections on the control terminal

   or

   When the number of nozzles of reduction joint is not equal to the number of nozzles on the outer part-width section:
   Close the outer nozzles on the nozzle body. Enter the changed number of nozzles and the changed working width on the control terminal.

6.2.6 Running the spray liquid pump

CMS-T-00013417-A.1

1. In the "Profile" settings menu on the control terminal, adjust the pump speed for spraying, filling and agitation:

Condition	Pump speed
Low application rate, low forward speed	400 1/min
High application rate, high forward speed	540 1/min

2. Switch on the spray liquid pump on the control terminal or TwinTerminal.

6.2.7 Adjusting the agitator

CMS-T-00014451-A.1

NOTE

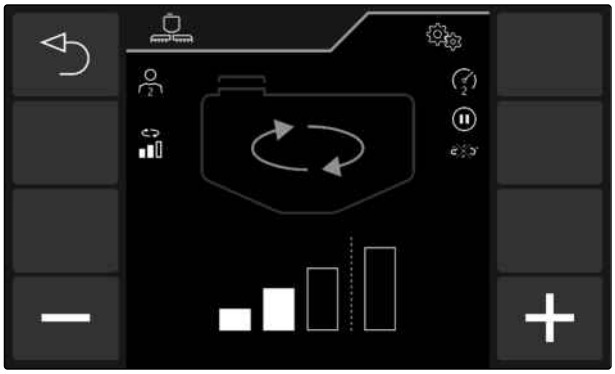
The agitator normally remains switched on from filling to the end of spraying operation. The agent manufacturer specifications are decisive here.

You must set the agitator before flushing in.

1. Select the *"Special functions"* menu on the TwinTerminal.
2. Select the *"Adjust agitator"* menu on the TwinTerminal.

➡ The current agitator capacity is shown with a bar diagram.

3. *To select the desired agitation level:*
   Select + or − and exit the menu.



CMS-I-00009138

6.2.8 Calculating the quantity of spray liquid

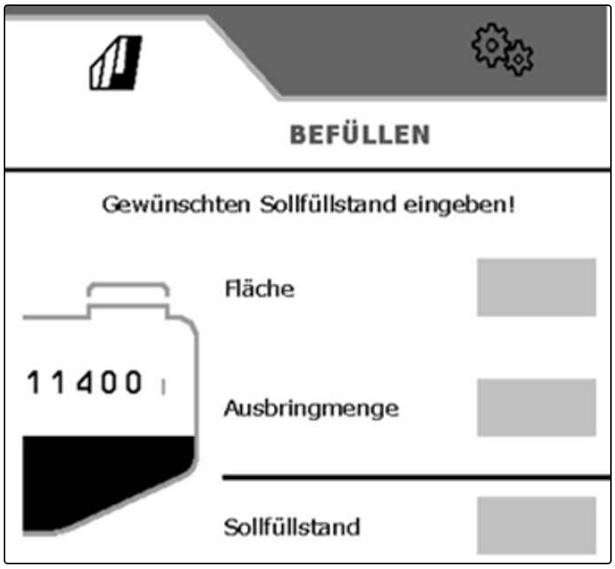
CMS-T-00014169-A.1

1. In the Field menu, select *"Filling"*.
2. *To calculate the quantity of spray liquid:*
   Enter the area to be worked.
3. Enter the application rate.

➡ The target fill level will be calculated.

➡ The target fill level is adopted on the TwinTerminal.

➡ Filling is automatically stopped as soon as the target fill level has been reached.



CMS-I-00008979

6.2.9 Calculating the quantity of spray liquid for liquid fertiliser

CMS-T-00014564-A.1

The rate for fertiliser is specified in kg/ha. To obtain the application rate for the field sprayer, this rate must be converted to l/ha.

- For UAN: l/ha (UAN) = kg/ha (UAN) x 0.88
- For NP solutions: l/ha (NP) = kg/ha (NP) x 0.85

► Calculate the quantity of spray liquid as shown above.

6.2.10 Filling the spray liquid tank and flushing water tank through the suction connection

CMS-T-00014452-A.1

IMPORTANT

Machine damage due to lime deposits

High degrees of water hardness above 15° dH (German degrees of hardness) can lead to lime deposits.

- At a water hardness greater than 15° dH, add polyphosphate-based hardness stabilisers.
- Follow the manufacturer's instructions for the hardness stabilisers.

IMPORTANT

Damage to the spray liquid pumps due to insufficient hose diameter

- Always use suctions hoses and switch taps with a minimum diameter of 3 inches.

IMPORTANT

Machine damage due to contact with liquid fertiliser

Liquid fertiliser leaks cause corrosion damage to the machine, in particular to the engine and surrounding assembly groups.

- Clean the areas thoroughly with clear fresh water.

ENVIRONMENTAL INFORMATION

Damage to crops and soils due to critical agents during suction filling of the flushing water tank

- It is better to fill the flushing water tank through the pressure connection.
- *If it is necessary to fill the flushing water tank through the suction connection:*
  Clean the machine very thoroughly before starting with the suction filling.
- *If contamination of the flushing water tank with critical agents is to be expected:*
  Fill the flushing water tank through the pressure connection.

NOTE

The spray liquid tank and flushing water tank can be filled simultaneously.

To avoid contamination of the flushing water tank with spray liquid residues, it is better to fill the flushing water tank via the pressure connection.

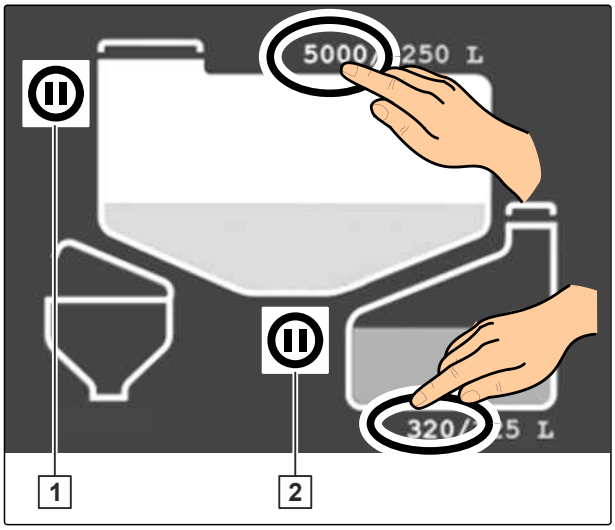
NOTE

Alternatively to manual filling, a filling profile can be used. The filling profile must have been created in the ISOBUS software beforehand.

1. Take both suction hoses from the parking position on the mudguard and connect them to each other.
2. Connect the suction hose with a water filter and couple onto the suction connection.
3. Place the suction hose with the water filter in the water point.
4. *To adjust the filling capacity:*
   Select 1, 2 or 3 on the TwinTerminal.
5. *To switch on the spray liquid pump:*
   Select on the TwinTerminal.
6. Enter the target fill level for the spray liquid tank on the TwinTerminal.
7. Enter the target fill level for the flushing water tank on the TwinTerminal.
8. *To start the suction filling:*
   Select on the TwinTerminal.

➡ Filling is automatically stopped when the target fill level has been reached.

9. While filling, flush in the spray agent through the induction bowl.



CMS-I-00009208

10. *To take a filling pause for flushing in the spray agent:*

    Select on the TwinTerminal.

➡ is shown 1.

11. *To stop the filling pause:*

    Select on the TwinTerminal 2.

12. After filling, take the suction hose from the water withdrawal point and confirm on the TwinTerminal.

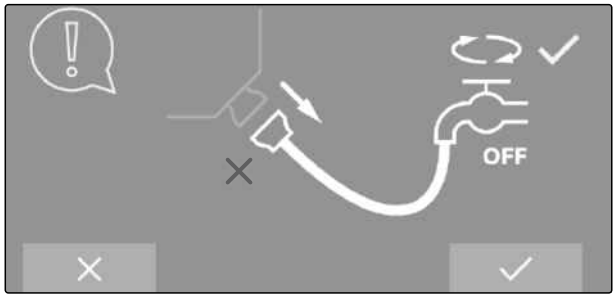
13. *To suction the suction hose empty:*

    Select on the TwinTerminal.

14. Uncouple the suction hose from the filling connection.

15. Disconnect both suction hoses and the water filter from each other.

16. Fasten the suction hose in parking position on the mudguards.



CMS-I-00009234

6.2.11 Filling the spray liquid tank and flushing water tank through the pressure connection

CMS-T-00014453-B.1

IMPORTANT

Machine damage due to lime deposits

High degrees of water hardness above 15° dH (German degrees of hardness) can lead to lime deposits.

- ▶ At a water hardness greater than 15° dH, add polyphosphate-based hardness stabilisers.
- ▶ Follow the manufacturer's instructions for the hardness stabilisers.

IMPORTANT

Machine damage due to high water pressure

- Do not exceed a maximum water pressure of 8 bar.
- *If the filling capacity is greater than 1,000 l/min:*
  Keep the lid of the spray liquid tank open during the filling procedure.

NOTE

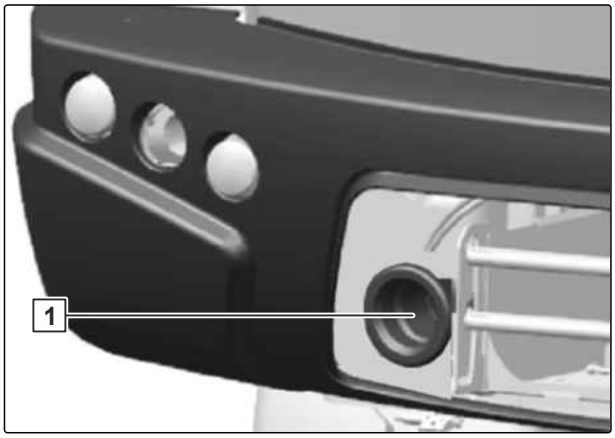
The spray liquid tank and flushing water tank can be filled simultaneously.

To avoid contamination of the flushing water tank with spray liquid residues, it is better to fill the flushing water tank via the pressure connection.

NOTE

Alternatively to manual filling, a filling profile can be used. The filling profile must have been created in the ISOBUS software beforehand.

1. Couple the pressure hose to the filling connection DK 1 and to the hydrant.



CMS-I-00008563

2. Enter the target fill level for the spray liquid tank on the TwinTerminal.

3. Enter the target fill level for the flushing water tank on the TwinTerminal.

4. *To start the pressure filling:*
   Select on the TwinTerminal.

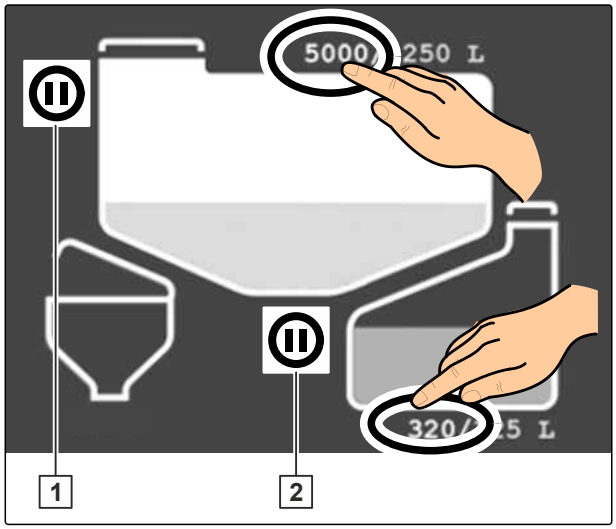
➡ Filling is automatically stopped when the target fill level has been reached.

5. While filling, flush in the spray agent through the induction bowl.

6. *To take a filling pause for flushing in the spray agent:*
   Select on the TwinTerminal.

➡ is shown 1.

7. *To stop the filling pause:*
   Select on the TwinTerminal 2.



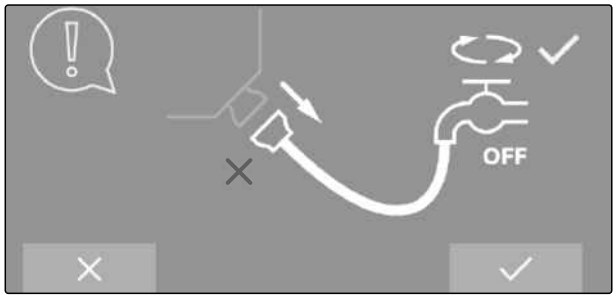
CMS-I-00009208

8. After filling, close the supply-side stop tap and confirm on the TwinTerminal.

9. *To actuate the pressure relief:*
   Select on the TwinTerminal.

➡ The hose will be emptied by suction.

10. Uncouple the pressure hose from the filling connection.



CMS-I-00009234

6.2.12 Using filling profiles

CMS-T-00014538-A.1

1. Create a filling profile via the ISOBUS software.

2. *To select the filling profile:*
   Select 1 or 2 on the TwinTerminal.

3. Couple the hoses according to the selection in the filling profile. Establish the conditions for filling.

4. *To start the filling procedure:*
   Select or on the TwinTerminal

   or

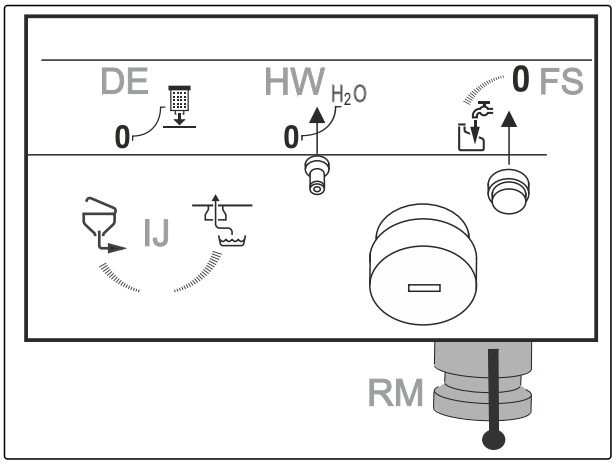
   Lower the induction bowl.

6.2.13 Filling the flushing water tank through the FS pressure connection

CMS-T-00014566-A.1

To supply the induction bowl with flushing water, the flushing water tank must be filled before flushing in the agents.

1. Connect the filling hose to the FS connection.
2. Open the stop tap and start filling.
3. Watch the fill level on the TwinTerminal.
4. Close the stop tap.
5. Disconnect the filling hose from the FS connection.



CMS-I-00008700

6.2.14 Flushing in spray agent

CMS-T-00014583-A.1

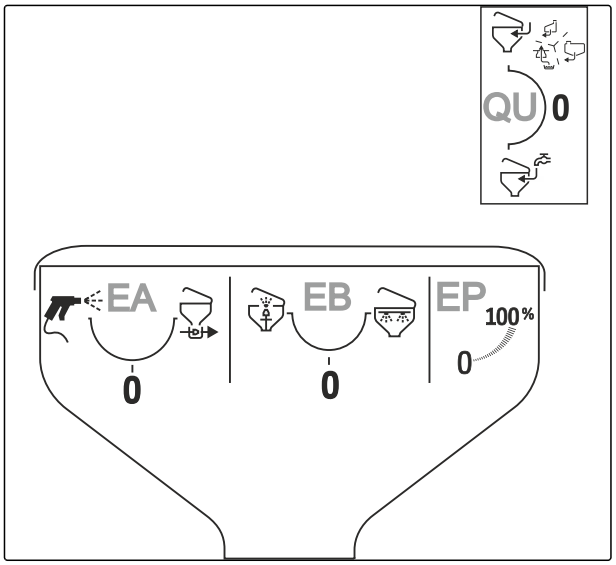
6.2.14.1 Flushing in the spray agent through the induction bowl

CMS-T-00014182-A.1

NOTE

You must flush in the spray agent during the filling procedure.

1. Lower the induction bowl.
2. Open the folding cover of the induction bowl.
3. Put in the sieve for liquid spray agents or take it out of powdered spray agents.



CMS-I-00009040

4. *To supply the induction bowl with water from the suction valve chest:*

   Select  for switch tap QU

   or

   To supply the induction bowl with water from the pressure filling:

   Select  for switch tap QU.

5. Select  for switch tap EB for liquid spray agent

   or

   Select  for switch tap EA for powdered spray agent.

6. Fill the spray agent into the induction bowl.

7. Close the folding cover of the induction bowl to protect against spray agent splashing up.

8. Set switch tap EP for suction from the induction bowl.

➡ The content of the induction bowl will be suctioned out.

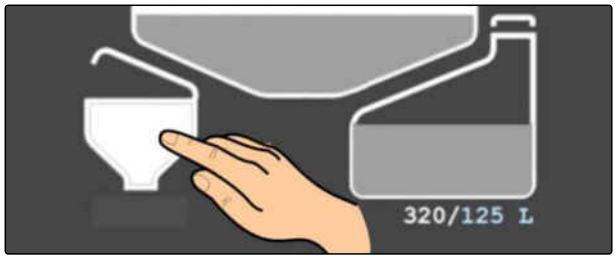
9. Close switch taps EA and EB.

6.2.14.2 Cleaning the spray agent canister

1. Select the "Induction bowl" menu on the TwinTerminal.

2. Select  for switch tap EB.

CMS-T-00014190-A.1

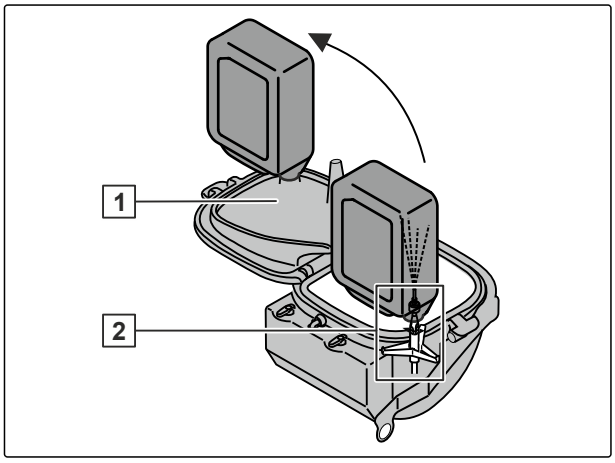


CMS-I-00009041

3. Press the canister opening on the canister cleaning nozzle **2** and flush the spray agent canister in 2 stages of 15 seconds each.

4. *To increase the water pressure for the canister cleaning nozzle:*
   Select on the TwinTerminal.

5. Place the spray agent canister on the folding cover of the induction bowl **1** and let it dry.



CMS-I-00008678

6.2.14.3 Cleaning the induction bowl

CMS-T-00014191-A.1

NOTE

Automatic cleaning of the induction bowl after it is raised can be set on the TwinTerminal.

1. Select the "Induction bowl" menu on the TwinTerminal.

2. Select for switch tap EA.

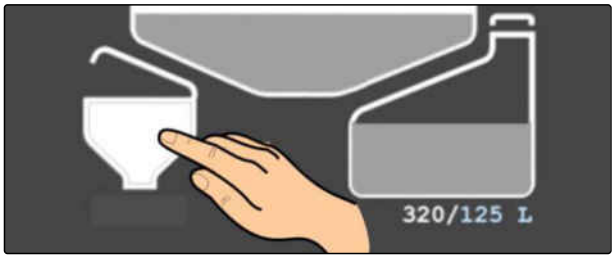
3. Clean the induction bowl with the spray pistol.

4. Close switch tap EA.

5. Close the folding cover of the induction bowl.

6. *To start the cleaning of the induction bowl:*
   Select on the TwinTerminal.

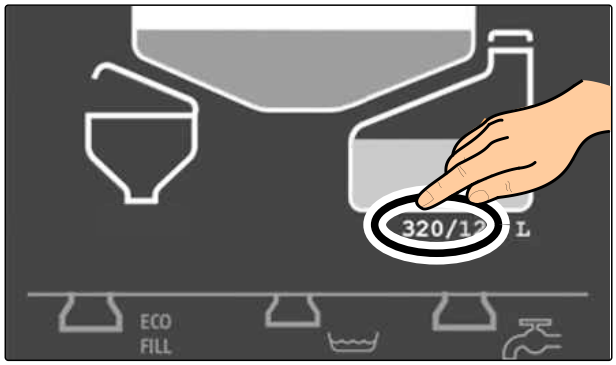
7. *If the induction bowl was operated with liquid spray agent:*
   Clean the canister cleaning, the ring line and the spray pistol separately.



CMS-I-00009041

6.2.15 Filling the flushing water tank

CMS-T-00014199-A.1



CMS-I-00009066

WARNING

Contamination of the flushing water tank with crop protection agents or spray liquid

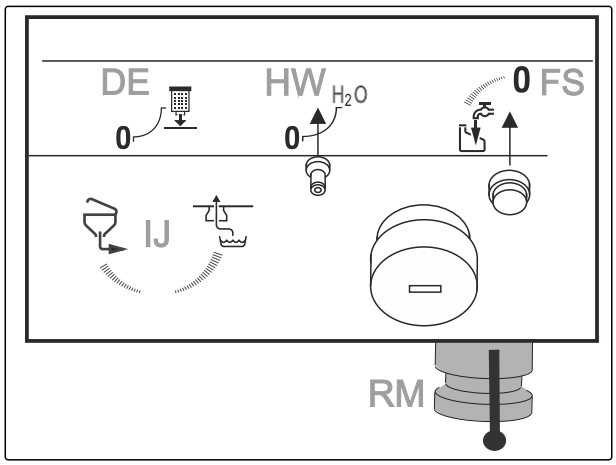
- ▶ Fill the flushing water tank only with water, and never with crop protection product or spray liquid.

1. Enter the target fill level for the flushing water tank on the TwinTerminal.
2. Select the "Flushing water tank" menu on the TwinTerminal.
3. *To start the pressure filling:*
   Select on the TwinTerminal
   or
   To start the suction filling:
   Select on the TwinTerminal.

➡ The flushing water pump starts automatically when suction filling was selected.

6.2.16 Filling the hand wash tank

CMS-T-00013422-A.1



CMS-I-00008700

1. Connect the filling hose to the HW connection.
2. Open the RM stop tap and start filling.
3. Close the RM stop tap.
4. Disconnect the filling hose from the HW connection.

6.2.17 Carrying operative parts

CMS-T-00014599-A.1

1. Make sure that spare nozzles and spare filters are carried along.

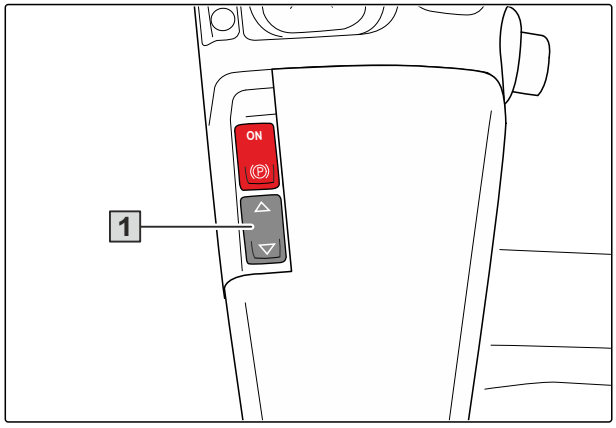
2. Make sure that clean personal protective equipment is carried along.

Using the machine 7

CMS-T-00014585-A.1

7.1 Using the ladder

CMS-T-00014174-A.1



CMS-I-00008953

1. *To lower the ladder:*

   Press the button 1 at position ▽.

➡ During the lowering procedure, the  symbol appears on the vehicle terminal.

➡ When the ladder is completely lowered, the  symbol appears on the vehicle terminal. The colour of the symbol changes according to the driving status of the machine. The symbol lights up red while driving and blue at a standstill.

2. *To raise the ladder:*

   Press the button 1 at position △.

➡ During the lifting procedure, the  symbol appears on the vehicle terminal.

➡ When the ladder is completely lifted, the  symbol appears on the vehicle terminal. The colour of the symbol changes according to the driving status of the machine. The symbol lights up red while driving and blue at a standstill.

7.2 Driving the machine

CMS-T-00014272-A.1

7.2.1 Starting the engine

CMS-T-00014597-A.1

IMPORTANT

Damage to the drive due to towing

▶ *If the machine battery is empty:*
Use an external battery to start the engine.

NOTE

The diesel engine does not have a pre-glowing function.

1. Switch on the power supply.
2. Move the driving lever to the neutral position.
3. Turn the ignition key to the start position. As soon as the engine starts, release the ignition key.

➡ After standing for a long while, the AmaDrive vehicle terminal needs 90 seconds until the display appears on the screen. But you can start driving.

4. Allow the engine to warm up before you start driving. Do not start at full speed.

7.2.2 Running-in the engine

CMS-T-00014598-A.1

The engine must be carefully run-in in the first 50 hours of operation.

1. After starting, slowly run the engine up to operating temperature.
2. Drive the machine for 50 hours without using the maximum power.
3. After driving with maximum power, allow the engine to idle for a few minutes.

7.2.3 Performing track correction

CMS-T-00014600-A.1

WARNING

Risk of accident due to incorrectly set track and when performing the track correction

- Perform the track correction every day.
- Do not perform track corrections in public areas or on roads.
- Only perform the track correction at walking speed.

Perform a track correction at the front:

1. Start the engine.
2.  Select four-wheel steering on the AmaPilot multi-function stick.
3. Drive slowly.
4. Turn the steering wheel all the way to the left and hold it there.
5.  Hold the button in position I for at least 3 seconds.
6. Turn the steering wheel all the way to the right and hold it there.
7.  Hold the button in position II for at least 3 seconds.
8. Continue driving straight ahead.

Perform a track correction at the rear:

9.  On the AmaPilot multi-function stick, turn the manual rear-wheel steering all the way to the left and hold it there.
10.  Hold the button in position I for at least 3 seconds.

11.  On the AmaPilot multi-function stick, turn the manual rear-wheel steering all the way to the right and hold it there.

12.  Hold the button in position II for at least 3 seconds.

13.  On the AmaPilot multi-function stick, turn the rear wheels back to the centre position.

14. Drive a short distance straight ahead. In doing so, check that all the wheels are aligned.

15. *If the wheels are not aligned:*
Repeat the track correction.

7.2.4 Driving the machine on the road

CMS-T-00014601-A.1

WARNING

Risk of accident due to incorrect preparation of the machine for road travel

- Fold the sprayer boom into transport position.
- Make sure that the securing brackets engage in the boom locking mechanism.
- Lift the induction bowl into transport position.
- *To ensure that the brake system and the drive system work correctly:*
Keep the control terminal switched on.
- Observe the following instructions.

1. 

Release the parking brake.

2. *To swivel the ladder up:*
 Push the rocker switch up and hold it there. Observe the display on the AmaDrive vehicle terminal.

3. *To select road mode:*
 Push rocker switch downwards. Observe the display on the AmaDrive vehicle terminal.

➡ Road mode is selected.

➥ Only front-wheel steering is possible.

➥ The cruise control function is deactivated.

4. Operate the driving lever with your right hand and start driving. Operate the steering wheel with your left hand.

5. *To brake the machine:*
   Pull the driving lever back

   or

   If necessary:
   Actuate the brake pedal at the same time.

7.2.5 Driving the machine on the field

CMS-T-00014605-A.1

7.2.5.1 Starting field travel

CMS-T-00014602-A.1

NOTE

To prevent rolling back when starting to drive on slopes, switch on the AutoHold function.

1. 

Release the parking brake.

2. *To swivel the ladder up:*
   
   Push the rocker switch up and hold it there. Observe the display on the AmaDrive vehicle terminal.

3. *To select field mode:*
   
   Unlock rocker switch and push upwards. Observe the display on the AmaDrive vehicle terminal.

➥ Field mode is selected.

➥ The forward speed is limited to 20 km/h.

7.2.5.2 Driving on the field

CMS-T-00014610-A.1

WARNING

Risk of injury due to electrical shock when the sprayer boom touches overhead power lines

If poles, hedges or other objects on the field are detected by the automatic boom guidance sensor, the sprayer boom can unintentionally swivel up and touch overhead power lines.

- ▶ Switch the automatic boom guidance off in these areas.

1. Operate the driving lever with your right hand and start driving. Operate the steering wheel with your left hand.

2. *To brake the machine:*
   Pull the driving lever back

   or

   If necessary:
   Actuate the brake pedal at the same time.

7.2.5.3 Using cruise control

CMS-T-00014603-A.1

The cruise control is set via the quick adjustment on the AmaDrive vehicle terminal.

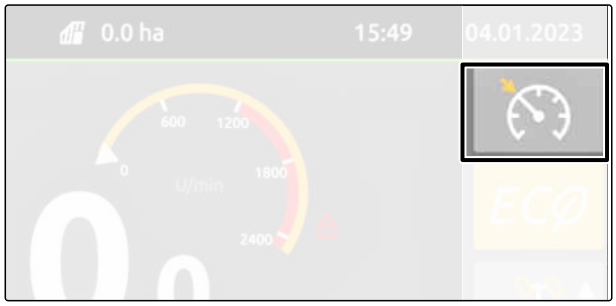
1. Activate the quick adjustment of the cruise control on the work screen.

2. Select cruise control or cruise control+.

3. Enter the target speed.

CMS-I-00009257

4. Switch the cruise control on and off as required while driving on the field. To do so, press and hold the button for 5 seconds.



CMS-I-00009277

7.2.5.4 Setting the maximum track width

CMS-T-00014604-A.1

When driving on extreme slopes, the maximum track width can be set while driving in field mode.

The track width is set via the quick adjustment on the AmaDrive vehicle terminal.

1. Activate the quick adjustment of the track width on the work screen.
2. MAX Select the maximum track width.

➡ The track width adjusts itself while driving.

3. *To switch back to the standard track width:* Select MAX again.

➡ The track width adjusts itself while driving.

CMS-I-00009046

7.2.5.5 Driving on slopes

CMS-T-00014606-A.1

1. *To counteract the risk of tipping of the machine:* Increase the track width on the AmaDrive vehicle terminal. The track width adjustment is only possible to a limited extent when driving across the slope.
2. ON A Switch on the AutoHold function.
3. ECØ For high power requirements, switch off the ECO mode on the AmaDrive vehicle terminal.

CMS-I-00009046

7.2.6 Adjusting the track width

CMS-T-00014273-A.1

NOTE

When driving on public roads, the wheels are not allowed to protrude beyond the outer dimensions of the machine. Set the track width set according to the type approval.

The track width is set via the quick adjustment on the AmaDrive.

1. Activate the quick adjustment of the track width on the work screen.
2. [+] / [−] Enter the target track width.

➡ The track width adjusts itself while driving.

CMS-I-00009046

7.2.7 Using the parking brake

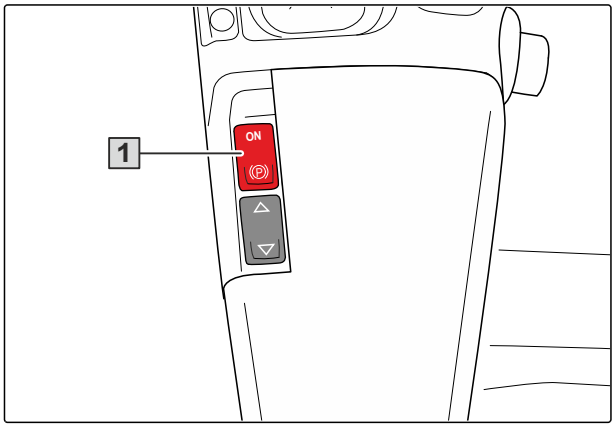
CMS-T-00014175-A.1

1. *To activate the parking brake:*
   Press the button **1**.

➡ The (P) symbol appears in red on the vehicle terminal.

2. *To release the parking brake:*
   Press the button again.

➡ The (P) symbol appears in white on the vehicle terminal.



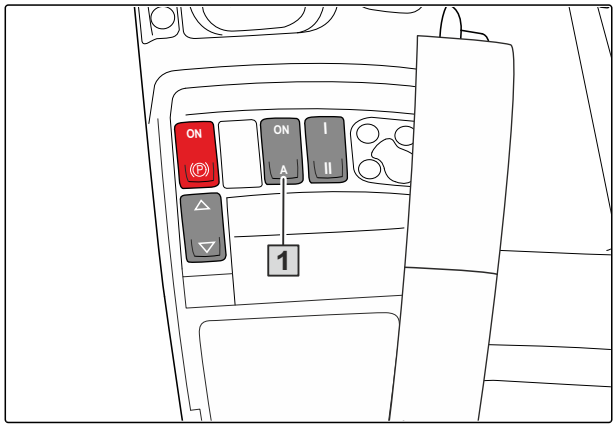
CMS-I-00008954

7.2.8 Using the AutoHold function

CMS-T-00014172-A.1

The AutoHold function is the assistant when starting to drive on slopes. The parking brake is automatically activated and released.

1. *To switch on the AutoHold function:*
   Press the button 1.



CMS-I-00008952

➡ The Ⓐ symbol appears on the vehicle terminal.

➡ When the machine comes to a standstill, the parking brake is activated.

➡ When the driving lever is pushed forward again, the parking brake is automatically released.

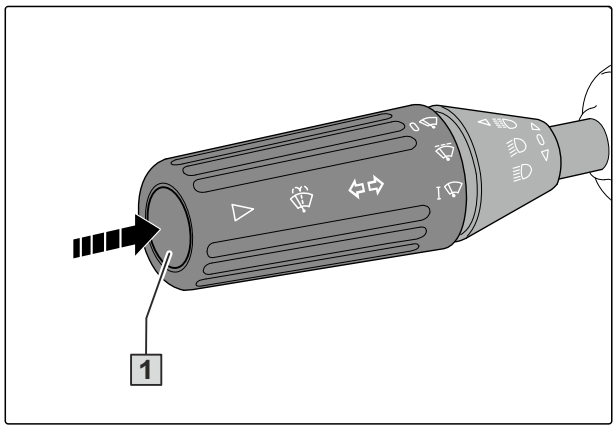
2. *To switch off the AutoHold function:*
   Press the button again.

➡ The Ⓐ symbol disappears on the vehicle terminal.

7.2.9 Actuating the horn

CMS-T-00014014-A.1

▶ Press the operating button 1.



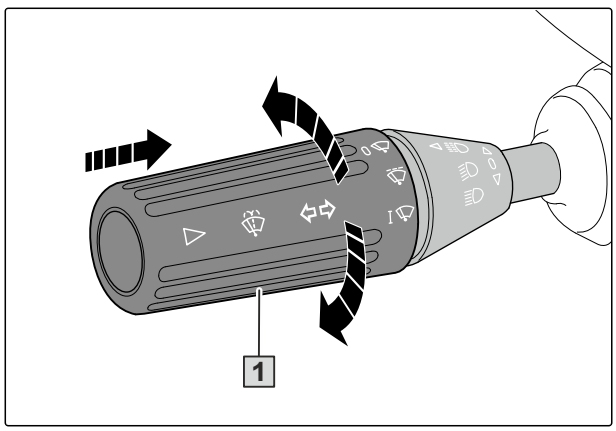
CMS-I-00008751

➡ The horn is sounded as long as the button is pressed.

7.2.10 Using the windscreen wipers

CMS-T-00014010-A.1

1. Switch the windscreen wipers on or off using the rotary switch 1.



CMS-I-00008749

➡ Switch position for windscreen wipers interval function

➡ Switch position I for windscreen wipers constant operation

➡ Switch position 0 for windscreen wipers off

2. *To use the windscreen washer system:*
Briefly press the rotary switch.

➡ The windscreen wiper wipes with wiper water.

7.3 Using the lighting

CMS-T-00014705-A.1

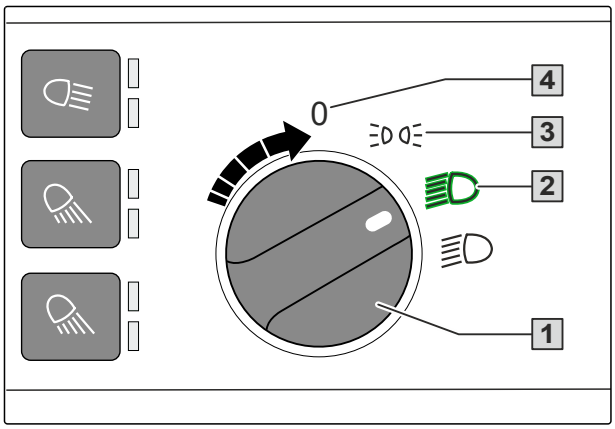
7.3.1 Using the lighting for road travel

CMS-T-00014013-A.1

► *To switch on the parking lights:*
Turn the rotary switch **1** to position **3**.

► *To switch on the dipped headlights:*
turn the rotary switch to position **2**.

► *To switch off the lighting for road travel:*
Turn the rotary switch back to position **4**.



CMS-I-00008870

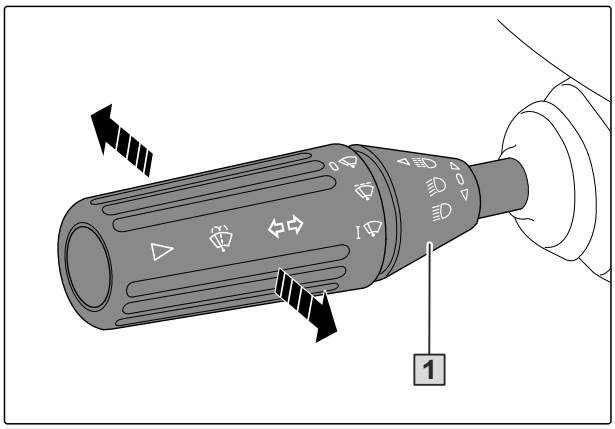
► *To switch on the left turn indicator:*
Push the multi-function stick **1** to the rear.

➡ The left driving direction arrow flashes.

► *To switch on the right turn indicator:*
Push the multi-function stick to the front.

➡ The right driving direction arrow flashes.

➡ After turning, the multi-function stick is automatically shifted back to the centre position.



CMS-I-00008752

▶ *To switch on the full-beam headlights:*
Switch on the dipped headlights.

▶ Push the multi-function stick 1 down.

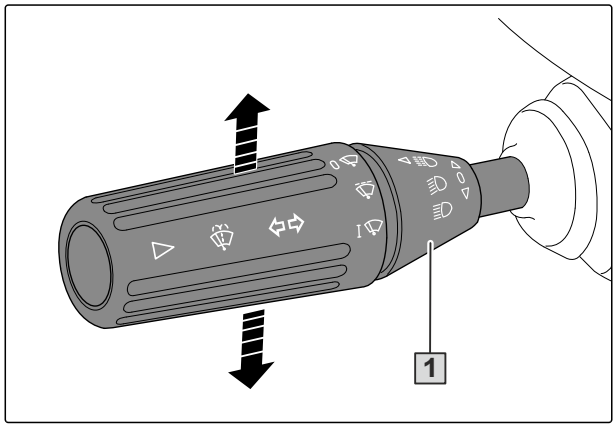
➡ The multi-function stick engages

➡ The control lamp lights up.

▶ *To switch off the full-beam headlights:*
Push the multi-function stick up to the centre position.

▶ *To use the headlight flasher:*
Pull the multi-function stick up.

➡ The multi-function stick is automatically shifted back to the centre position.



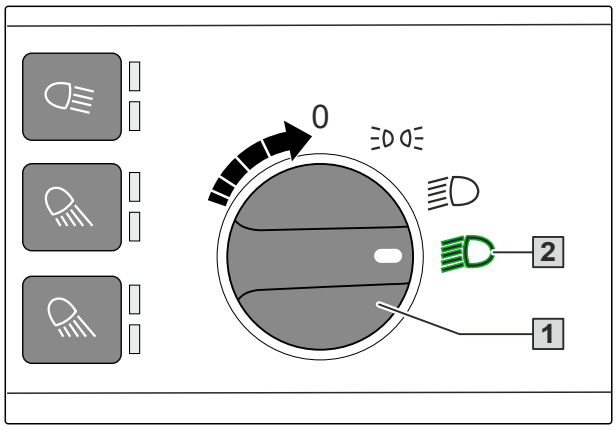
CMS-I-00008872

7.3.2 Using the work floodlights

CMS-T-00014012-A.1

1. Turn the rotary switch 1 to position 2.

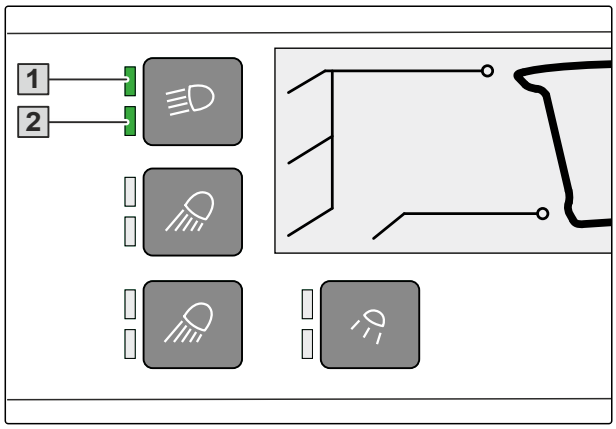
➡ The work floodlights are activated.



CMS-I-00008871

2. Switch on the desired work floodlight using the corresponding button on the lighting control panel.

➡ When the work floodlight is switched on, the LED 1 lights up.



CMS-I-00008869

3. *If a button controls 2 work floodlights:*
   Press the button again for the second floodlight.

➡ When the second work floodlight is switched on, the LED 2 lights up.

4. *To switch off the work floodlights:*
   Press the corresponding button.

➡ The LED is turned off.

7.3.3 Using the side lighting

CMS-T-00013654-A.1

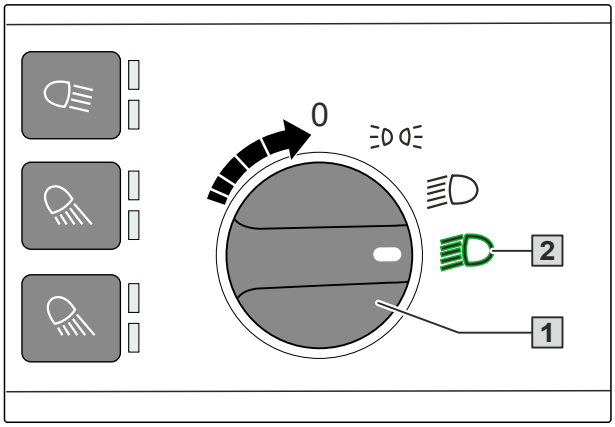
The side lighting is located on both sides of the mirror arms. The side lighting can be used e.g. for turning at the end of the field. The side lights can be switched on and off together or independently of one another.

1. *To switch on the side lighting:*
   Start the engine.

2. Switch the road travel switch to *"Field travel"*.

3. Turn the rotary switch 1 to position 2.

➡ The work floodlights are activated.

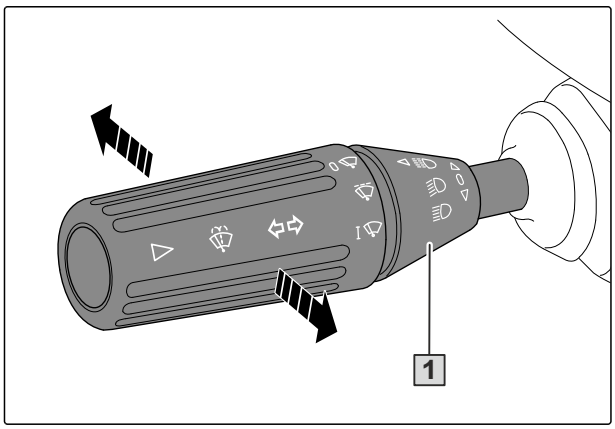


CMS-I-00008871

4. *To switch on the side lighting on the right:*
   Push the multi-function stick 1 to the front.

5. *To switch on the side lighting on the left:*
   Push the multi-function stick to the rear.

6. *To switch off the side lighting:*
   Actuate the multi-function stick again.



CMS-I-00008752

7.3.4 Using the afterglow function

CMS-T-00013655-A.1

The afterglow function is used to briefly illuminate the surroundings of the machine after leaving.

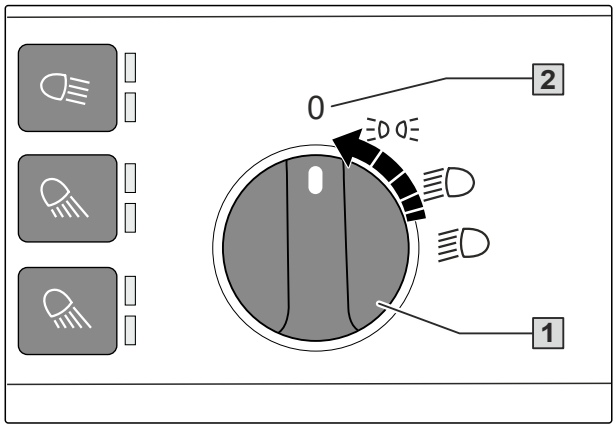
This requires the driving lights to have been switched on at least once while driving.

1. *To switch on the afterglow function,*
   Stop the machine.

2. Switch off the engine.

3. Switch off the ignition.

4. Turn the rotary switch [1] to position [2].



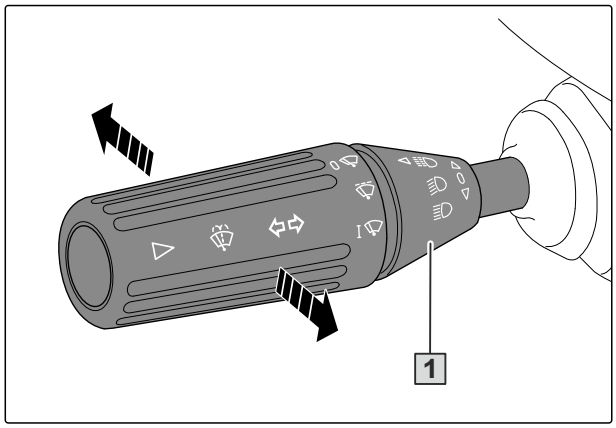
CMS-I-00008868

➡ The afterglow function is switched on for 1 minute. All buttons and the lateral machine view of the light controls are flashing. Other work floodlights can be switched on or off on the buttons of the light controls. The light configuration that was set last for the afterglow function will be saved after 1 minute has passed.

➡ When 1 minute has expired, the afterglow function is switched off. All buttons and the lateral machine view of the light controls are then turned off.

Using the multi-function stick [1], the afterglow function can be switched on multiple times within 15 minutes or switched off prematurely.

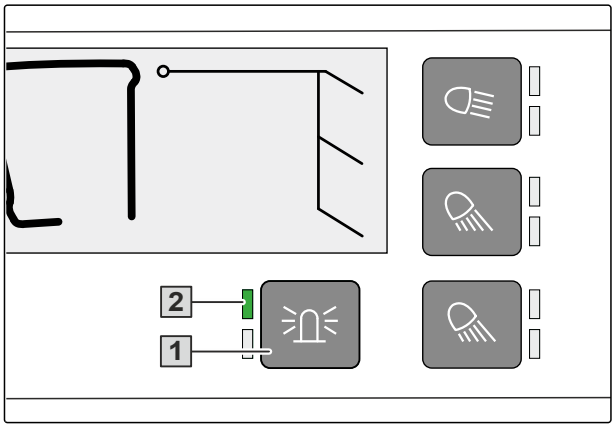
5. Move the steering column switch only briefly to the front or rear.



CMS-I-00008752

7.3.5 Using the warning beacon

CMS-T-00014011-A.1



CMS-I-00008874

▶ Switch the warning beacon on with the 1 button

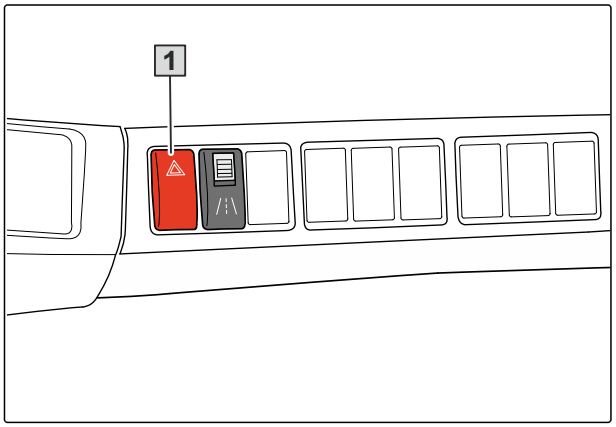
or

off.

➡ When the warning beacon is switched on, the LED 2 lights up.

7.3.6 Using the hazard warning lights

CMS-T-00014080-A.1



CMS-I-00008877

▶ With the switch 1, the hazard warning lights are switched on

or

off.

➡ When the hazard warning lights are active, the ⚠ symbol flashes on the switch.

7.4 Using the cab equipment

CMS-T-00014704-A.1

7.4.1 Using the air conditioning system

CMS-T-00014702-A.1

7.4.1.1 Switching on the air conditioner

CMS-T-00013667-A.1

1. Switch on the ignition.

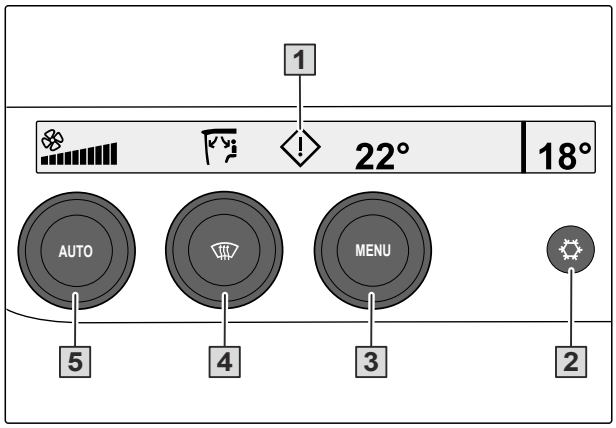
➡ The fan speed is adjustable.

2. Start the engine.

➡ The cooling can be adjusted independently of the outside temperature.

➡ The mode and display correspond to the settings before the system was last switched off.

➡ When the engine is switched off, the fan speed is reduced after 10 minutes. This prevents strong discharging of the battery.



CMS-I-00008519

NOTE

If a strong oil smell is suddenly noticed in the cab, there might be a coolant leak. The **1** symbol and the **2** to **5** buttons are flashing.

- Open the cab door on the left and cab window on the right for ventilation.
- Switch off the air conditioning system.
- Exit the cab.
- Have the error repaired by a qualified specialist workshop.

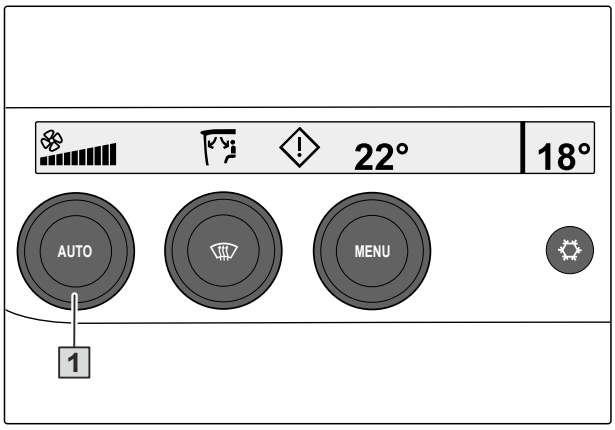
7.4.1.2 Activating the automatic air conditioning system

CMS-T-00013668-A.1

In full automatic mode, the air conditioner compressor, heater and ventilation are automatically controlled. The specified cab temperature is quickly reached and then maintained constant.

This mode is ideal at high outside temperatures.

At outside temperatures below 10 °C, the automatic mode for the air conditioner compressor is switched off.



CMS-I-00008517

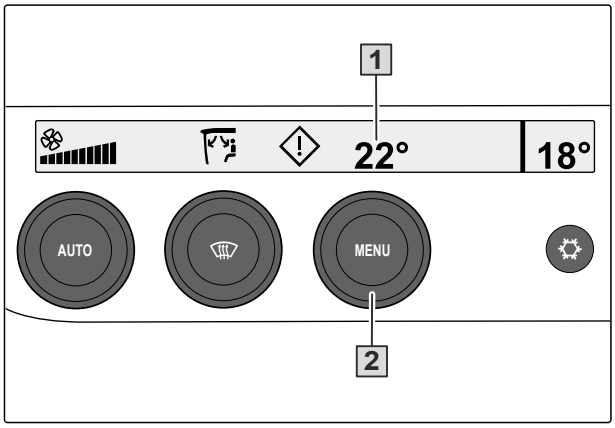
▶ *To activate the A/C MATIC:*
Press the 1 button.

➡ The button is lit green. A/C MATIC is active.

7.4.1.3 Adjusting the the cab temperature

CMS-T-00013669-A.1

The display shows the currently set cab temperature 1.



CMS-I-00008522

1. *To reduce the temperature:*
Turn the 2 button counter-clockwise.

2. *To increase the temperature:*
Turn the button clockwise.

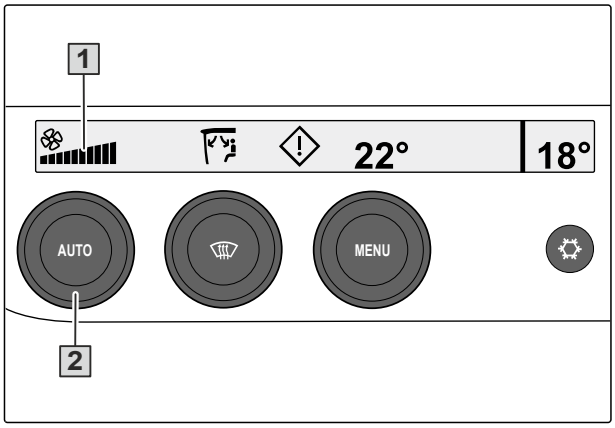
NOTE

Turning by 1 increment corresponds to 1 °C.

7.4.1.4 Adjusting the fan speed manually

CMS-T-00013670-A.1

Even when automatic mode is activated, the manual fan adjustment can still be activated.



CMS-I-00008520

1. *To activate the manual fan adjustment:*
Turn the 2 button.

➡ The button is no longer lit green. Manual mode is activated.

➡ The display shows the currently set fan speed 1 in a bar diagram. The maximum speed corresponds to a 100 % filled bar.

2. *To reduce the fan speed:*
Turn the 2 button counter-clockwise.

3. *To increase the fan speed:*
   Turn the button clockwise.

Turning by 1 increment corresponds to a 10 % change in the fan speed.

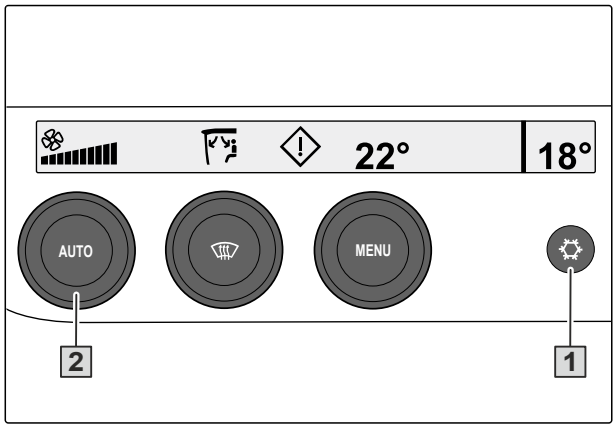
4. *To switch back to automatic mode:*
   Press the **2** button.

➡ The fan speed is regulated automatically again.

7.4.1.5 Activating operation without air conditioner compressor

CMS-T-00013671-A.1

When the air conditioner compressor is switched off, the cab temperature can only be lowered to the outside temperature at most. The heater and, depending on the setting, the fan are automatically regulated.



CMS-I-00008518

1. *To activate operation without the air conditioner compressor:*
   Press the **1** button.

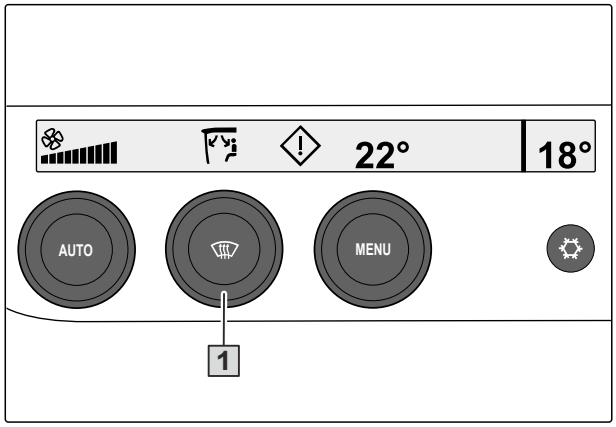
2. Press the **2** button.

➡ The **2** button is no longer lit green. The cooling is off.

7.4.1.6 Drying the cab window panes

CMS-T-00013672-A.1

DEFROST mode below 2 °C outside temperature: De-ice the cab windows with constant operation of the air conditioner compressor at the maximum fan speed, heating capacity and air current on the windows.



CMS-I-00008521

DEMIST mode above 2 °C outside temperature: Dry the can windows with constant operation of the air conditioner compressor at the maximum fan speed.

1. *To dry the cab windows:*
   Close the cab door and the right cab window.

2. Press the **1** button.

➡ The button is lit green. DEFROST or DEMIST drying operation is activated.

7.4.2 Adjusting the air current

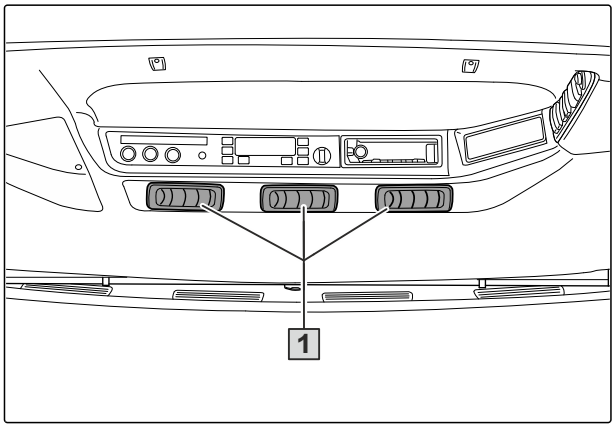
CMS-T-00013657-A.1

1. *To distribute the air current in the cab:*
   Open the air vents 1.

2. Adjust the air vents in the desired direction.

   or

   Close the air vents.



CMS-I-00008526

7.4.3 Using the storage trays

CMS-T-00013653-A.1

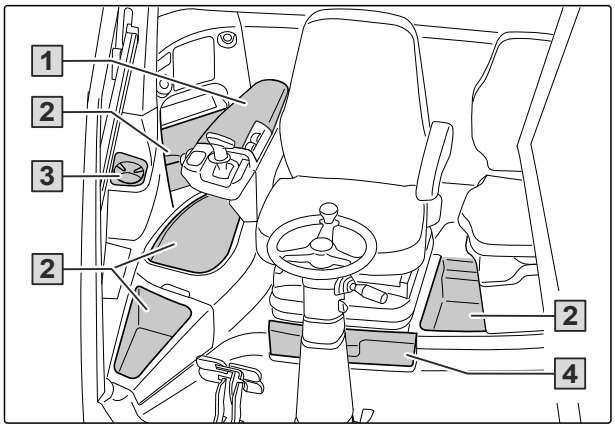
CAUTION

Risk of injury due to loose objects in the storage trays

- Secure loose objects in the storage trays or remove the objects from the cab.

Item	Designation
1	Storage tray under the folding arm rest
2	Storage tray
3	Drink holder
4	Drawer

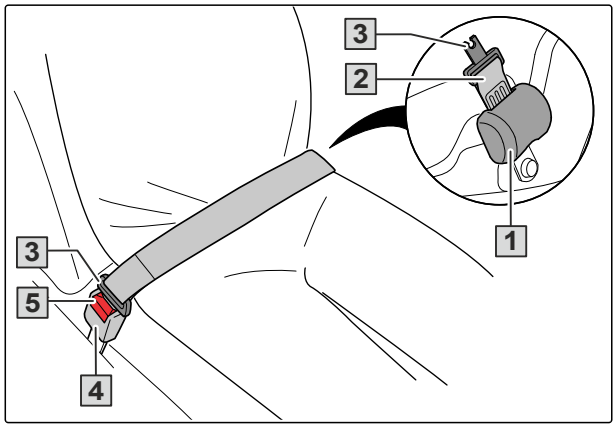
- Do not overfill storage trays and drawers.



CMS-I-00008539

7.4.4 Using the seat belt

CMS-T-00013656-A.1

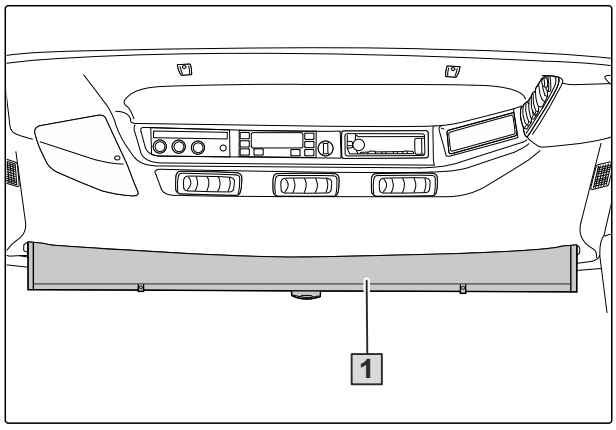


CMS-I-00008528

1. Pull the seat belt **2** smoothly out of the belt retractor **1**.
2. Guide the seat belt low over the hip bones in the pelvic area.
3. Engage the tongue **3** in the belt lock **4**.
4. Make sure that the seat belt is not twisted or jammed.
5. Make sure that the seat belt does not run over sharp edges or breakable objects.
6. *To take off the seat belt:*
   Press the **5** button. Guide the tongue of the seat belt back up to the belt retractor.

7.4.5 Adjusting the sunblind

CMS-T-00013658-A.1



CMS-I-00008529

Sunlight can cause undesired mirroring in the windscreens.

The driver cab can be equipped with a sunblind **1**.

▶ *To adjust the sunblind **1**:*
Pull the sunblind down from the middle as required.

7.4.6 Using the emergency exit and cab ventilation

CMS-T-00013659-A.1

The right window of the cab can be used as an emergency exit or to ventilate the cab.

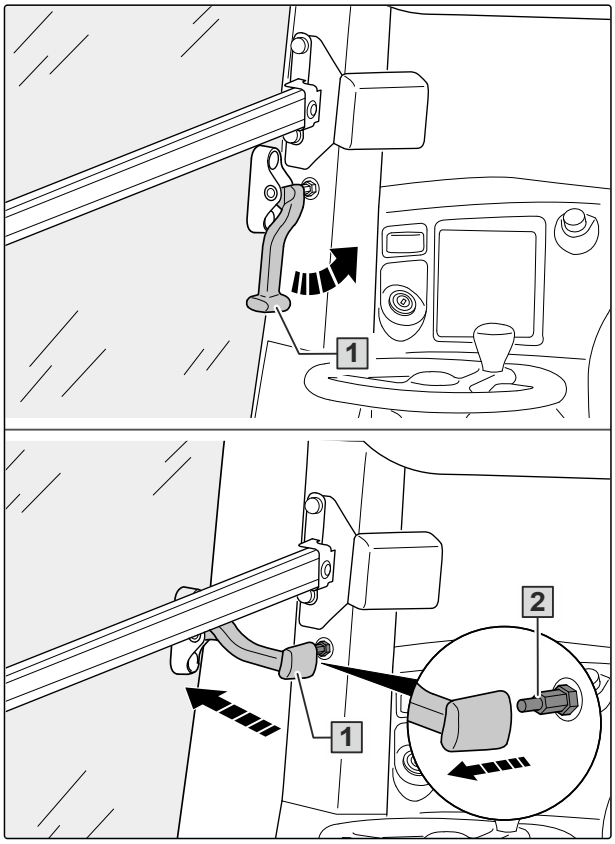
1. *To use the right side for ventilation:*
   Swivel the lever **1** up.

➡ The window is pushed open by a gap.

2. *To use the right window as an emergency exit:*
   Swivel the lever **1** up.

3. Pull the lever to the front away from the guide pin **2** and push the window open.

➡ The window can be opened completely as an emergency exit.



CMS-I-00008540

7.4.7 Using the cooling compartment

CMS-T-00013664-A.1

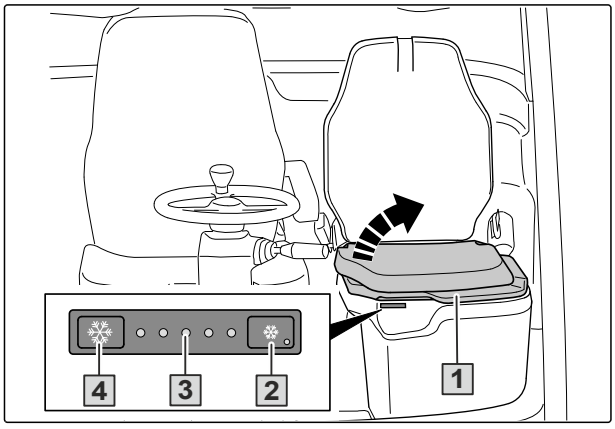
1. *To open the cooling compartment:*
   Fold up the seat cushion **1**.

2. *To switch the cooling compartment on or off:*
   Press and hold the button **2**.

3. *To increase the cooling capacity:*
   Press the **4** button.

➡ The cooling capacity is displayed via the lighting **3**.

4. *To reduce the cooling capacity:*
   Briefly press the **2** key.



CMS-I-00008554

7.5 Parking the implement

CMS-T-00014607-A.1

7.5.1 Switching off the engine

CMS-T-00014608-A.1

IMPORTANT

Damage to the turbocharger due to cooling down too fast

- Depending on the previous strain, allow the engine to cool down at an idle for a few minutes before you switch the engine off.

1. Drive the machine on a level parking surface with solid ground.
2. Set the driving lever to neutral.
3. Apply the parking brake.
4. *To swivel the ladder down:*
   Push the rocker switch down and hold it there. Observe the display on the AmaDrive vehicle terminal.
5. Turn the ignition key to the left and pull it out.

NOTE

The power supply will be automatically switched off after 2 hours.

7.5.2 Exiting the cab

CMS-T-00014609-A.1

WARNING

Risk of falling when leaving the cab

- Before leaving the cab, make sure that the ladder has been lowered completely.

WARNING

Risk of injury due to unexpected movements of the sprayer boom

In automatic mode, the sprayer boom moves when persons enter the sensing range of the ultrasonic sensors.

- *If the automatic boom guidance is switched on:*
  Lock the sprayer boom before you leave the cab.

- Climb down the ladder facing the machine. Always maintain 3-point contact.

7.6 Using the machine on the field

CMS-T-00014586-A.1

7.6.1 Activate the category 4 cab filter

CMS-T-00014145-A.1

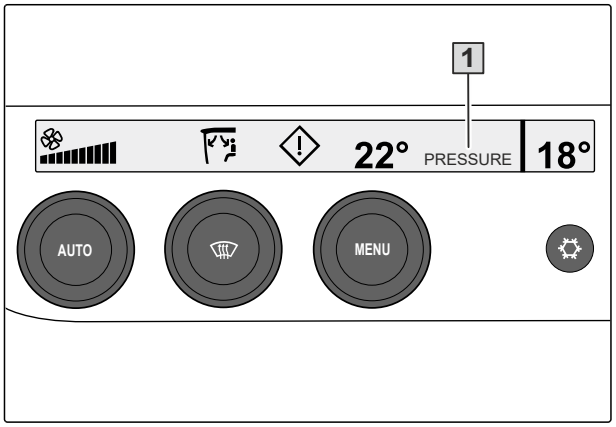
WARNING

Risk of poisoning due to toxic substances in the driver's cab

- When working in dusty environments or when applying crop protection products, make sure that the driver's cab and air ducts are sealed.
- Use a cab air filter that is suitable for the utilised substance.
- Use only original cab air filters with the correct label.
- Make sure that the cab air filter is properly fitted and in good condition.

1. Depending on the cab category, ensure that the correct filters are used.
2. Close the cab door and the right cab window from the inside.
3. Switch on the ignition.
4. Switch on the air conditioner.

➡ When the ignition is switched on, the ventilation system is switched on and the pressure builds up in the cab. While the cab internal pressure



CMS-I-00008978

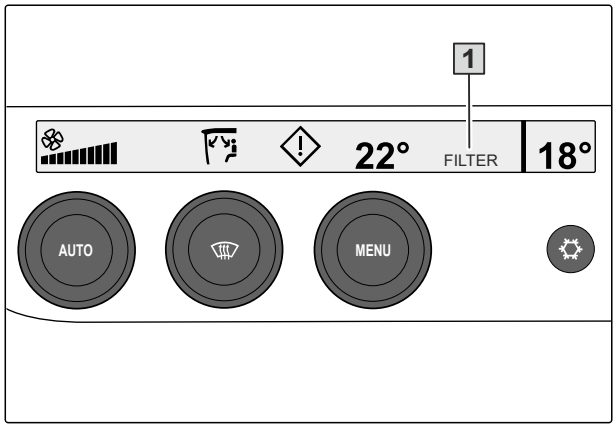
is building up, the notification *"PRESSURE"* appears on the control panel of the air conditioning system 1.

➡ After 30 seconds at the most, a cab internal pressure of more than 20 Pa been reached and the notification *"PRESSURE"* disappears. If the notification *"PRESSURE"* is still being shown, check the cab seals and correct seating of the cab air filters. Eliminate the error and restart the system.

NOTE

It is recommended to operate the air conditioning system in automatic mode. This ensures that the filter system work effectively when the cab air filters are used for a longer period of time.

With increasing impurities, the air resistance in the cab air filters increases. The capacity of the fan is adjusted to the increased contamination. If the cab internal pressure drops constantly despite increased fan capacity, the error message *"FILTER"* appears on the control panel display 1.



CMS-I-00008977

5. *If the error message "FILTER" is constantly shown:*
   Change the cab air filter.

6. *If the notification "PRESSURE" appears after changing the filter elements:*
   Make sure that the cab air filter is correctly fitted and the cab is properly sealed.

7.6.2 Preventing spray liquid drift

CMS-T-00013508-A.1

ENVIRONMENTAL INFORMATION

Environmental damage due to drifting of spray liquid

▶ Observe the following instructions.

- Reschedule work for the early morning or the evening hours when there is less wind.
- Choose larger nozzles and higher water application rates.
- Precisely maintain the boom working height, because the risk of drifting rises very sharply as the distance between the nozzles increases.
- Reduce the forward speed to less than 8 km/h.

- Use nozzles with high fractions of large droplets, e.g. so-called anti-drift nozzles (AD nozzles) or injector nozzles (ID nozzles).
- Observe the distance requirements of the respective crop protection product.

▶ *To avoid drifting of spray liquid:*
Following the specified instructions before and during operation.

7.6.3 Moving the sprayer boom into working position

CMS-T-00013510-A.1

WARNING

Risk of injury due to electrical shock when the sprayer boom touches overhead power lines

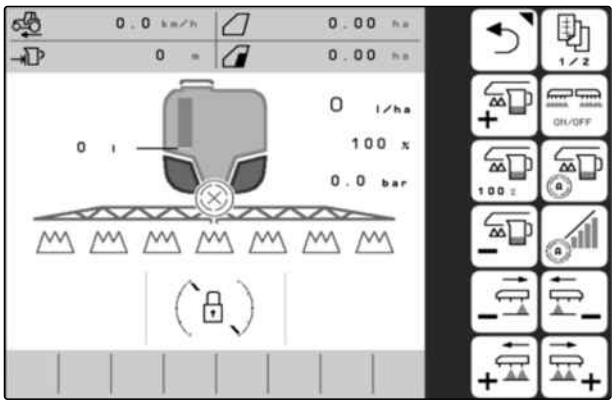
▶ *Before you fold or unfold the sprayer boom:*
Make sure that there is enough distance from the overhead power lines.

1. Lift the sprayer boom to the maximum height on the control terminal.

2. Unfold the sprayer boom on both sides.

➡ Unfold all of the sections simultaneously.

3. Lower the sprayer boom.



CMS-I-00008980

4. Switch on the automatic boom guidance

   or

   Align the sprayer boom using the function fields of the manual boom guidance.

WARNING

Risk of injury due to unexpected movements of the sprayer boom

In automatic mode, the sprayer boom moves when persons enter the sensing range of the ultrasonic sensors.

- *If the automatic boom guidance is switched on:*
  Lock the sprayer boom before you leave the cab.

7.6.4 Folding the sprayer boom on one side

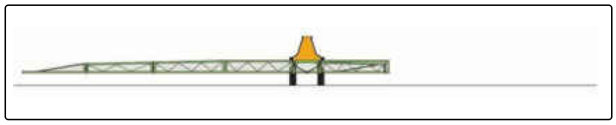
CMS-T-00013905-A.1

WARNING

Risk of injury due to electrical shock when the sprayer boom touches overhead power lines

- *Before you fold or unfold the sprayer boom:*
  Make sure that there is enough distance from the overhead power lines.

The sprayer boom can be folded on one side while driving.



CMS-I-00008984

1. Fold or unfold the outer boom sections at maximum 6 km/h.

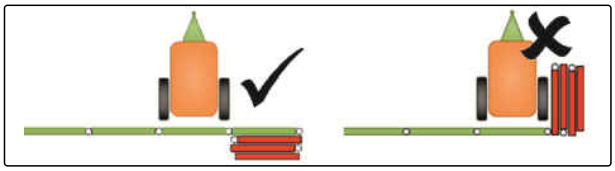
2. Fold or unfold the other boom sections at a standstill.

➡ The boom sections are folded consecutively from the outside to the inside.

3. Switch off the part-width sections on the deactivated boom sections.

NOTE

It is forbidden to work with the sprayer boom folded on one side in transport position.

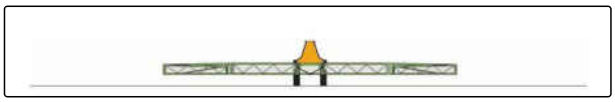


CMS-I-00008983

7.6.5 Reducing the working width on both sides

CMS-T-00014337-A.1

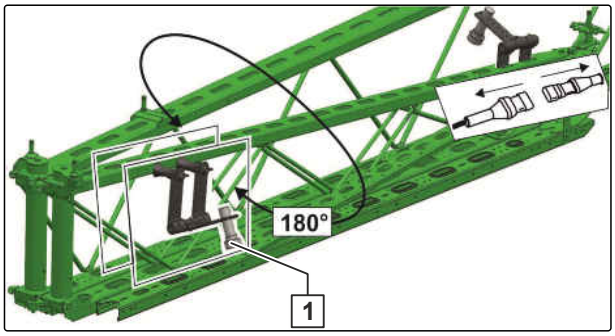
1. In the *"Settings > Profile > Configure part-width section control"* menu, reduce the working width.



CMS-I-00008982

2. Install each of the outer distance sensors [1] rotated by 180°.

3. In the *"Settings > Profile > Configure boom behaviour"* menu, deactivate the inner distance sensors.



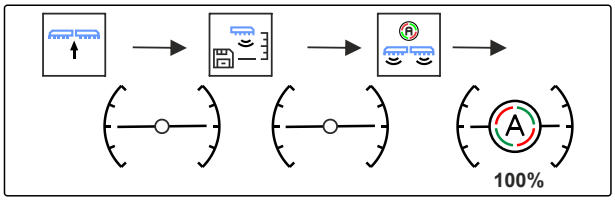
CMS-I-00008981

7.6.6 Adjusting the working height for the automatic boom guidance

CMS-T-00013511-A.1

1. Adjust the working height for the automatic boom guidance on the control terminal.

2. Save the working height.



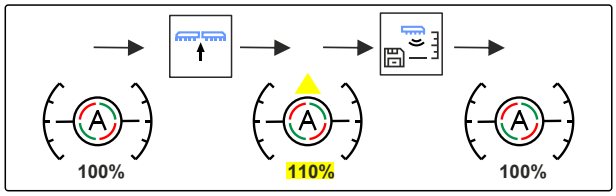
CMS-I-00009092

NOTE

If AmaSelect is being used, the working height is only saved for the active nozzle.

3. In the *"Settings > Profile"* menu > Set the height of the sprayer boom on the headlands.

In *"Automatic"* mode, the working height can be changed.



CMS-I-00009091

4. Adjust the working height by briefly pressing the button.

➡ Each time the button is pressed, the height of the boom guidance is increased or reduced by 10%.

➡ The working height remains at the set value as long as *"Automatic"* mode is active.

NOTE

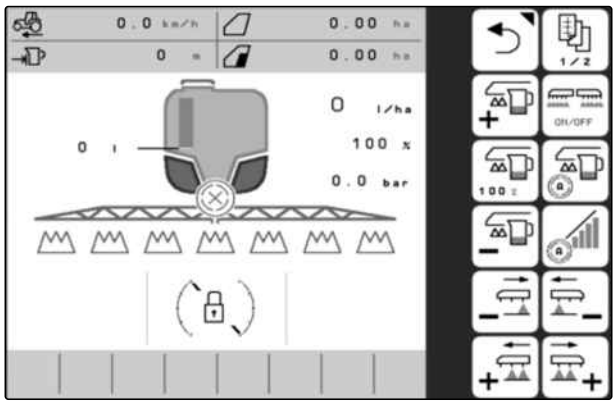
To briefly lift the boom, press and hold the button a bit longer. The boom is then lowered again automatically.

5. Continue working with the changed working height.

6. Save the changed working height if necessary.

7.6.7 Applying the spray liquid

CMS-T-00013512-A.1



CMS-I-00008980

1. Run the spray liquid pump.

2. Switch on the border nozzles, end nozzles or auxiliary nozzles as required.

3. ON/OFF Start the spraying procedure on the control terminal.

NOTE

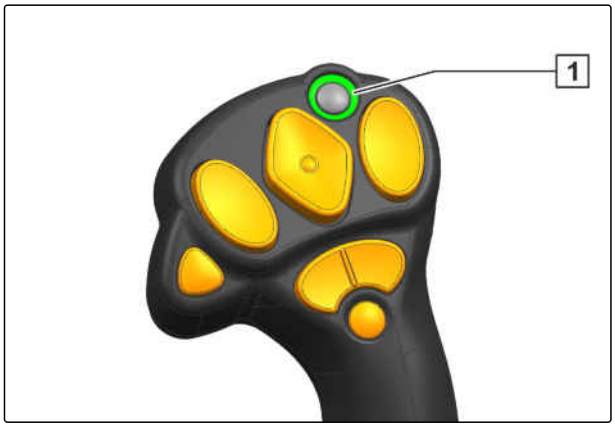
If the spray pressure suddenly drops considerably, the spray liquid tank is empty.

Residual quantities in the spray liquid tank can still be properly applied up to a pressure drop of 25%.

7.6.8 AmaPilot+ multi-function stick

CMS-T-00005800-C.1

The implement functions can be executed using the AmaPilot+. AmaPilot+ is an AUX-N control element with freely selectable button assignment. A default button assignment is pre-configured for every Amazone ISOBUS implement. The functions are spread over 3 levels and can be selected by pressing with your thumb. The standard level is loaded when starting the implement. The illuminated ring **1** is lit green.



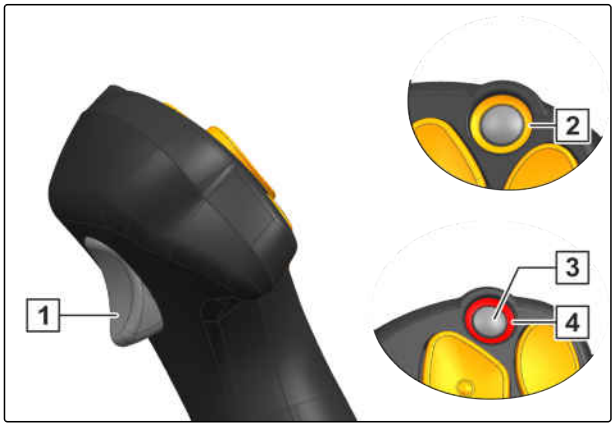
CMS-I-00004071

1. Hold the button **1**.

➡ Level 2 is active, the illuminated ring **2** is lit orange.

2. Press the button **3**.

➡ Level 3 is active, the illuminated ring **4** is lit red.



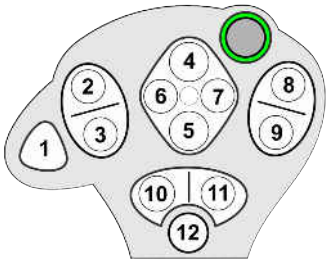
CMS-I-00004072

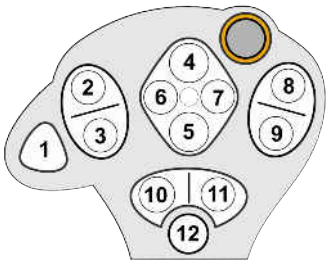
7.6.9 Using the AmaPilot+ multi-function stick

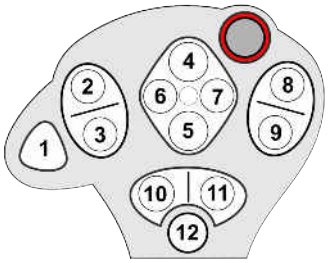
CMS-T-00013903-A.1

NOTE

The tables show the default assignment of the AmaPilot+. Multi-function sticks with free assignment can be assigned with the desired function on the control terminal.

Number	Symbol	Function	Level 1
1	ON/OFF	Starting and stopping application of the spray liquid	
2		Switch on part-width section on the left	
3		Switch off part-width section on the left	
4		Increase the application rate	
5		Reduce the application rate	
6		Edge nozzle on the left	
7		Edge nozzle on the right	
8		Switch on part-width section on the right	
9		Switch off part-width section on the right	
10		Steer the rear-wheel steering to the left	
11		Steer the rear-wheel steering to the right	
12		Switch between front-wheel steering and four-wheel steering	

Number	Symbol	Function	Level 2
1		DistanceControl mirroring the boom	
2		Angle-up boom section on the left	
3		Angle-down boom section on the left	
4		Lift the boom	
5		Lower the boom	
6		Tilt boom to the right	
7		Tilt boom to the left	
8		Angle-up boom section on the right	
9		Angle-down boom section on the right	
10		Steer the rear-wheel steering to the left	
11		Steer the rear-wheel steering to the right	
12		Switch between front-wheel steering and four-wheel steering	

Number	Symbol	Function	Level 3
1		Lock and unlock the vibration compensation	
2		Unfold boom on the left	
3		Fold boom on the left	
4		Lift the boom	
5		Lower the boom	
6		Fold boom	
7		Unfold boom	
8		Unfold boom on the right	
9		Fold boom on the right	
10		Steer the rear-wheel steering to the left	
11		Steer the rear-wheel steering to the right	
12		Switch between front-wheel steering and four-wheel steering	

1. Start working with the default assignment

   or

   Configure the assignment on the control terminal.

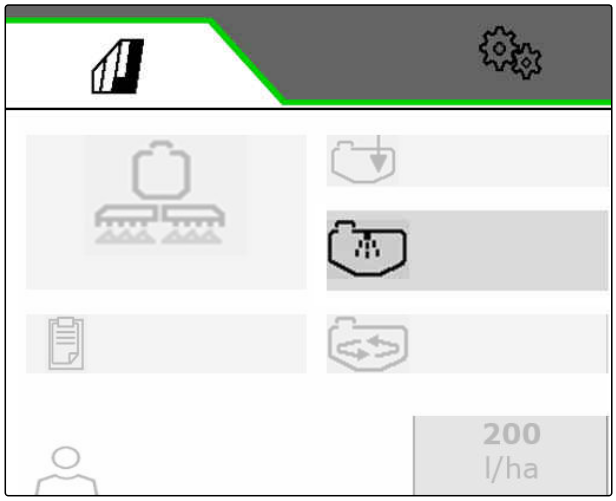
2. Actuate the desired function.

7.7 Briefly interrupting work

CMS-T-00014204-A.1

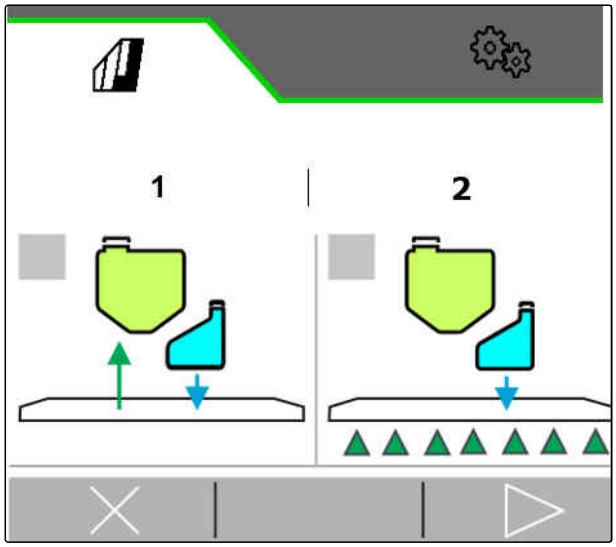
Before brielfy interrupting work, the boom must be flushed and the suction filter and pressure filter must be cleaned.

1. On the control terminal, select the *"Cleaning"* menu.



CMS-I-00007717

2. Select *"Flush boom"*.
3. *To flush the nozzles:*
   Mark *"Apply the spray liquid"* and apply the flushing water on an untreated area.
4.  Flush the boom.
5.  Stop flushing.



CMS-I-00008032

6. Put the sealing cap on the suction coupling.
7. Select the *"Cleaning"* menu on the TwinTerminal.
8. *To start the suction filter cleaning:*
   Select  on the TwinTerminal.


CMS-I-00009073

➡  The ventilation valve can be actuated.

9. Actuate the ventilation valve for 20 seconds.

➡ The contents of the filter cup are suctioned out.

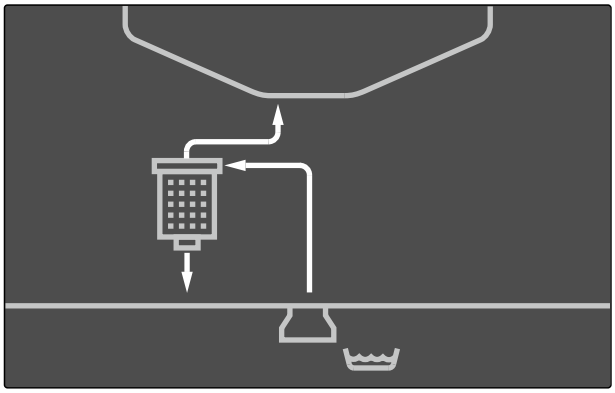
➡  The suction filter can be removed.

10. Take out the suction filter and confirm on the TwinTerminal.

11. Reinstall the cleaned suction filter and confirm on the TwinTerminal.

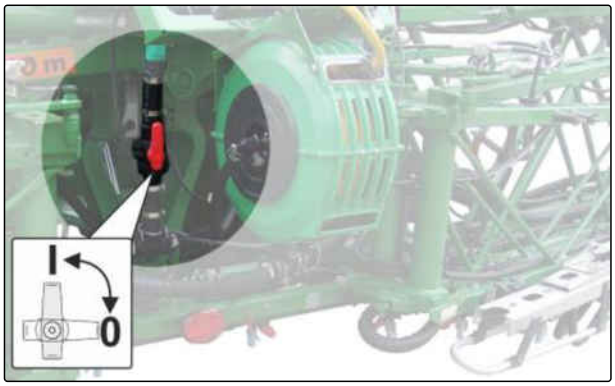
12. *To stop the suction filter cleaning:*

    Select on the TwinTerminal.



CMS-I-00009072

13. With single nozzle control, close the return flow stop tap on the sprayer boom (Position 0).



CMS-I-00009016

14. *To start the pressure filter cleaning:*

    Select on the TwinTerminal.

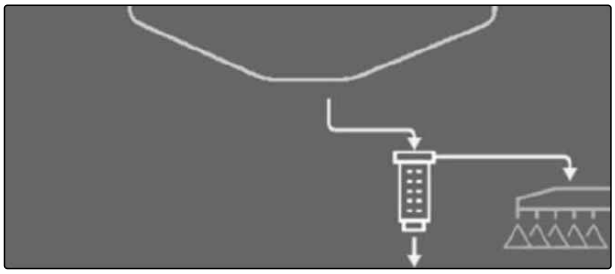
15. *To switch off the spray liquid pump:*

    Select on the TwinTerminal.

16. Confirm on the TwinTerminal.

17. Place a collection bucket under the drain RM and confirm on the TwinTerminal.

18. Wait for 5 seconds until the pressure filter is drained.



CMS-I-00009150

19. Confirm on the TwinTerminal.

20. Remove the pressure filter and confirm on the TwinTerminal.

21. Reinstall the cleaned pressure filter and confirm on the TwinTerminal.

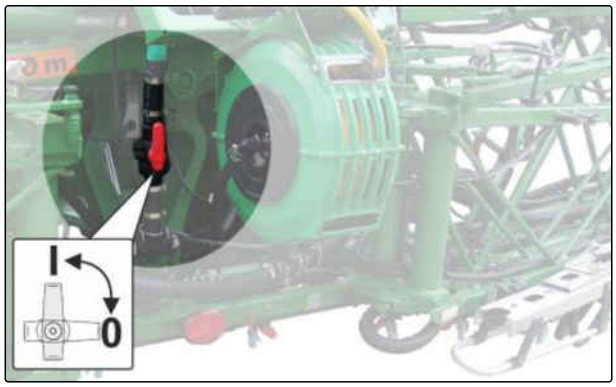
22. *To stop the pressure filter cleaning:*

    Select on the TwinTerminal.

NOTE

Only with HighFlow: The separate HighFlow compressed air filter cannot be removed and cleaned when the spray liquid tank is full.

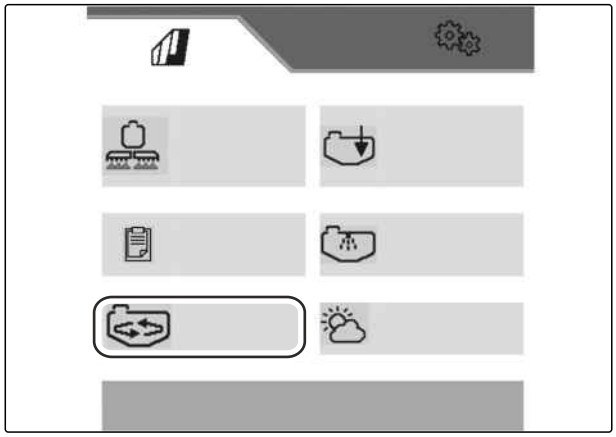
23. With single nozzle control, open the return flow stop tap on the sprayer boom (Position 1).



CMS-I-00009016

24. *To resume working:*
Run the spray liquid pump.

25. On the control terminal, select the *"Agitation"* menu and stir the spray liquid at the maximum agitation level for 5 minutes.



CMS-I-00009033

7.8 Emptying the spray liquid via the spray liquid pump

CMS-T-00014313-A.1

1. Couple a suitable emptying hose from the external tank to the machine-side emptying connection.

2. Run the spray liquid pump.

3. Select the "Spray liquid tank" menu on the TwinTerminal.

4. *To start the quick emptying:*
   Select  on the TwinTerminal.

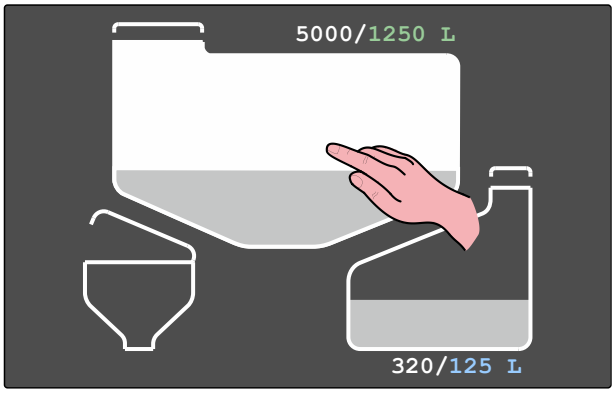
5. On the TwinTerminal, confirm that the machine-side emptying connection is correctly connected to the external tank and can hold the liquid volume.

6. *To stop the quick emptying:*
   Select  on the TwinTerminal.

➡ The valve is closed.

7. Interrupt the spray pump drive.

8. Uncouple the emptying hose.



CMS-I-00009112

7.9 Diluting and spraying out the residual quantity

CMS-T-00013852-A.1

ENVIRONMENTAL INFORMATION

Environmental damage due to overdosing of spray liquid

► *To avoid overdosing due to undiluted residues:*
Spray the undiluted residues on an untreated area.

1. Run the spray liquid pump.

2. On the control terminal, select the Cleaning menu.

3.  Dilute the spray liquid with flushing water.

4. *When the required quantity of flushing water has been filled:*
    End dilution.

CMS-I-00007717

5. Stop the spraying procedure on the control terminal.

6. Read the technical residue in the spray line from the technical data.

7. Calculate the distance travelled.

Designation	Unit	Description
F	m	Required travelled distance
M	l/ha	Application rate
B	m	Working width
R	l	Undilutable residual quantity

$$F = \frac{10.000 \cdot R}{M \cdot B}$$

$$F = \frac{\quad}{\quad}$$

$$F = \quad m$$

CMS-I-00007752

8. Switch off the agitator.

9. Start the spraying procedure on the control terminal.

10. Spray out the undiluted spray liquid from the spray line on an untreated remaining area.

11. Spray diluted spray liquid onto the treated area.

12. Stop the spraying procedure on the control terminal.

13. Clean the implement.

7.10 Cleaning the field sprayer on the field

CMS-T-00014314-A.1

Perform the cleaning of the spray liquid circuit, the spray lines and the nozzles while driving on the field, since cleaning water is applied intermittently. You can clean the machine in the courtyard if you have a collecting facility, e.g. a Biobed.

A distinction is made between quick cleaning and intensive cleaning:

- Quick cleaning must be performed daily.
- Intensive cleaning must be performed before critical agent changes or before the machine is out of operation for a longer period of time.

REQUIREMENTS

- ⊘ The flushing water tank must be filled.
- ⊘ The spray liquid tank must be empty.

1. Run the spray liquid pump.
2. On the control terminal, select the *"Cleaning"* menu.
3. In the *"Cleaning"* menu, select *"Intensive cleaning"* or *"Quick cleaning"*.

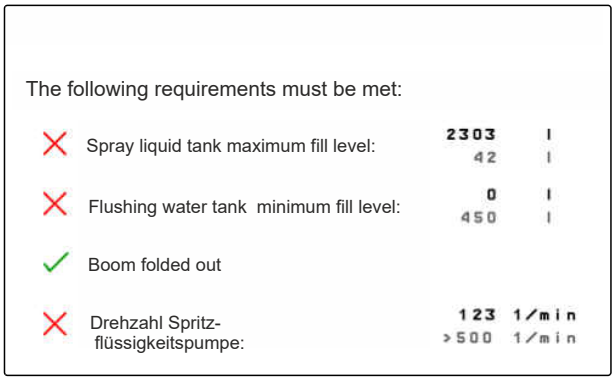
CMS-I-00007717

NOTE

The intensive cleaning procedure takes approx. 15 minutes.

During intensive cleaning, cleaning water is sprayed onto the field automatically three times.

4. *To check the conditions for cleaning:*
   Compare the setpoints and actual values.



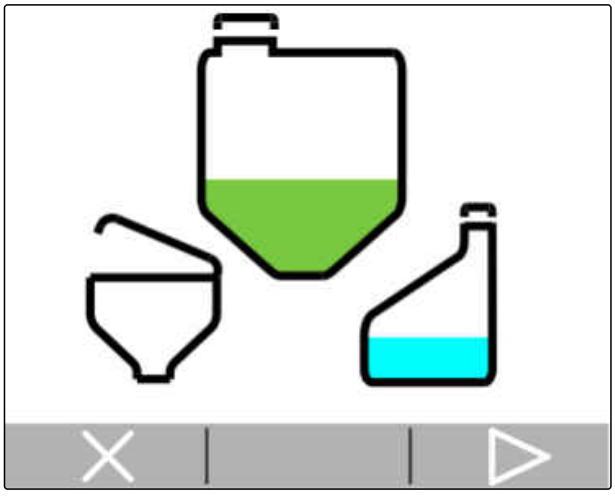
CMS-I-00007728

5. Start the cleaning procedure.
6. Enter the quantity of flushing water required for cleaning.

➡ The agitator is flushed and the tank internal cleaning is switched on.

7. Confirm and start driving at the same time.

➡ The cleaning water is sprayed out. Spraying operation is switched on and off several times.


CMS-I-00007723

8. *To start the residual emptying:*
   Select  on the TwinTerminal.

9. Place a collection bucket under the drain valve and confirm on the TwinTerminal.

10. On the TwinTerminal, confirm that the spray liquid pump is switched off.

11. *To stop the residual emptying:*
    Select  on the TwinTerminal.

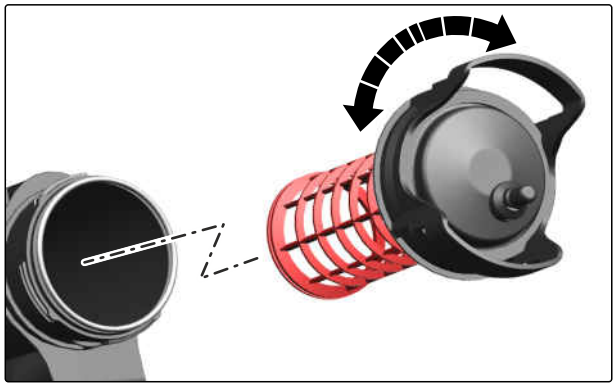
CMS-I-00009109

12. Take out the suction filter.

13. Clean the suction filter with water.

14. Grease the O-rings.

15. Reinsert the suction filter.



CMS-I-00007731

16. Unscrew the pressure filter.

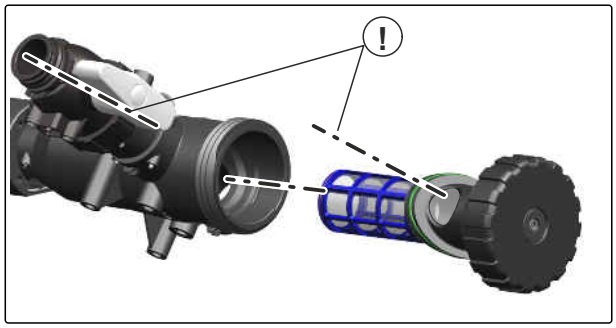
17. Clean the pressure filter with water.

18. Grease the O-rings.

19. *To ensure that the opening of the filter mount is flush with the connection fitting:*
    Insert the pressure filter properly.

20. Screw the pressure filter back in.

21. With intensive cleaning, clean the nozzle filters and the line filters.



CMS-I-00007730

22. Place a collection bucket under the end of the hose in front of the right rear wheel.

23. Drain the HighFlow pressure filter.

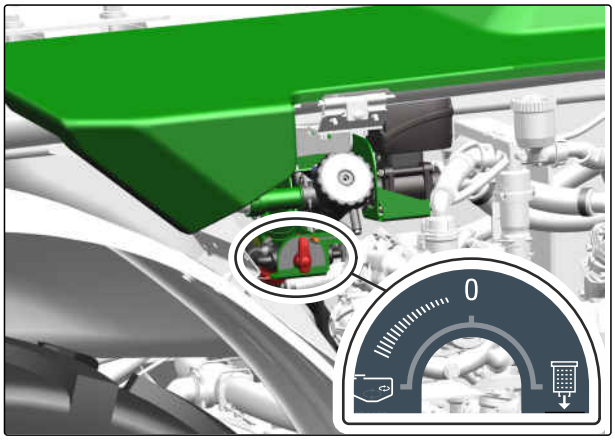
24. Unscrew the HighFlow pressure filter.

25. Clean the HighFlow pressure filter with water.

26. Grease the O-rings.

27. *To ensure that the opening of the filter mount is flush with the connection fitting:*
Insert the HighFlow pressure filter properly.

28. Screw the HighFlow pressure filter back in.



CMS-I-00008595

7.11 Cleaning the field sprayer with cleaning additives

CMS-T-00014403-A.1

If there is doubt regarding the cleanliness of the liquid circuit, the machine can be cleaned with cleaning additives. To do so, the following cleaning additives can be used.

Product	Manufacturer
Agro-Quick	Adama
JET CLEAR	Sudau agro
Proagro Spritzenreiniger	proagro SE

1. Perform an intensive cleaning.

2. Fill the spray liquid tank with 100 l of water and add the cleaning agent according to the instructions provided by the manufacturer

   or

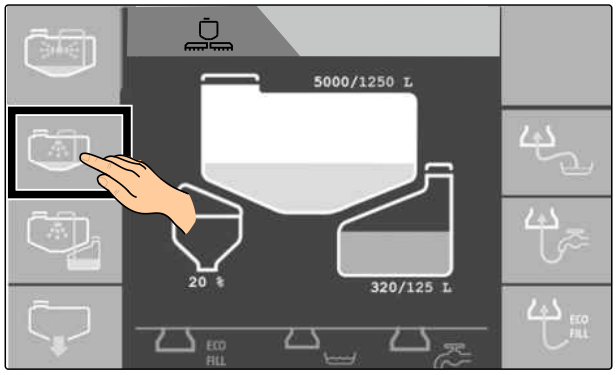
   Fill the spray liquid tank with 200 l of water and flush in the cleaning agent through the induction bowl.

3. Run the spray liquid pump.

4. Select the *"Spray liquid tank"* menu on the TwinTerminal.

5. *To switch on the circulation cleaning:*

   Select  on the TwinTerminal.



CMS-I-00009110

NOTE

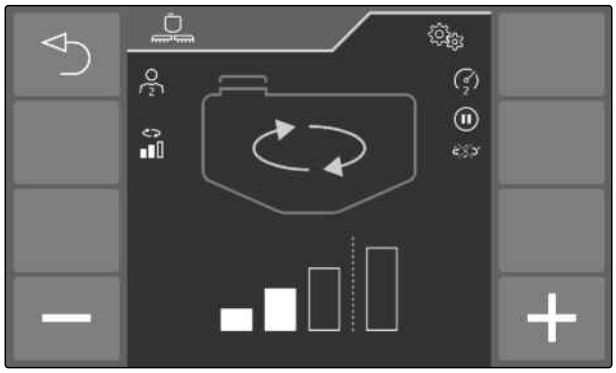
Duration of the circulation cleaning according to the manufacturer's specifications, however, let it run for at least 10 minutes.

6. Select the *"Special functions"* menu on the TwinTerminal.

7. Select the *"Adjust agitator"* menu. Run the agitator at maximum intensity for one minute.

8. Select the *"Work"* menu on the TwinTerminal.

9. Select the *"Spray liquid tank"* menu on the TwinTerminal.



CMS-I-00009111

10. *To stop the circulation cleaning:*

    Select  on the TwinTerminal.

11. Apply the mixture.

7.12 Cleaning the machine with the external wash-down device

CMS-T-00014406-A.1

1. Run the spray liquid pump.

2. Unfold and lower the boom.

3. Select the *"Special functions"* menu on the TwinTerminal.

4. Select the *"Cleaning, winterising"* menu on the TwinTerminal.

5. *To switch on the external cleaning:*

   Select  on the TwinTerminal.

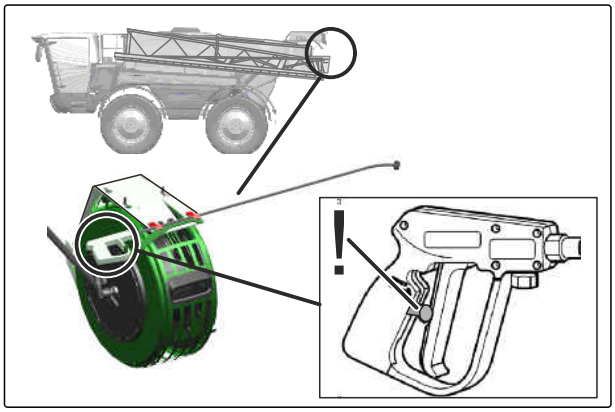
6. Take the spray gun from the holder and release the locking mechanism against unintentional spraying.

7. Clean the field sprayer and the sprayer boom with the spray gun.

8. *To switch off the external cleaning:*

   Select on the TwinTerminal.

9. After using the spray gun, secure it against unintentional spraying using the locking mechanism and put it in the holder.



CMS-I-00008812

7.13 Folding the sprayer boom into transport position

CMS-T-00013849-A.1

WARNING

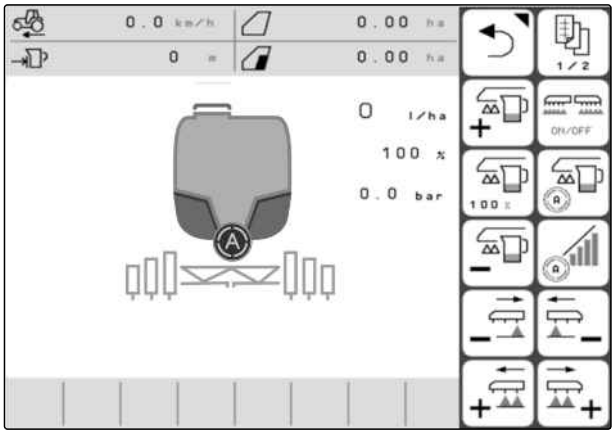
Risk of injury due to electrical shock when the sprayer boom touches overhead power lines

- *Before you fold or unfold the sprayer boom:*
  Make sure that there is enough distance from the overhead power lines.

1. Switch off the automatic boom guidance on the control terminal.

2. Fold the boom completely on the control terminal.

➡ The control terminal shows the transport position.



CMS-I-00008841

7.14 Disconnecting the power supply

CMS-T-00014212-A.1

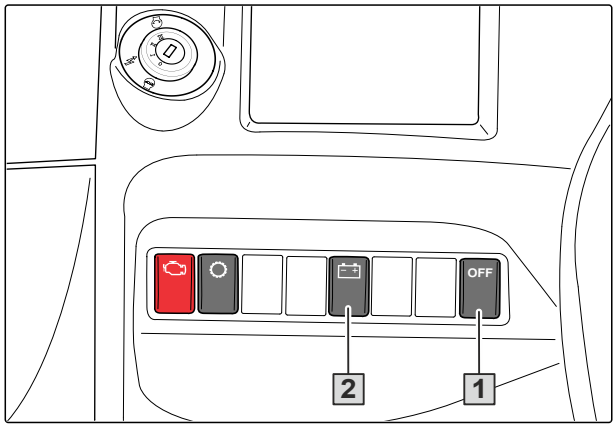
The machine's power supply is automatically interrupted 2 hours after the ignition key is removed.

If, for example, premature disconnection of the power supply is required for maintenance work, then perform the following steps.

1. Switch off the ignition and wait for 2 minutes.
2. Press switches **1** and **2** down simultaneously.

➡ The power supply to the entire machine is interrupted.

3. *To restore the power supply:*
   Switch on the ignition.



CMS-I-00008948

Eliminating faults

8

CMS-T-00013797-A.1

Errors	Cause	Solutions
The engine won't start	The battery is empty	► see page 158
When the traction drive is locked, it is impossible to continue driving	A safety function has locked the traction drive.	► see page 158
Engine control unit error	The engine stops automatically. The control lamp ⚠ is lit and the symbol on the override button is flashing.	► see page 159
Spray liquid is leaking	Leaks in the spray liquid circuit	► see page 159
The spraying nozzles drip	The spraying nozzles are soiled or damaged	► see page 160
The boom guidance is not working correctly	The ultrasonic sensors are not correctly aligned.	► see page 160
The electro hydraulic boom does not folded into transport position	The wiring harness is defective.	► see page 161
Liquid does not emerge from the nozzles	The nozzles are clogged.	► see page 162
Nozzles do not close completely	The nozzle bodies are calcified.	► Eliminate limescale in the system, refer to the Maintenance section.
Liquid does not come out of the nozzles when spraying out during the cleaning procedure	The spray liquid tank was emptied too much the last time it was sprayed out, so that the spray liquid tank now contains no or too little cleaning water.	► *To ensure controlled spraying out during the cleaning procedure:* Reduce the forward speed and/or the target application rate.
The spray liquid pump is not suctioning	Blockage on the suction side with suction filter, filter insert, and suction hose.	► Eliminate blockages.
	The spray liquid pump is suctioning air.	► Check the suction hose for leaks at the suction connection.

Errors	Cause	Solutions
The spray liquid pump has no output	The suction filter with filter insert is soiled.	► Clean the suction filter with filter insert.
	The valves are jammed or damaged.	► Replace the valves.
	The spray liquid pump draws air, can be seen by air bubbles in the spray liquid tank.	► Check the hose connections on the suction hose for leaks.
The spray cone flutters	Spray liquid pump is conveying unevenly.	► Check or replace the valves on the suction and pressure sides.
Oil/spray liquid mixture in the oil filler neck or clearly visible oil consumption	The piston diaphragm of the spray liquid pump is defective.	► Replace all 6 piston diaphragms.
The application rate is not being reached	High forward speed, low pump speed	► Reduce the forward speed and increase the spray liquid pump speed until the error message disappears.
The permissible spray pressure range for the spraying nozzles is not being maintained	The forward speed is outside of the range specified for spraying operation. The spray pressure is therefore higher or lower than permitted for the installed spraying nozzles.	► Adjust the forward speed until the error message disappears.
For Category 4 cab: The minimum cab pressure is not being reached. Contamination of the cab with toxic aerosols or vapours is possible	Filter elements are clogged.	► Stop working. Have the filters replaced by a specialist workshop.
Hydraulic functions run slower	Filter in the hydraulic plug is soilted.	► Clean or exchange the filter in the hydraulic plug.

Starting the engine with an empty battery

CMS-T-00014697-A.1

IMPORTANT

Damage to the drive due to towing

▶ *If the machine battery is empty:*
Use an external battery to start the engine.

▶ Start the engine using an external battery.

Traction drive is locked

CMS-T-00014214-A.1

1. Contact Amazone specialist personnel.

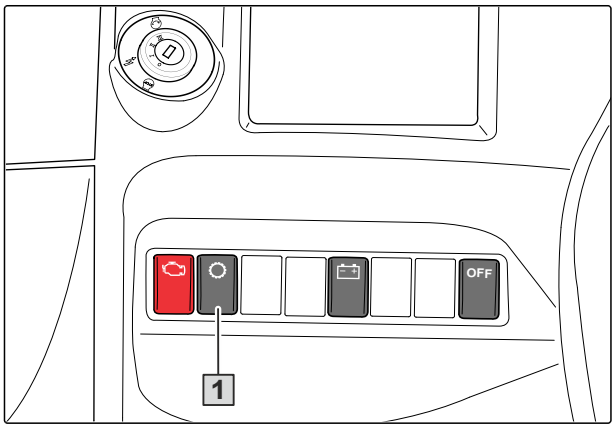
WORKSHOP WORK

2. Check the safety function.
3. Eliminate the error.
4. *To bypass the active safety function:*
   Press the button **1**.

➡ The traction drive is released.

➡ The maximum speed is 10 km/h.

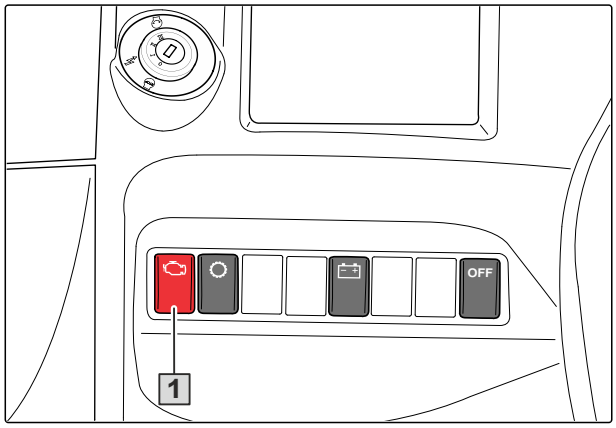
5. Move the machine out of the danger area.



CMS-I-00008949

Engine control unit error

CMS-T-00014213-A.1



CMS-I-00008950

IMPORTANT

Risk of engine damage due to override function

- ▶ Only use the override function to move the machine out of the danger zone.
- ▶ Have any malfunctions on the engine control rectified immediately.

1. Press the override button 1.

➡ The engine can be restarted.

➡ The machine can be driven for 30 seconds.

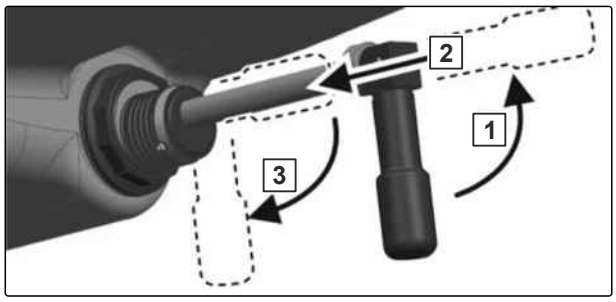
➡ The button can be actuated several times.

WORKSHOP WORK

2. Fix the error on the engine control.

Stopping spray liquid leaks

CMS-T-00014200-A.1



CMS-I-00009135

The stop valve is located underneath the spray liquid tank.

- ▶ Unlock the stop valve 1, push it in 2 and lock it 3

  or

  Select  for the suction valve chest or set via the TwinTerminal.

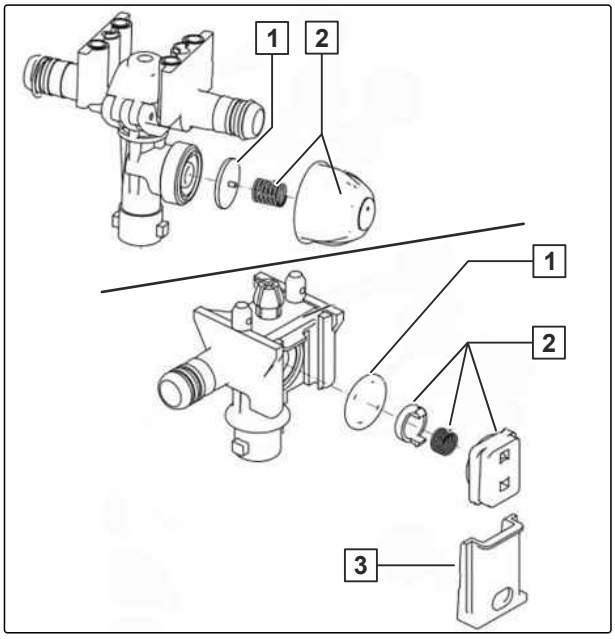
Eliminate dripping of the spraying nozzles

CMS-T-00014696-A.1

WARNING

Risks due to accidental contact with spray liquid

- ► Before working on the nozzle bodies, flush the nozzles with flushing water.



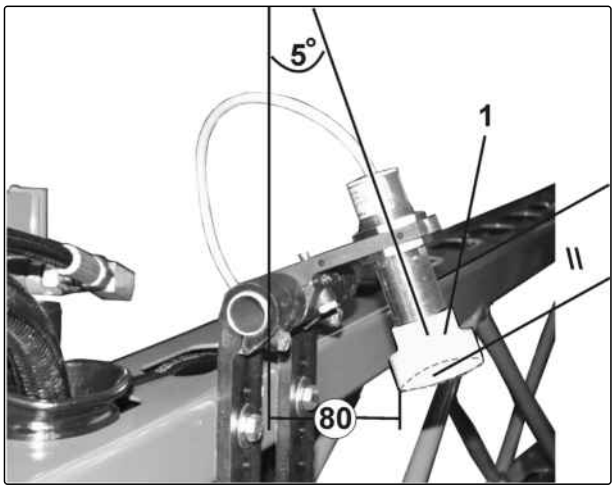
CMS-I-00009343

1. Remove the spring element 2.
2. Take out the diaphragm 1.
3. Clean the diaphragm seat.
4. Check the diaphragm for cracks.
5. Install the diaphragm and spring element.
6. Slide on the nozzle shutter 3 with moderate thumb force.

Aligning the ultrasonic sensors

CMS-T-00014202-A.1

The ultrasonic sensors 1 measure the distance to the ground or to the crop. Incorrectly adjusted ultrasonic sensors cannot measure the distance correctly.

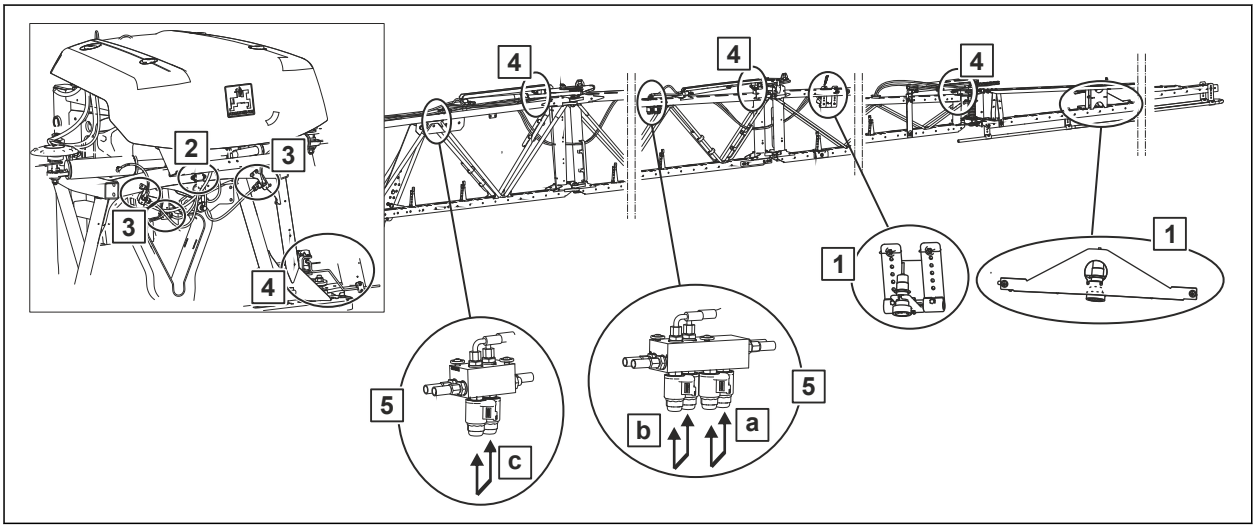


CMS-I-00009032

1. Set the tilt angle from the vertical plane to 5°.
2. Set the distance from the ultrasonic sensor to the boom section to 80 mm.

Emergency folding of the electro hydraulic boom

CMS-T-00014211-A.1



1	Ultrasonic sensors for the boom tilt
2	Yaw rate sensor for the boom tilt
3	Potentiometer for the boom tilt
4	Potentiometer for boom folding
5	Hydraulic block with manual emergency folding function

NOTE

When the electronics are intact, the emergency folding can be triggered via the control terminal, see *"ISOBUS / Settings / Machine"* in the operating manual.

WARNING

Risk of injury due to unexpected movements of the sprayer boom

In automatic mode, the sprayer boom moves when persons enter the sensing range of the ultrasonic sensors.

- ► *If the automatic boom guidance is switched on:*
  Lock the sprayer boom before you leave the cab.

If the wiring harness is defective, the outer boom sections can be hydraulically folded by manual actuation of the hydraulic block 5.

1. Switch on the control terminal.

2. Activate oil circulation.
3. Press the button on both solenoids **a**.

➡ The outer boom section is folded.

4. Press the button on both solenoids **b**.

➡ The second boom section from the outside is folded.

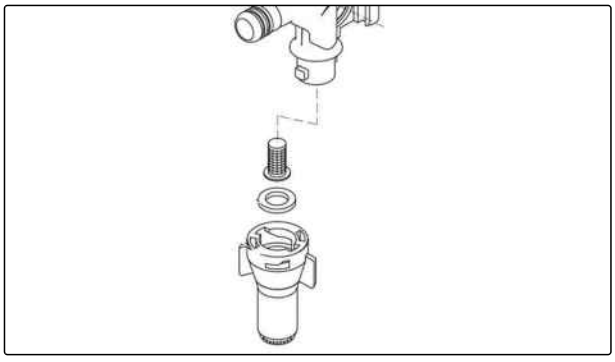
5. Press the button on both solenoids **c**.

➡ The third boom section from the outside is folded.

Eliminating blockages in the nozzles and nozzle filters

CMS-T-00014201-A.1

1. ON/OFF Stop the spraying procedure on the control terminal.
2. Flush the sprayer boom and apply the flushing water.
3. Stop the machine.
4. Lift the sprayer boom to a nozzle height of 1.5 m.
5. Lock the boom guidance.
6. Switch off the engine.
7. Secure the machine.
8. Wear personal protective equipment.
9. Unscrew the bayonet cap with the nozzle.
10. Take out the rubber seal and the nozzle filter.



CMS-I-00009099

11. Insert a new nozzle and a new nozzle filter

    or

    Clean the nozzle and the nozzle filter with compressed air.

12. Insert the nozzle filter and the rubber seal.

13. Install the bayonet cap with the nozzle.

Repairing the machine 9

CMS-T-00014587-A.1

9.1 Protecting the machine against frost

CMS-T-00014588-A.1

9.1.1 Protecting the spraying technology against frost

CMS-T-00014407-A.1

WARNING

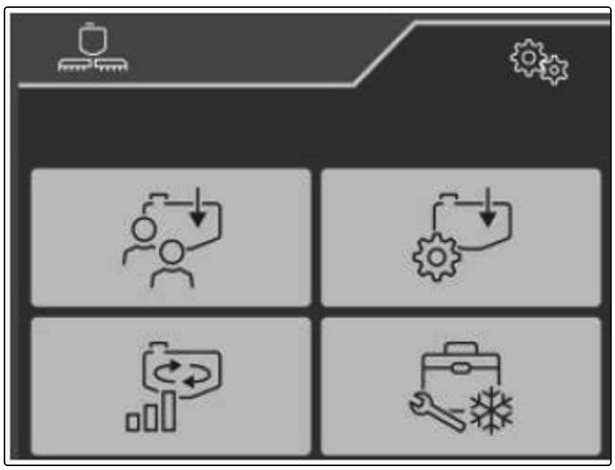
Risk of machine damage due to frost

- ▶ Observe the following instructions.

NOTE

Winterising is a partially automated process that is performed via the TwinTerminal CP Plus.

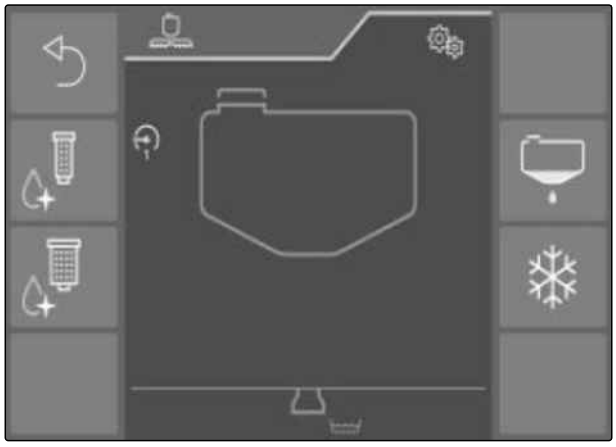
1. Unfold the sprayer boom.
2. Clean the machine intensively.
3. Empty the flushing water tank.
4. Select  for switch tap QU.
5. Select the *"Special functions"* menu on the TwinTerminal.
6. Select the *"Cleaning, winterising"* menu on the TwinTerminal.



CMS-I-00009149

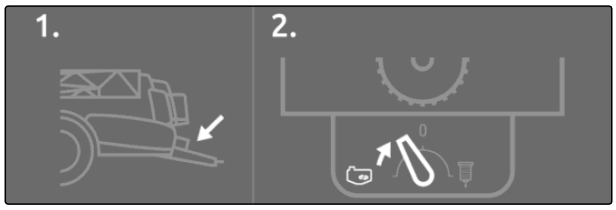
7. *To start the winterising:*

   Select ❄ on the TwinTerminal.



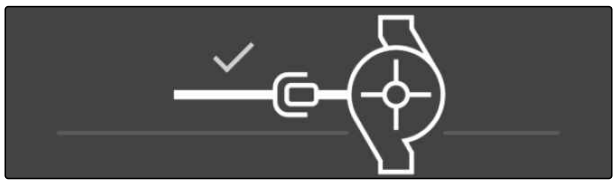
CMS-I-00009151

8. Only with HighFlow: Run the secondary agitator at maximum intensity and confirm on the TwinTerminal.



CMS-I-00009148

9. Drive the spray liquid pump and confirm on the TwinTerminal.

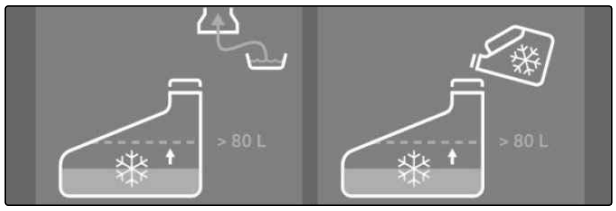


CMS-I-00009159

10. Select the filling option and confirm on the TwinTerminal.

11. Connect the suction hose to the suction connection. Put it in a tank with antifreeze and confirm on the TwinTerminal.

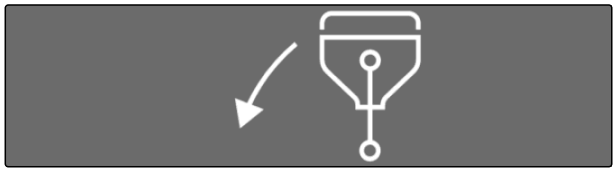
12. Fill at least 80 l of antifreeze containing propylene glycol through a suction hose or through the filling opening and confirm on the TwinTerminal.



CMS-I-00009153

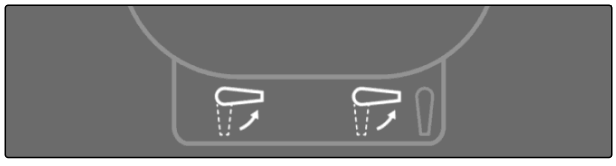
➡ The volume of 80 l of antifreeze is shown.

13. Lower the induction bowl and confirm on the TwinTerminal.



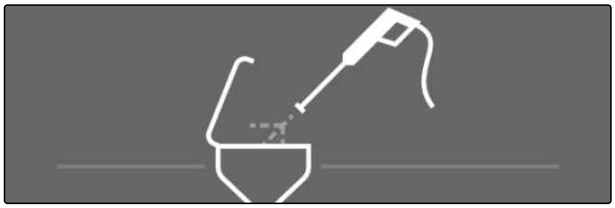
CMS-I-00009164

14. Move the switch taps on the induction bowl to the indicated position and confirm on the TwinTerminal.



CMS-I-00009163

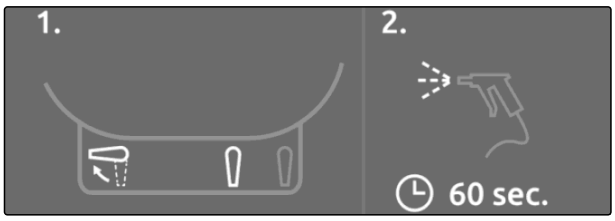
15. Flush the spray lance for the external cleaning for 60 seconds over the induction bowl and confirm on the TwinTerminal.



CMS-I-00009165

16. Move the switch taps on the induction bowl to the indicated position and confirm on the TwinTerminal.

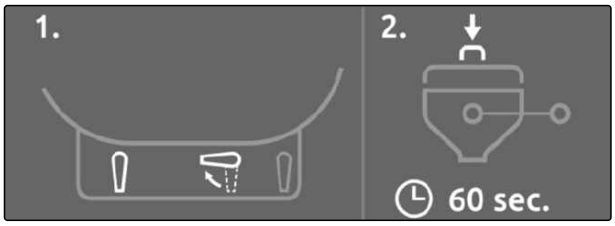
17. Flush the spray pistol for the external cleaning for 60 seconds over the induction bowl and confirm on the TwinTerminal.



CMS-I-00009166

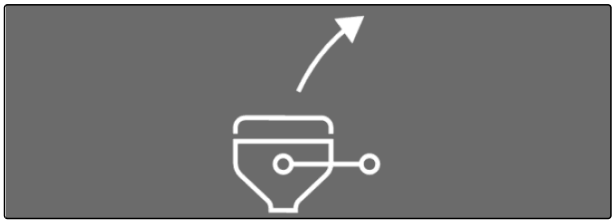
18. Move the switch taps on the induction bowl to the indicated position and confirm on the TwinTerminal.

19. Run the internal cleaning of the induction bowl for 60 seconds and confirm on the TwinTerminal.



CMS-I-00009168

20. Lift the induction bowl and confirm on the TwinTerminal.

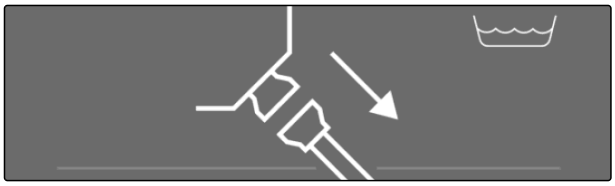


CMS-I-00009167

21. Drain the pressure filling and confirm on the TwinTerminal.

CMS-I-00009160

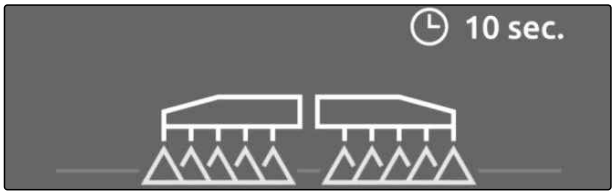
22. Remove the suction hose or cap from the suction connection and confirm on the TwinTerminal.



CMS-I-00009154

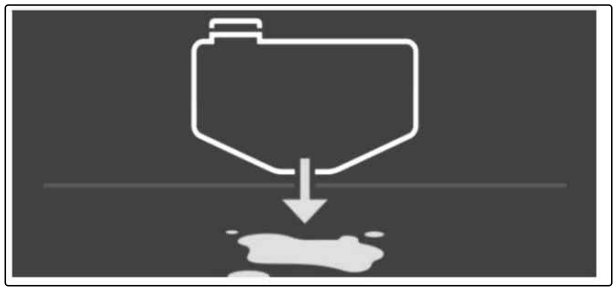
23. Make sure that nobody is standing in the spraying area of the machine and confirm on the TwinTerminal.

➡ Automatic flushing of the nozzles starts after 10 seconds.



CMS-I-00009146

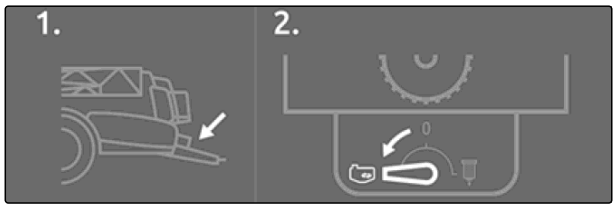
24. Before automatic emptying of the spray liquid tank, place a suitable collection bucket underneath and confirm on the TwinTerminal.



CMS-I-00009147

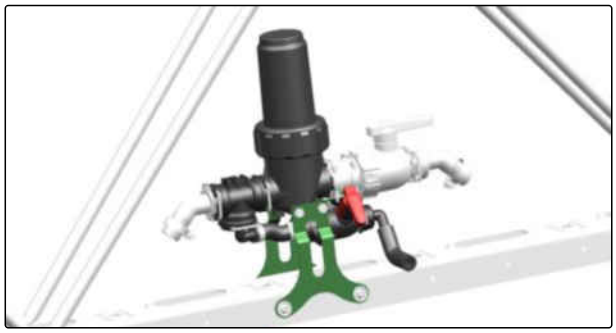
25. Only with HighFlow: switch the secondary agitator back off and confirm on the TwinTerminal.

26. Switch off the spray liquid pump.



CMS-I-00009162

27. Empty the water remaining in the line filter drain with the drain tap.



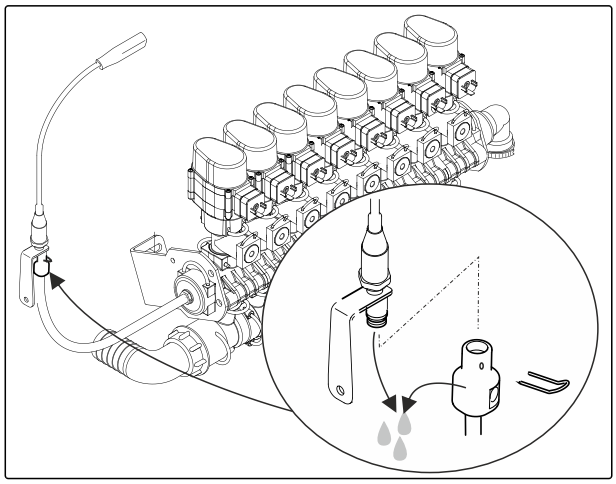
CMS-I-00009035

28. *To drain the HighFlow pressure filter:*

    Select  for the switch tap under the folding cover on the right side of the machine and allow the spray line to run completely empty.

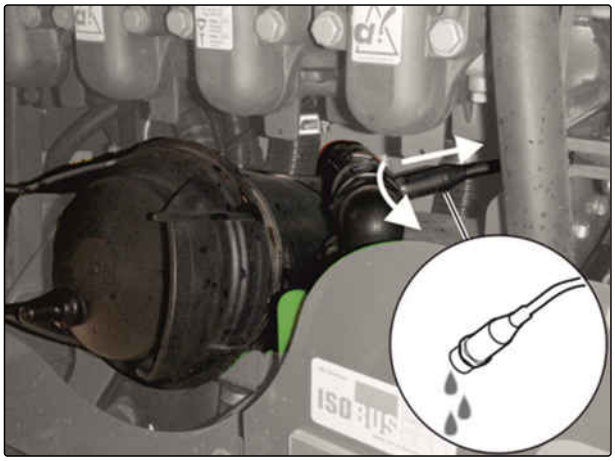
29. Remove the HighFlow pressure filter and clean it.

30. *To drain the pressure sensor on the Super-L boom:*
    Remove the adapter from the pressure sensor, drain the pressure sensor and reinstall the adapter.



CMS-I-00009036

31. *To drain the pressure sensor on the agitator on the control panel:*
Screw off the pressure sensor, drain it, and screw it back on.



CMS-I-00009037

32. *To drain the pressure sensor for the flushing water tank underneath the flushing water tank:*
Screw off the pressure sensor, drain it, and screw it back on.

33. Collect some of the sprayed-out liquid. Check that it contains enough antifreeze.

34. *If there is not enough antifreeze:*
Add more antifreeze and repeat the procedure.

35. Reuse the mixture of antifreeze and spray liquid

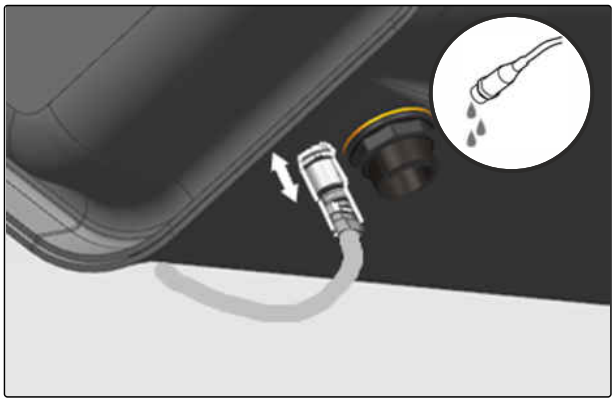
    or

    Dispose of it correctly.

36. Drain the hand wash facility and leave the tap open.

37. Store the pressure gauge and any other electronic accessories in a place where they are safe from frost.

38. Perform an oil change on the spray liquid pumps before recommissioning.



CMS-I-00009038

9.1.2 Protecting the vehicle against frost

CMS-T-00014278-A.1

No warranty coverage for corrosion damage caused by storage.

1. Completely fill the DEF tank.

2. Treat all chromium-plated components with corrosion protection: the piston rods of the hydraulic cylinders, the main shaft of the track width adjustment and the height adjustment.

3. Remove the battery. The battery is located under the cab behind the right-hand maintenance flap.

NOTE

Install the charged battery before operation.

Take off the battery clips for quick charging on the vehicle.

Refer to the operating manual for the Deutz engine.

9.2 Having the field sprayer inspected

CMS-T-00014279-A.1

9.2.1 Having the field sprayer inspected

CMS-T-00011844-A.1

The machine is subject to the European Union universally applicable regular field sprayer inspections (Crop Protection Directive 2009/128/EC and EN ISO 16122).

The date for performing the next inspection is written on the test badge on the machine.

The field sprayer inspection must be performed at the latest 6 months after initial operation and must be repeated every 2 years.

CMS-I-00007676

▶ Have the field sprayer inspected at regular intervals by a recognised and certified inspection workshop.

9.2.2 Having the spray liquid pump checked

CMS-T-00014594-A.1

Test kit for the spray liquid pump:

1 O-ring, order number: FC149

2 Hose connection, order number: GE042

3 Union nut, order number: GE022

4 O-ring, order number: FC468

5 Hose connection, order number: ZF1395

CMS-I-00007674

The pumps are located under the cover on the right side of the machine. The spray liquid pump is at the front, the agitator pump at the rear.

1. Loosen the union nut.
2. Put on the hose connection.
3. Run the spray liquid pump.

9.2.3 Having the flow meter checked

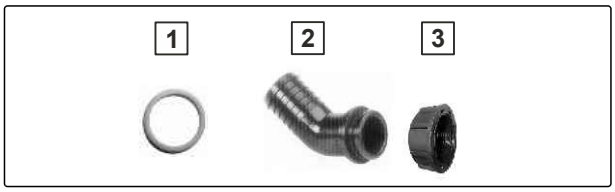
CMS-T-00014595-A.1

Test kit for the flow meter:

1 O-ring, order number: FC122

2 Hose connection, order number: GE095

3 Union nut, order number: GE021

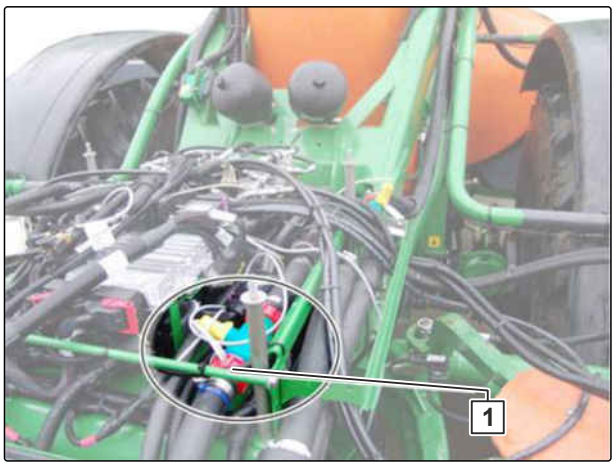


CMS-I-00007675

DUS pro single nozzle control:

The flow meter 1 is located on the right on the boom valve chest.

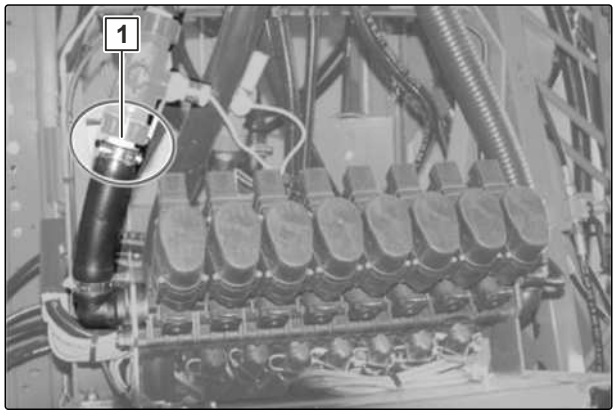
1. Loosen the union nut behind the flow meter.
2. Fasten the plug-in socket with order number: 919345 with the union nut.
3. Connect the testing device.
4. Switch on spraying.



CMS-I-00009344

Part-width section valve chest:

The flow meter 1 is located on the boom valve chest on the left beside the part-width sections.



CMS-I-00009345

5. Loosen the union nut behind the flow meter.
6. Fasten the plug-in socket with order number: 919345 with the union nut.
7. Connect the testing device.
8. Switch on spraying.

9.2.4 Having the spray pressure checked

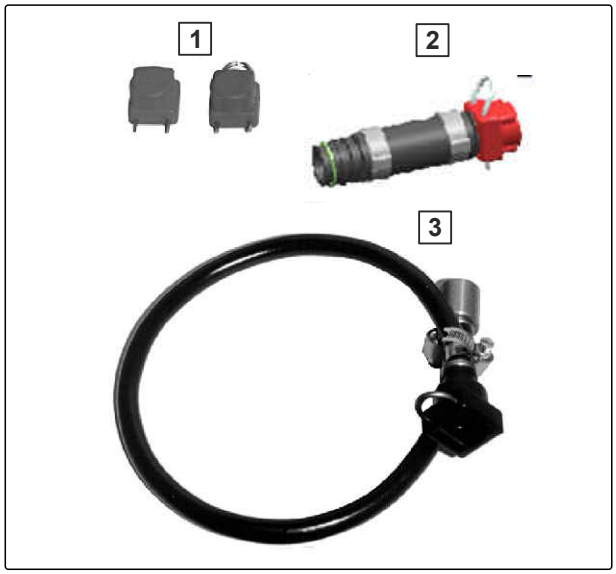
CMS-T-00014596-A.1

Test kit for pressure measurement:

1 Slip-on cap, order number: 913954 and plug, order number: ZF195

2 Blind hose, order number: 116059

3 Pressure gauge connection, order number: 7107000



CMS-I-00007673

▶ Measure the pressure on the nozzles.

9.3 Eliminating limescale in the system

CMS-T-00014280-A.1

WARNING

Health risk due to contact with acidification agents

▶ Follow the instructions from the manufacturer.

Indications of limescale in the system:

- The nozzle body does not open or close
- Error messages on the control terminal

Limescale must be eliminated with a special acidification product, e.g. PH FIX 5 from Sudau Agro.

1. Clean the empty field sprayer.
2. Fill 20 l to 50 l of water into the spray liquid tank.
3. Run the spray liquid pump.
4. Pour 3 l of acidification agent into the spray liquid tank through the inspection hatch.
5. Allow the mixture to circulate in the spray liquid circuit for 10-15 minutes.
6. Interrupt the pump drive.
7. Allow the mixture to rest for 5 minutes.
8. Dilute the mixture with flushing water until the colour changes to yellow. The mixture is pink at pH < 5, orange at pH 6 and yellow at pH 7.
9. *For machine models with AmaSelect:*
    Without running the pump, use the manual nozzle selection to switch through all nozzle positions.

➡ The diluted mixture is harmless.

9.4 Preparing for welding work

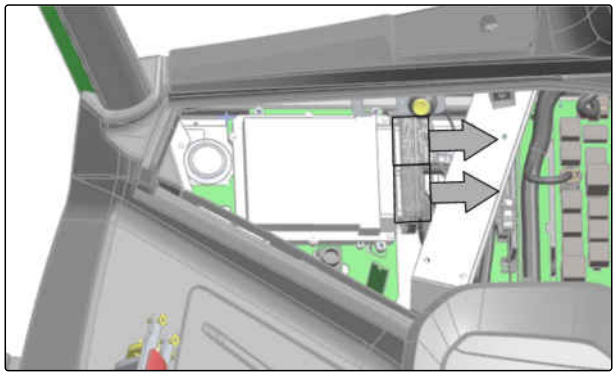
CMS-T-00014612-A.1

Before any welding work, the following measures must be taken.

1. Remove the ignition key.
2. Disconnect the battery.
3. Disconnect the plug for the control terminal.
4. *To de-energise the machine:*
   

   Press both buttons in the cab at the same time.

5. Disconnect the two plugs for the central electrical system control unit under the armrest.



CMS-I-00009285

9.5 Maintaining the implement

CMS-T-00013798-A.1

9.5.1 Maintenance schedule

After initial operation	
Checking the wheels	see page 179
Checking the hydraulic hose lines	see page 182

daily	
Performing maintenance measures E20 on the Deutz engine	see page 175
Checking the engine radiator and hydraulic cooler	see page 178
Checking the oil of the spray liquid pump	see page 187

Every 50 operating hours / weekly	
Checking the wheels	see page 179
Checking the hydraulic hose lines	see page 182
Checking the oil level of the hydraulic oil	see page 183
Checking the fill level of the central lubrication	see page 192

Every 250 operating hours / Every 3 months	
Checking the brake pads	see page 179
Cleaning or changing the standard cab air filter and circulation filter	see page 196
Checking the door and window seals	see page 200
Checking the damping bearings of the cab	see page 201

Every 500 operating hours / Every 6 months	
Putting the air conditioning system into operation after longer periods of standstill	see page 193

Every 1000 operating hours / Every 12 months	
Checking the oil level in the wheel gears	see page 181

9.5.2 Performing maintenance measures E20 on the Deutz engine

CMS-T-00014281-A.1

INTERVAL

- daily

- Check the lubrication oil level. The dipstick is located on the right of the engine.
- Check the coolant level. The expansion vessel for coolant is located on the service platform.
- Perform a visual check of the engine, exhaust system and the exhaust aftertreatment for leaks.
- Empty the water collection tank for the fuel pre-filter. The fuel pre-filter is located at the front right of the engine.

NOTE

If the warning system is triggered, empty the water separator immediately.

▶ Perform the listed maintenance work, refer to the operating manual for the Deutz engine.

9.5 Performing maintenance measures E30 on the Deutz engine

CMS-T-00014282-A.1

WORKSHOP WORK

- Every 500 operating hours

  or

  Every 6 months

▶ Perform maintenance measures E30, refer to the operating manual for the Deutz engine.

9.5 Performing maintenance measures E40 on the Deutz engine

CMS-T-00014283-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

▶ Perform maintenance measures E40, refer to the operating manual for the Deutz engine.

9.5 Performing maintenance measures E50 on the Deutz engine

CMS-T-00014284-A.1

WORKSHOP WORK

- Every 2000 operating hours

  or

  Every 2 years

▶ Perform maintenance measures E50, refer to the operating manual for the Deutz engine.

9.5 Performing maintenance measures E55 on the Deutz engine

CMS-T-00014285-A.1

WORKSHOP WORK

- Every 4000 operating hours

  or

  Every 4 years

▶ Have maintenance measures E55 performed by service personnel that is authorised by Deutz.

9.5 Performing maintenance measures E60 on the Deutz engine

CMS-T-00014287-A.1

WORKSHOP WORK

- Every 6000 operating hours

  or

  Every 4 years

▶ Have maintenance measures E60 performed by service personnel that is authorised by Deutz.

9.5 Performing maintenance measures E70 on the Deutz engine

CMS-T-00014288-A.1

WORKSHOP WORK

- Every 9000 operating hours

  or

  Every 4 years

▶ Have maintenance measures E70 performed by service personnel that is authorised by Deutz.

9.5 Checking the engine monitoring and warning system

CMS-T-00014289-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

▶ Have the engine monitoring and warning system checked by service personnel that is authorised by Deutz.

9.5 Replacing the fuel filter, fuel pre-filter, lubricant and lubricant filter

CMS-T-00014290-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

▶ Replace the fuel filter, fuel pre-filter, lubricant and lubricant filter, refer to the operating manual for the Deutz engine.

9.5 Replacing the dry air filter

CMS-T-00014291-A.1

WORKSHOP WORK

- Every 2000 operating hours

  or

  Every 2 years

▶ Replace the dry air filter, refer to the operating manual for the Deutz engine.

9.5 Replacing the filter insert for the SCR feed pump

CMS-T-00014292-A.1

WORKSHOP WORK

- Every 2000 operating hours

  or

  Every 3 years

▶ Replace the filter insert for the SCR feed pump, refer to the operating manual for the Deutz engine.

9.5 Replacing the cooling system protective agent

CMS-T-00014293-A.1

WORKSHOP WORK

- Every 4000 operating hours

  or

  Every 4 years

► Replace the cooling system protective agent, refer to the operating manual for the Deutz engine.

9.5 Replacing the diesel particle filter

CMS-T-00014294-A.1

WORKSHOP WORK

- as required

► *As soon as a corresponding message appears on the AmaDrive vehicle terminal:*
Replace the diesel particle filter, refer to the operating manual for the Deutz engine.

9.5.3 Checking the engine radiator and hydraulic cooler

CMS-T-00014295-A.1

INTERVAL

- daily

1. Perform a visual check on the engine radiator and the hydraulic cooler for dust and contamination.

Clean the engine radiator and the hydraulic cooler if necessary:

2. Remove the side cover.

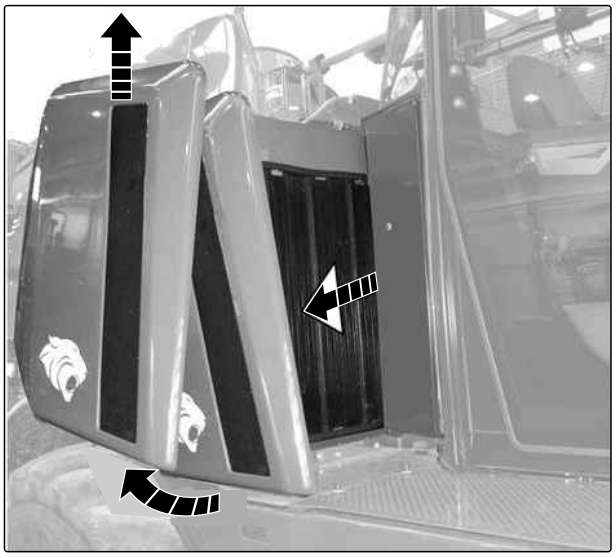
3. Pull the screen outwards.

NOTE

Use compressed air with a maximum of 5 bar for cleaning.

4. Clean the radiator and the condenser to the left and right side of the cab using compressed air.

5. If necessary, clean the screen separately.



CMS-I-00009047

9.5.4 Checking the brake pads

CMS-T-00014296-A.1

INTERVAL

- Every 250 operating hours

  or

  Every 3 months

Test criteria:

- Wear limit: 3 mm
- Damage
- Coarse dirt

1. Check the brake pads.

WORKSHOP WORK

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

9.5.5 Checking the wheels

CMS-T-00014299-A.1

INTERVAL

- After initial operation
- Every 50 operating hours

  or

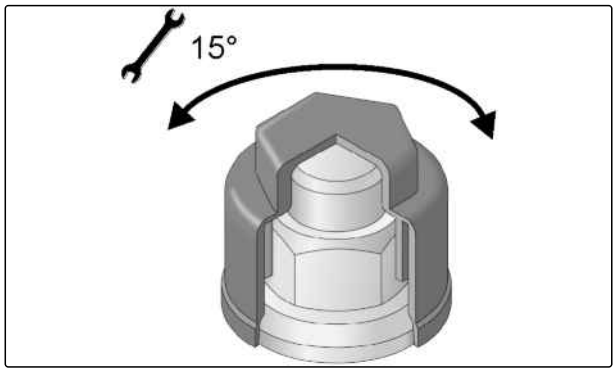
  weekly

Tightening torque of the wheel nuts: 510 Nm

1. Check the tyre inflation pressure according to the specifications on the stickers.

2. Check the tightening torque of the wheel nuts. Retighten the wheel nuts if necessary.

3. Put on the protective caps. Fasten them by turning by 15°.



CMS-I-00009053

9.5 Replacing the wheels or tyres

CMS-T-00014300-A.1

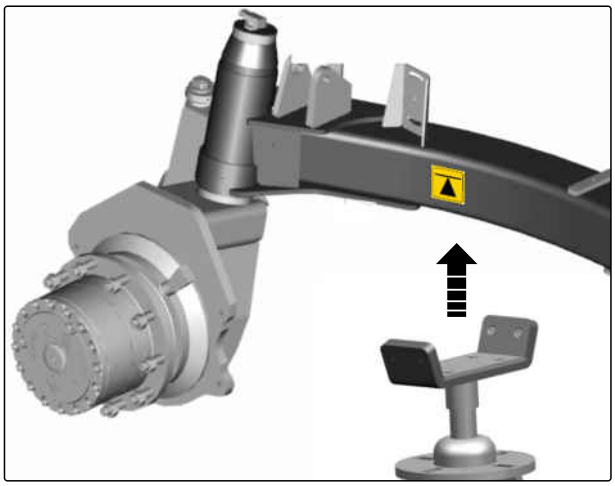
WORKSHOP WORK

- as required

NOTE

The jack must have a minimum load-bearing capacity of 5 t and a U-shaped mount.

The jack may only be positioned under the marked points.



CMS-I-00009052

1. Remove the old wheels.
2. Install the new wheels.
3. *If the new wheels have a different offset than the old ones:*
   Enter the utilised wheels on the AmaDrive vehicle terminal.

NOTE

The offset influences the track width of the machine. The track width must be at least 1,800 mm. Otherwise, the wheels will collide with the running gear and there is a risk of tipping.

9.5 Changing the oil in the wheel gears

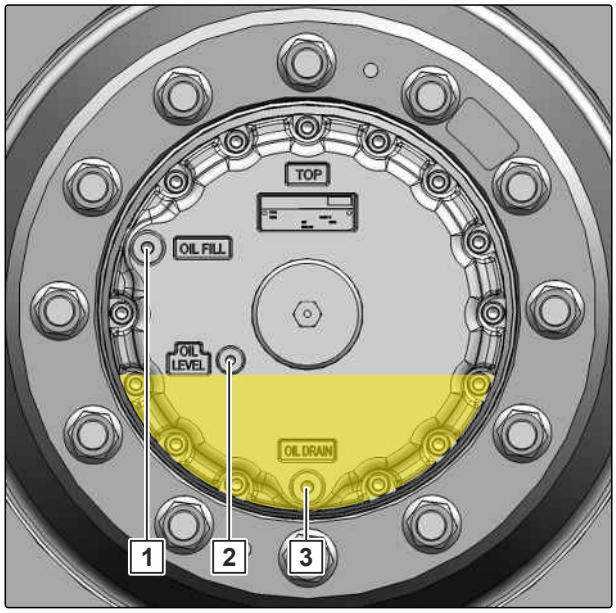
CMS-T-00014301-A.1

WORKSHOP WORK

- After the first 100 operating hours

The quantity of oil required is approx. 1.2 l. The oil change must be performed with warm oil.

1. Park the machine so that the oil drain plug **3** is at the bottom.
2. Place a suitable collection bucket under the oil drain plug.
3. Remove the filling screw **1**, oil level screw **2** and the oil drain plug **3**.
4. Allow the oil to drain out and dispose of it in an environmentally friendly manner.
5. Install the oil drain plug **3**.
6. Through the filling opening, fill in an oil type that corresponds to the technical data up to the oil level control opening **2**.
7. Install the filling screw **1** and the oil level screw **2**.
8. Check the oil level again after a few revolutions of the gears.



CMS-I-00009056

9.5.6 Checking the oil level in the wheel gears

CMS-T-00014302-A.1

INTERVAL

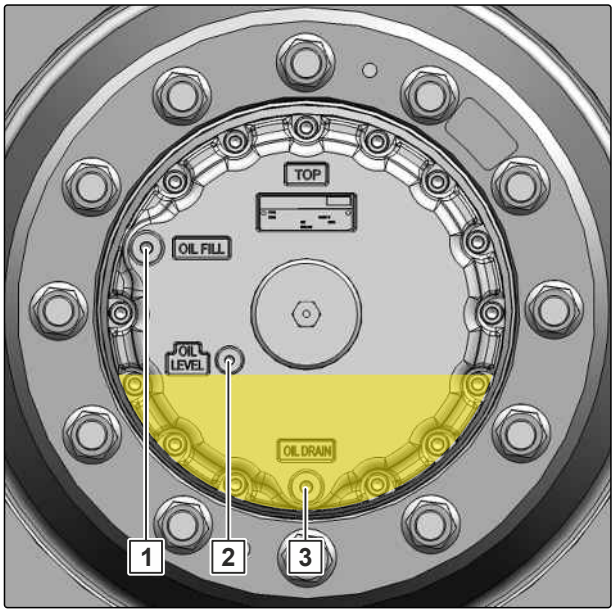
- Every 1000 operating hours

  or

  Every 12 months

The reduction gear unit is a planetary gear and it is coupled to the wheel motors via a coupling part.

1. Park the machine so that the oil drain plug 3 is at the bottom.
2. Remove the oil level screw 2.
3. Check the oil level. The oil level must reach the oil level control opening 2.
4. If necessary, refill in an oil type that corresponds to the technical data through the filling opening 1.



CMS-I-00009056

9.5 Checking the hydraulic accumulator

CMS-T-00014155-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

1. Check the pressure on refillable hydraulic accumulators.
2. Check all hydraulic accumulators for leaks and tight fit.

9.5.7 Checking the hydraulic hose lines

CMS-T-00002331-F.1

INTERVAL

- After initial operation
- Every 50 operating hours

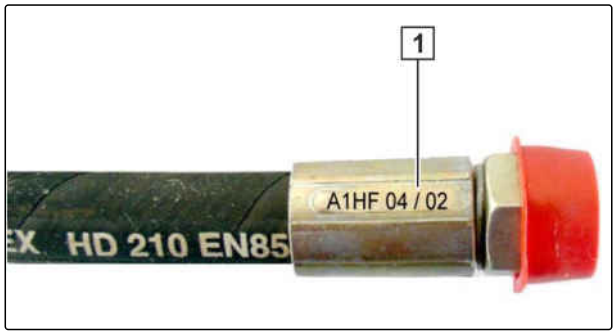
  or

  weekly

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

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

4. Check the manufacturing date 1.



CMS-I-00000532

WORKSHOP WORK

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

9.5.8 Checking the oil level of the hydraulic oil

CMS-T-00014303-A.1

INTERVAL

- Every 50 operating hours

  or

  weekly

If the oil level falls below the minimum measurement or the oil temperature is too high, a warning signal is issued in the cab.

The correct oil level depends on the oil temperature:

- At an oil temperature of 60 °C, the oil level must be in the middle of the sight glass.
- At an oil temperature of 20 °C, the oil level must be in the lower third of the sight glass.

CAUTION

Risk of burns due to hot oil

▶ Be careful.

1. Check the oil level.

2. If necessary, refill in an oil type that corresponds to the technical data through the filling opening on the top side.

CMS-I-00009284

9.5 Changing the hydraulic oil

CMS-T-00014304-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

1. Stop the engine and allow the hydraulic oil to cool sufficiently so that there is no risk of burns.

2. Place a suitable container under the hydraulic reservoir.

3. Remove the oil drain plug on the underside of the hydraulic reservoir.

4. Allow the oil to drain out and dispose of it in an environmentally friendly manner.

5. Install the oil drain plug with a new sealing ring.

6. Fill hydraulic oil according to the technical data up to the bottom third of the sight glass. The sight glass is decisive for the filling quantity.

7. Check the oil level.

8.

CMS-I-00009284

9.5 Checking the hydraulic system

CMS-T-00014305-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

► Check the hydraulic system.

9.5 Replacing the return filter in the oil tank

CMS-T-00014306-A.1

WORKSHOP WORK

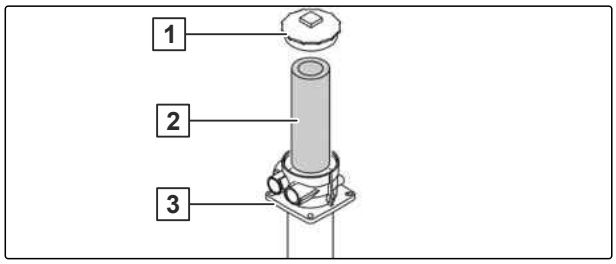
- Every 1000 operating hours

  or

  Every 12 months

The return filter is located in the filling opening of the hydraulic oil tank.

1. Stop the engine and allow the hydraulic oil to cool sufficiently so that there is no risk of burns.
2. Remove the cover **1** from the housing **3**.
3. Replace the return filter **2**.
4. Install the cover.



CMS-I-00009058

9.5 Replacing the hydraulic pump pressure filter

CMS-T-00014307-A.1

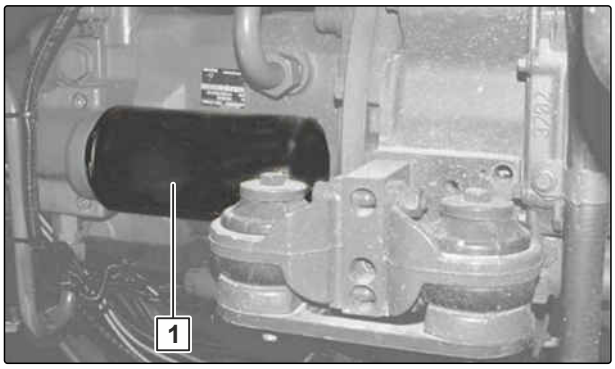
WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

The pressure filter 1 can be changed when the hydraulic oil tank is full. The pressure filter is located at the right on the hydraulic pump.



CMS-I-00009059

1. Stop the engine and allow the hydraulic oil to cool sufficiently so that there is no risk of burns.
2. Loosen the cartridge of the pressure filter with a regular tool and screw is off. Collect any escaping oil.
3. Clean the sealing surface of the filter support.
4. Screw in the cartridge until the seal is in place.
5. Tighten the cartridge by another half a turn.
6. Check the seal for tightness.

9.5 Checking hoses that convey spray liquid

CMS-T-00014316-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

Test criteria:

- Cracks
- Chafing points

- Bulges
- Kinks

1. Check hoses that convey spray liquid.

If one of the damage criteria is met, the hoses conveying spray liquid must be replaced.

2. Clean the spray liquid circuit with flushing water.

3. Depressurise hoses that need to be replaced.

4. Replace the hoses.

5. Install the hose connections pressure-tight.

9.5.9 Checking the oil of the spray liquid pump

CMS-T-00014318-A.1

INTERVAL

- daily

The pumps are located behind the cover on the right side of the machine. The oil level must be checked when the spray liquid pump is standing horizontal and not running.

1. Check the oil for clarity.

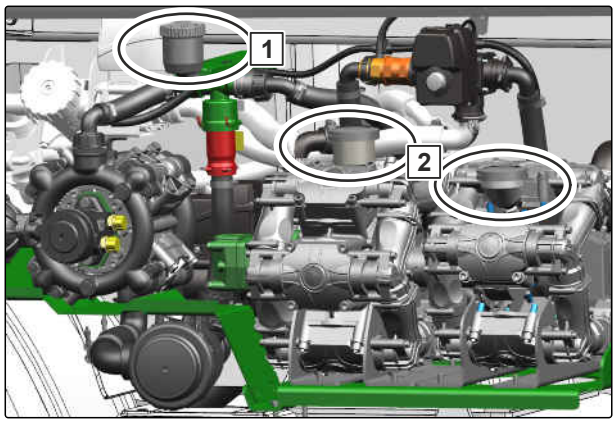
NOTE

Foam formation and cloudy oil are signs of a defective piston diaphragm in the spray liquid pump. In this case, the defective spray liquid pump must not be driven. The piston diaphragms must be replaced.

2. Check the oil level on the sight glasses **2**.

3. With CP plus machine equipment, also check the oil level in the sight glass **1**.

4. *If the oil level is too low:*
Remove the cover. Refill multi-purpose oil 15W40. Install the cover.



CMS-I-00009074

9.5 Changing the oil in the spray liquid pump

CMS-T-00014319-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

WARNING

Risks due to accidental contact with spray liquid

▶ *To avoid contact with spray agent or spray liquid,*
clean the spray liquid pump and other components before removal.

1. Clean the spray liquid circuit of the machine with flushing water.
2. Remove the spray liquid pump.
3. Remove the cover.
4. *To drain the oil:*
   Place a suitable collecting vessel underneath. Turn the spray liquid pump upside down. Turn the drive shaft by hand until the oil has drained out.

NOTE

This procedure is recommended because the oil cannot be completely drained through the drain plug.

5. Set the spray liquid pump on a level surface.
6. Turn the drive shaft left and right alternately. While doing so, slowly fill multi-purpose oil 15W40 up to the mark.
7. Install the cover.
8. Install the spray liquid pump.
9. Check the oil level after one hour of operation.
10.

9.5 Checking the valves of the spray liquid pump

CMS-T-00014320-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

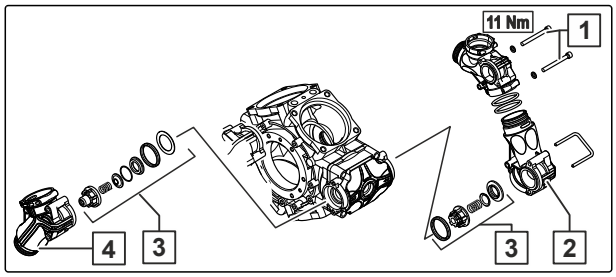
  Every 12 months

WARNING

Risks due to accidental contact with spray liquid

► *To avoid contact with spray agent or spray liquid,*
clean the spray liquid pump and other components before removal.

1. Clean the spray liquid circuit of the machine with flushing water.
2. Remove the spray liquid pump.
3. Remove the bolts 1.
4. Remove the pressure port 4 and the suction port 2.
5. Take out the valve group 3. In doing so, pay attention to the installation position of the suction-side and pressure-side valves.
6. Check the valve, valve seat, valve spring and valve guide for wear and damage.
7. Replace defective parts.
8. Clean all parts.
9. Install the white pressure valves and the black suction valves. In doing so, make sure that the valve guides are not damaged.
10. Insert new O-rings.
11. Install the pressure port and the suction port on the pump housing. Tighten the bolts crosswise in the process.
12. Install the spray liquid pump.



CMS-I-00009075

13. Install the hose connections pressure-tight.

14. Check the spray liquid pump for leaks.

➡ If spray liquid emerges from the pump, stop operating the pump. Contact the dealer.

9.5 Checking the piston diaphragm of the spray liquid pump

CMS-T-00014321-A.1

WORKSHOP WORK

- Every 1000 operating hours

  or

  Every 12 months

1. Clean the spray liquid circuit of the machine with flushing water.

2. Remove the spray liquid pump.

3. Turn the spray liquid pump until the piston to be checked is on top. Oil must not emerge from the pump housing.

4. Remove the bolts **1**.

5. Remove the pressure port **4** and the suction port **2**.

6. Take out the valve group **3**. In doing so, pay attention to the installation position of the suction-side and pressure-side valves.

7. Remove the bolts **6**.

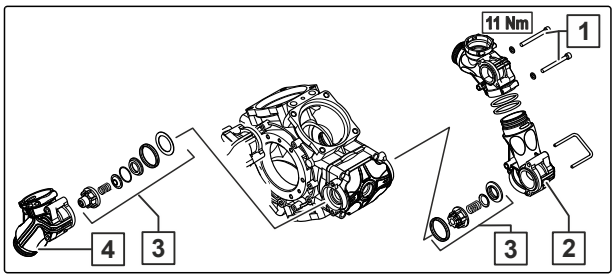
8. Take off the cylinder head **2**.

9. Check the piston diaphragm **3**.

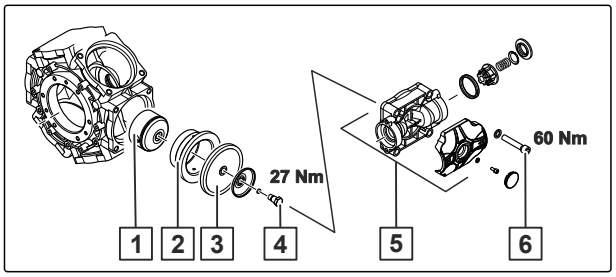
10. *If a piston diaphragm is damaged:*
    Replace all of the piston diaphragms, see page 191.

11. Install the cylinder head. Then check the next piston diaphragm.

12. Check each of the piston diaphragms consecutively in this way.



CMS-I-00009075



CMS-I-00009076

13. Check and clean the white pressure valves and the black suction valves [3], and then install them. In doing so, make sure that the valve guides are not damaged.

14. Insert new O-rings.

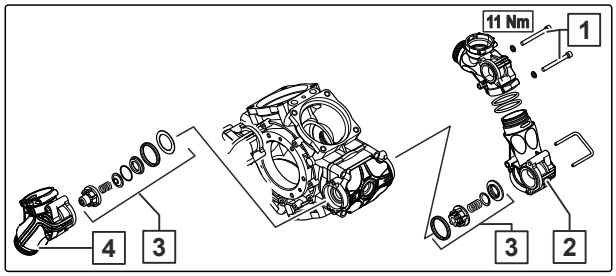
15. Install the pressure port [4] and the suction port [2] on the pump housing. Tighten the bolts crosswise in the process.

16. Install the spray liquid pump.

17. Install the hose connections pressure-tight.

18. Check the spray liquid pump for leaks.

➡ If spray liquid emerges from the pump, stop operating the pump. Contact the dealer.



CMS-I-00009075

9.5 Replacing the piston diaphragm of the spray liquid pump

CMS-T-00014326-A.1

WORKSHOP WORK

- as required

1. Remove the bolt [4]. Remove the piston diaphragm [3] together with the retaining washer from the piston [1].

2. *If the piston diaphragm is broken:*
Drain the oil/spray liquid mixture out of the pump housing.

3. Take the cylinder [2] out of the pump housing.

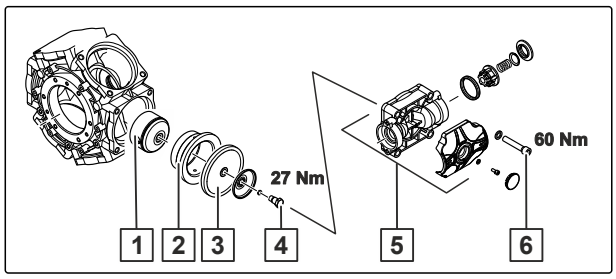
4. Flush the pump housing thoroughly with diesel oil or paraffin.

5. Clean all sealing surfaces.

6. Insert the cylinder back into the pump housing. In doing so, pay attention to the correct position of the recesses and holes on the cylinder.

7. Install the piston diaphragm with the retaining washer on the piston such that the rim points to the cylinder head side.

8. Replace all piston diaphragms even if only one piston diaphragm is damaged.



CMS-I-00009076

9.5 Checking the hub bearing

CMS-T-00013989-A.1

WORKSHOP WORK

- Every 1000 operating hours
  or
  Every 12 months

► Have the hub bearing checked and adjusted.

9.5.10 Checking the fill level of the central lubrication

CMS-T-00014141-A.1

INTERVAL

- Every 50 operating hours
  or
  weekly

1 Lubricant tank

2 Maximum fill level

3 Connection for refilling

CMS-I-00008970

1. Climb onto the service platform.
2. Check the fill level.
3. If necessary, operate the central lubrication using the AmaDrive vehicle terminal.

9.5.11 Putting the air conditioning system into operation after longer periods of standstill

CMS-T-00014194-A.1

INTERVAL

- Every 500 operating hours

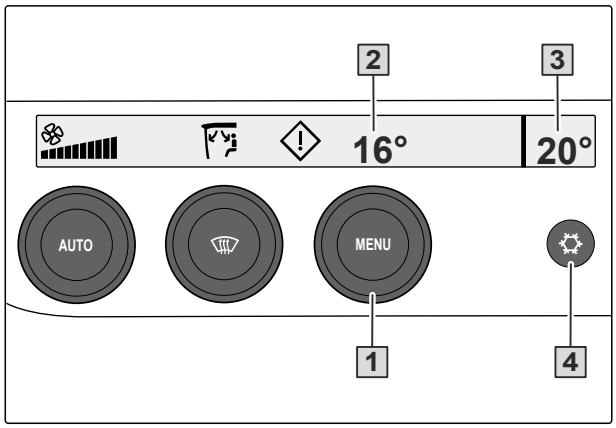
  or

  Every 6 months

To prevent damage to the air conditioning system, put the air conditioning system into operation after longer periods of standstill.

1. Start the diesel engine and run at low idle speed.
2. Turn the rotary knob **1** until the cab temperature **2** is set to 16 °C.
3. *When the cab temperature can only be lowered to the outside temperature* **3**:
   Switch on the air conditioning compressor with the **4** button.
4. Run the diesel engine for 5-10 minutes at a low idle speed.

➡ The air conditioning system can be operated as usual after 5-10 minutes.



CMS-I-00009014

9.5 Checking the air conditioning system

CMS-T-00014197-A.1

WORKSHOP WORK

- Every 2000 operating hours

  or

  Every 2 years

WARNING

Health hazard due to coolant

- ▶ Work on the air conditioning system may only be performed by qualified specialists.
- ▶ Avoid any contact with the coolant.
- ▶ Wear protective gloves and protective goggles.
- ▶ No welding tasks may be carried out on parts of the coolant circuit and in their immediate vicinity.

1. Switch off the machine and secure it.
2. Check the coolant fill level.
3. Refill coolant if necessary.
4. Check the moisture saturation of the filter dryer.
5. Change the filter dryer if necessary.

9.5 Checking the coolant hoses

CMS-T-00014171-A.1

WORKSHOP WORK

- Every 2000 operating hours

  or

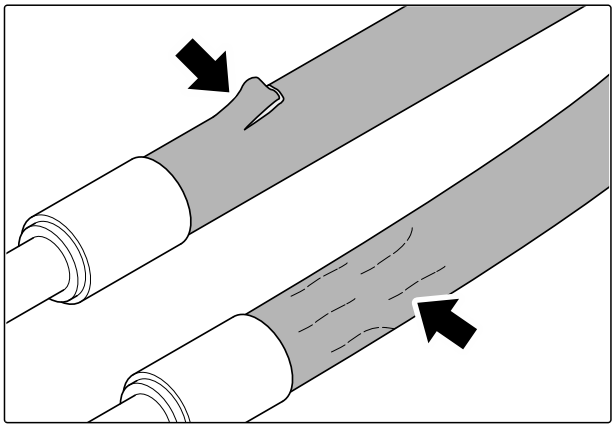
  Every 2 years

WARNING

Health hazard due to coolant

- ▶ Work on the air conditioning system may only be performed by qualified specialists.
- ▶ Avoid any contact with the coolant.
- ▶ Wear protective gloves and protective goggles.
- ▶ No welding tasks may be carried out on parts of the coolant circuit and in their immediate vicinity.

1. Check all coolant hoses in the engine compartment for visible damage.
2. Check the coolant hoses for damage and leaks.
3. Check the coolant hoses for ageing.

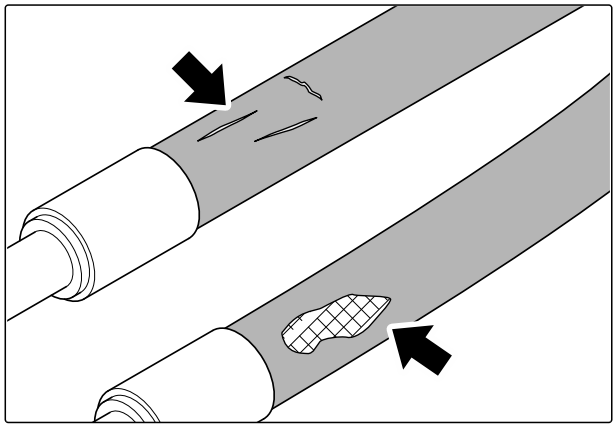


CMS-I-00009009

4. Check the coolant hoses for cracks or cuts up to the steel mesh.

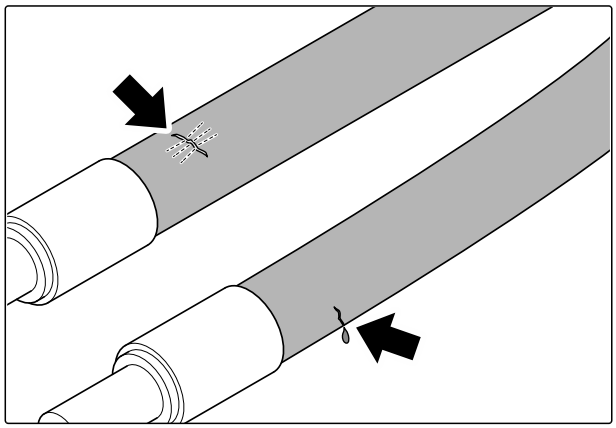
5. Check for visible steel mesh on the outer sheath.

6. Check the coolant hoses for damaged or corroded steel mesh.



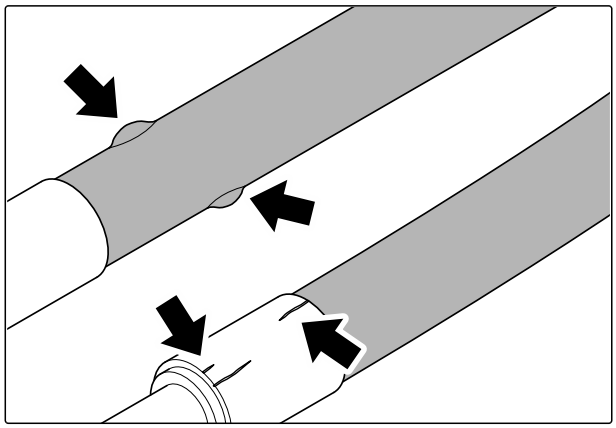
CMS-I-00009012

7. Check the coolant hoses for moist surfaces and visible oil leaks.



CMS-I-00009011

8. Check the coolant hoses for cracks on the clamping piece or blisters on the outer sheath.



CMS-I-00009010

9. *If damage is found:*
   Replace the affected coolant hose.

9.5.12 Cleaning or changing the standard cab air filter and circulation filter

CMS-T-00014153-A.1

INTERVAL

- Every 250 operating hours

  or

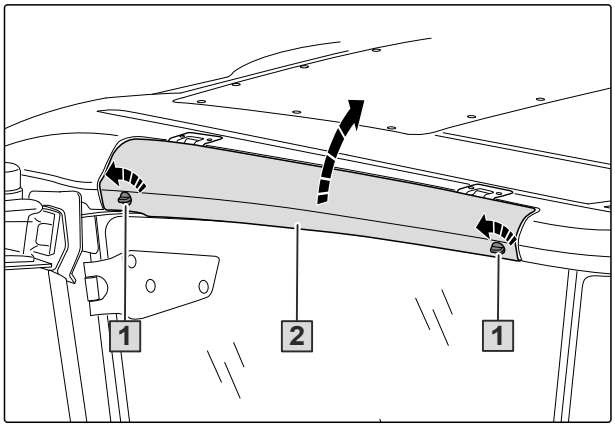
  Every 3 months

CAUTION

Health hazard due to dust

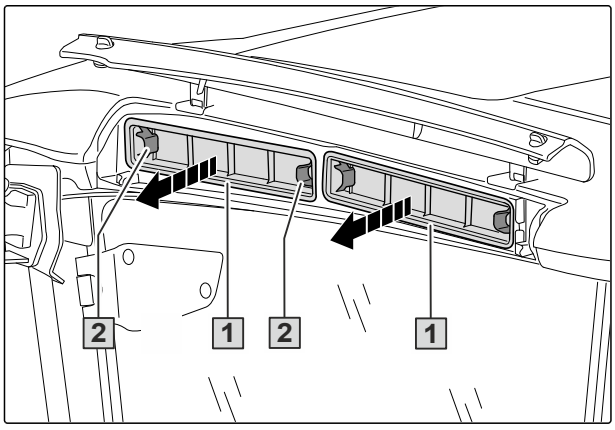
▶ When the filter system is open, wear breathing protection.

1. Release the locks **1**.
2. Open the cover **2**.



CMS-I-00008973

3. Pull out both cab air filters **1** by the lugs **2**.
4. Vacuum clean, knock or blow-out cab air filters with soiling on the surface with compressed air.
5. Change damaged cab air filters.
6. *When the maintenance interval has been reached:*
   Change the cab air filter.



CMS-I-00008986

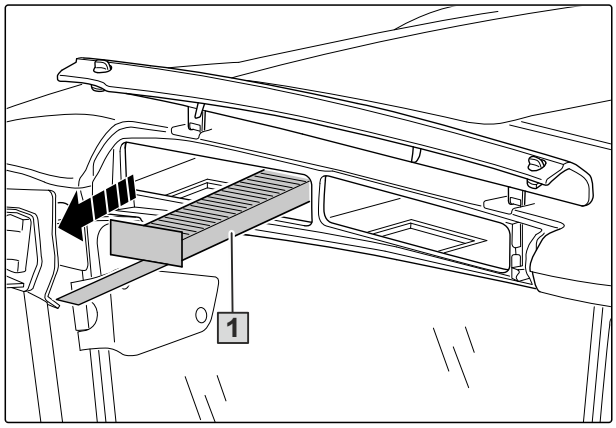
7. Pull out the circulation filter 1.

8. Vacuum clean, knock or blow-out circulation filters with soiling on the surface with compressed air.

9. Change damaged circulation filters.

10. *When the maintenance interval has been reached:*
Change the circulation filter.

11. Slide the circulation filter into the shaft up to the stop.

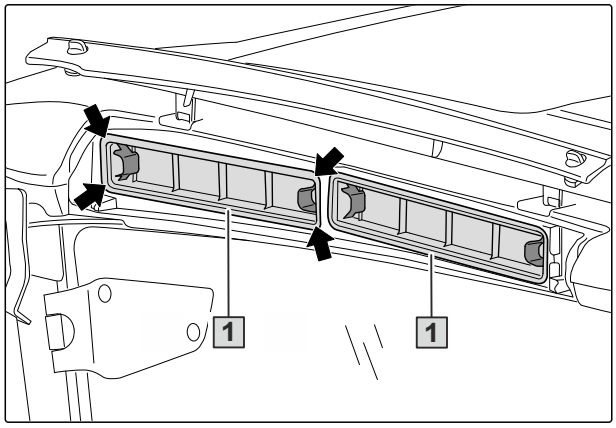


CMS-I-00008996

CAUTION

Health hazard due to installed or defective cab air filter

- Make sure that the cab air filter is correctly fitted.
- Replace damaged cab air filters and sealing profiles.



CMS-I-00008985

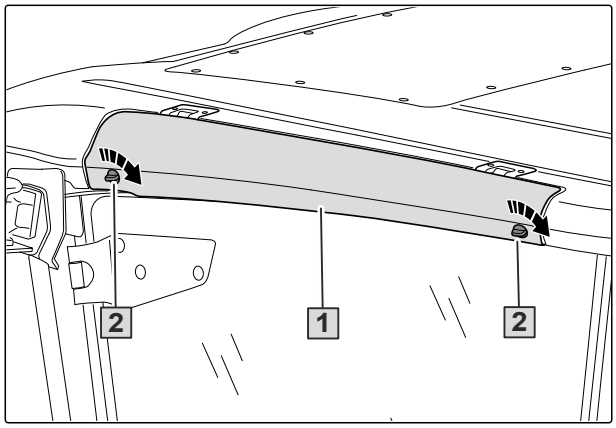
12. Insert both cab air filters 1.

13. Press both cab air filters in on the 4 corners.

➡ The cab air filters must be completely flush and sealed.

14. Close the cover 1.

15. Engage the locks 2.



CMS-I-00008972

9.5 Changing the Category 4 cab air filter and circulation filter

CMS-T-00014707-A.1

WORKSHOP WORK

- Every 250 operating hours

  or

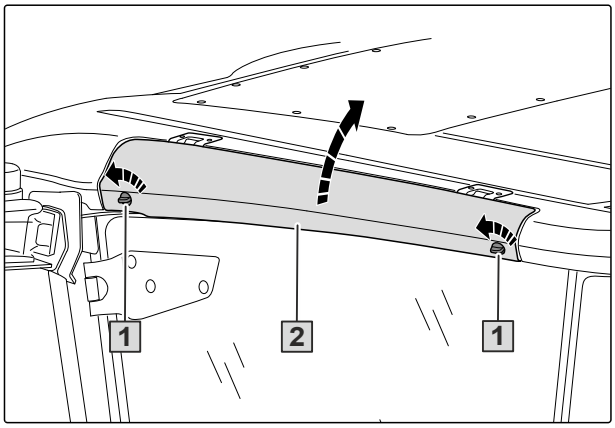
  Every 3 months

WARNING

Health hazard due to dust and toxic substances

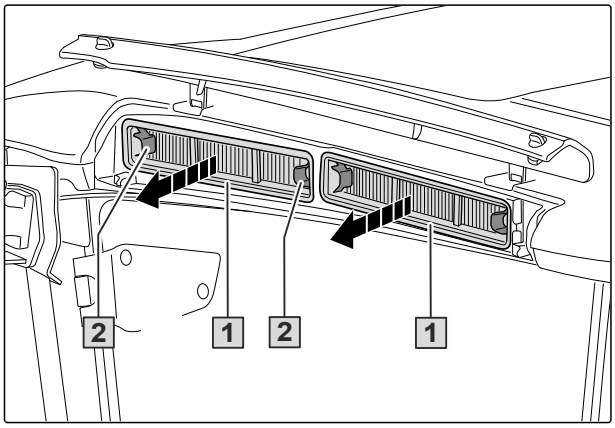
▶ When the filter system is open, wear breathing protection, gloves and suitable protective clothing.

1. Release the locks **1**.
2. Open the cover **2**.



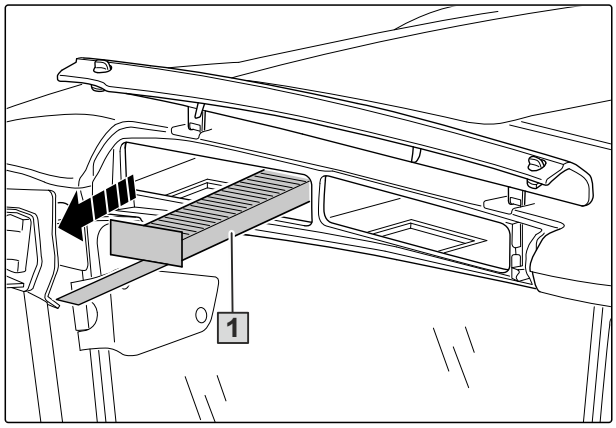
CMS-I-00008973

3. Pull out both cab air filters **1** by the lugs **2**.
4. Dispose of the cab air filter correctly.



CMS-I-00008976

5. Pull out the circulation filter 1.



CMS-I-00008996

6. Vacuum clean, knock or blow-out circulation filters with soiling on the surface with compressed air.
7. Change damaged circulation filters.
8. *When the maintenance interval has been reached,*
   change the circulation filter.
9. Slide the circulation filter into the shaft up to the stop.

WARNING

Risk of poisoning due to toxic substances in the driver's cab

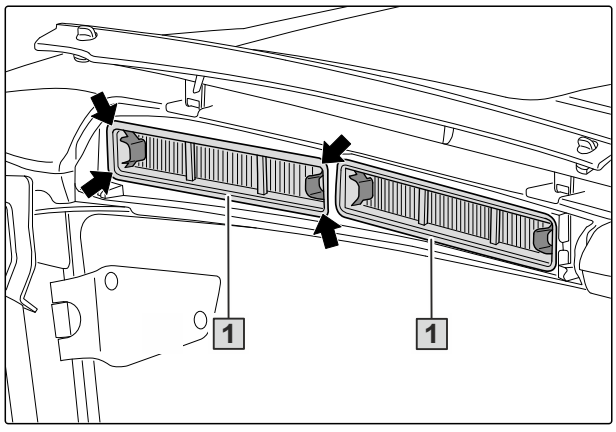
- Only used labelled cab air filters that are approved according to EN 15695-2.
- Observe the safety data sheet or label of the substance being applied.
- Make sure that the cab air filter is properly sealed.

10. Make sure that the cab air filters are labeled as *"Filter for cab category 4 according to EN 15695-2:2017"*.
11. Make sure that the packaging of the cab air filter is not damaged.
12. Make sure that the expiry date has not been exceeded.

➥ The manufacturing data is printed on the filter label. Use the cab air filter within 30 months from the date of manufacture.

13. Insert both cab air filters 1.
14. Press both cab air filters in on the 4 corners.

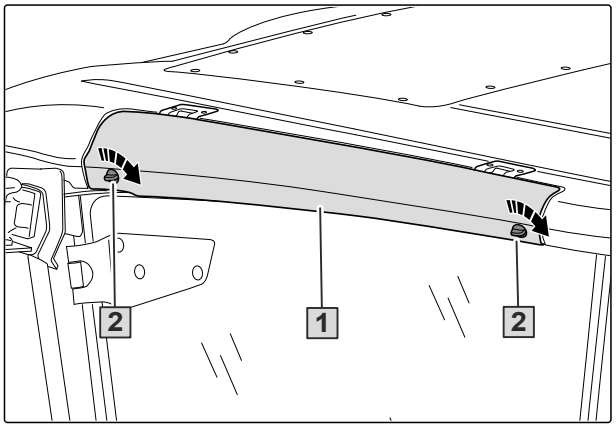
➥ The cab air filters must be completely flush and sealed.



CMS-I-00008974

15. Close the cover **1**.

16. Engage the locks **2**.



CMS-I-00008972

9.5.13 Checking the door and window seals

CMS-T-00014170-A.1

INTERVAL

- Every 250 operating hours

  or

  Every 3 months

The doors and windows must be tight enough to prevent infiltration of dust, aerosols and vapours into the cab.

1. Check the seals on the doors and windows.

2. Replace porous or damaged seals.

9.5.14 Checking the damping bearings of the cab

CMS-T-00014614-A.1

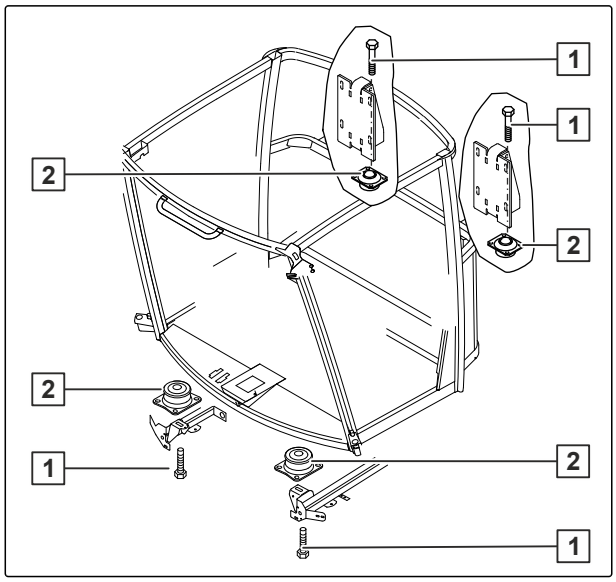
INTERVAL

- Every 250 operating hours

  or

  Every 3 months

1. Perform a visual check of the 4 damping bearings **2**.
2. Check the bolts **1** and the damping bearings for tight fit.



CMS-I-00009258

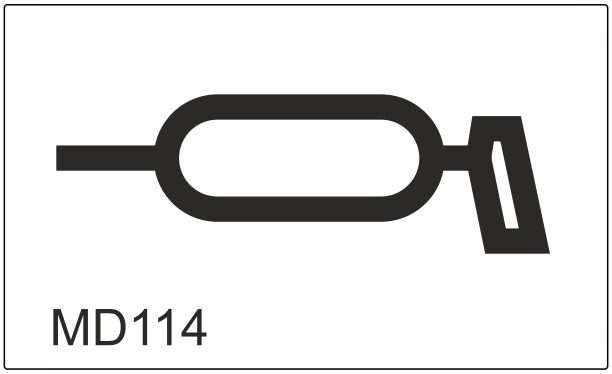
9.6 Lubricating the implement

CMS-T-00013550-A.1

IMPORTANT

Implement damage due to improper lubrication

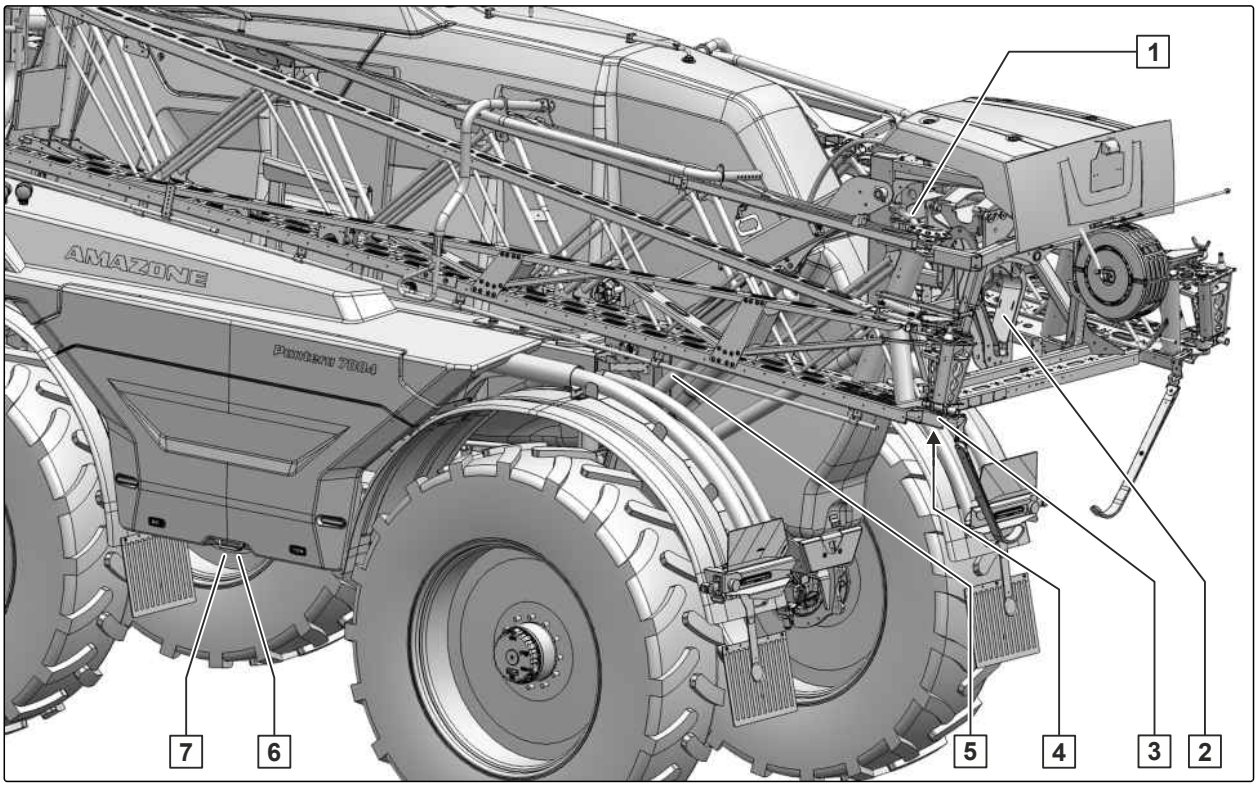
- Grease the implement at the marked lubrication points according to the lubrication schedule.
- *To ensure that dirt is not pressed into the lubrication points,*
  thoroughly clean the grease nipples and the grease gun.
- Only grease the implement with the lubricants listed in the technical data.
-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



CMS-I-00002270

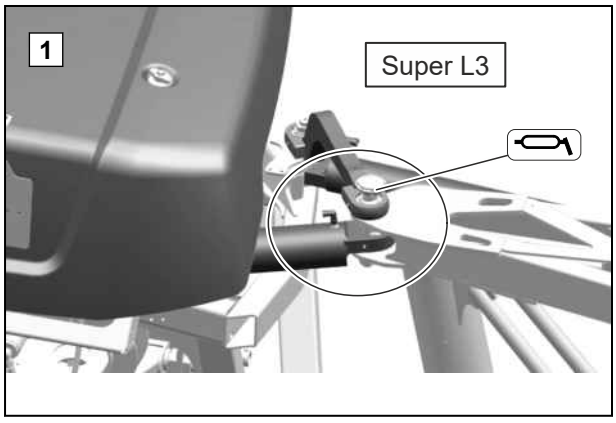
9.6.1 Overview of lubrication points

CMS-T-00014713-A.1

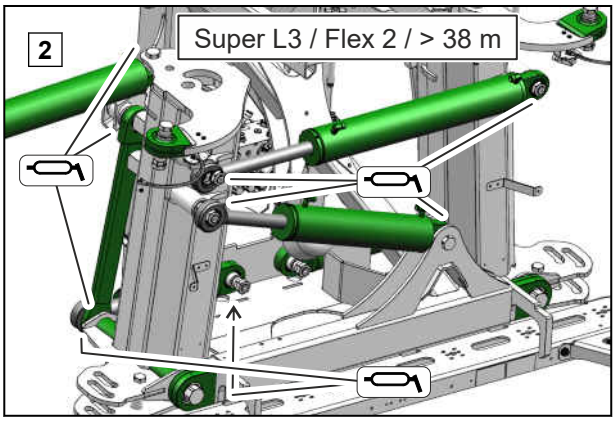


CMS-I-00009365

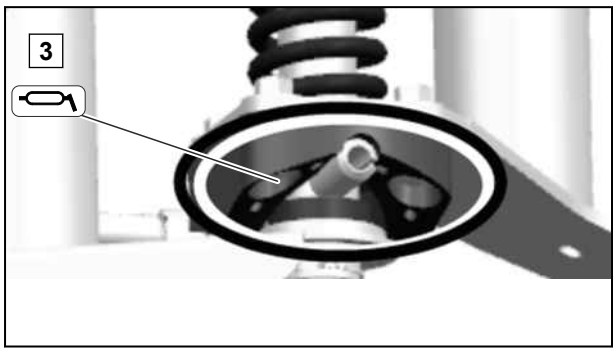
Every 100 operating hours



CMS-I-00009369



CMS-I-00009370



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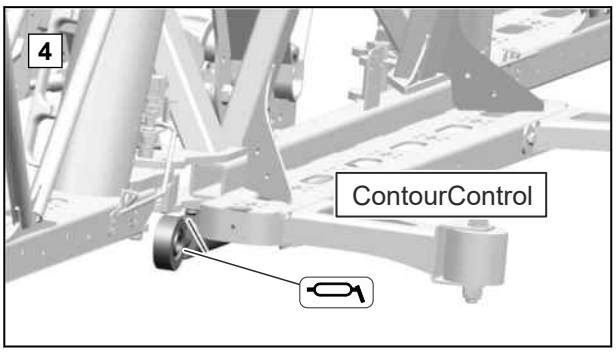
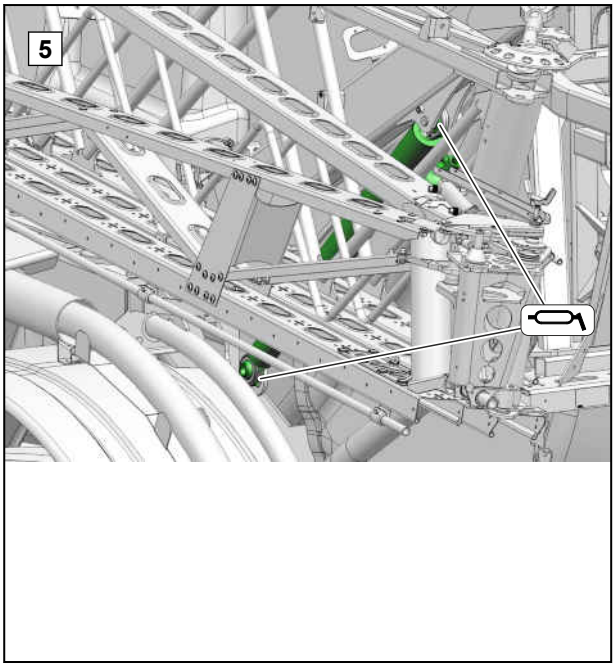
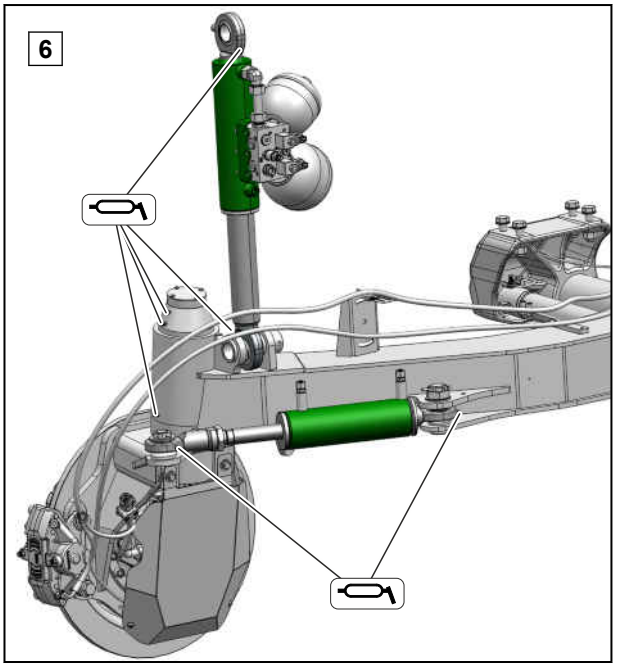


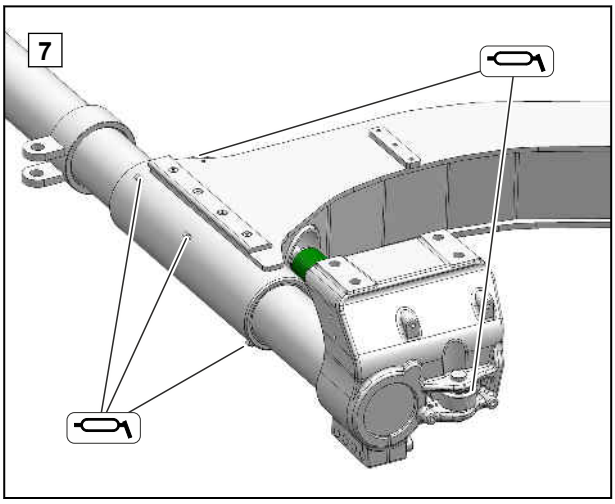
CMS-I-00009367



CMS-I-00009368



CMS-I-00008474



CMS-I-00008476

9.6.2 Lubricating the main shaft of the track width adjustment

CMS-T-00013562-A.1

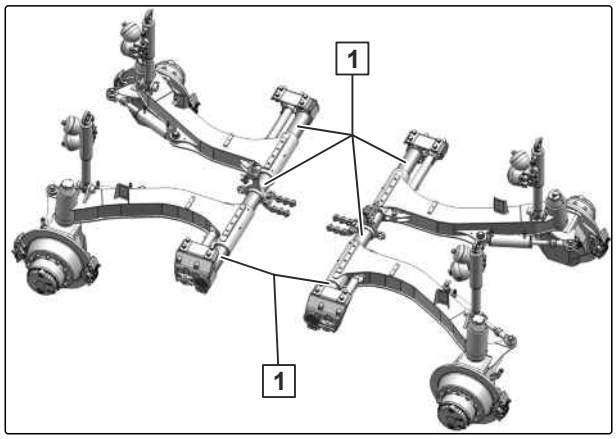
INTERVAL

- Every 100 operating hours

  or

  at the end of the season

▶ Grease the two main shafts 1 of the track width adjustment with a brush for corrosion protection.



CMS-I-00008477

9.7 Cleaning the implement

CMS-T-00013799-A.1

9.7.1 Cleaning the implement

CMS-T-00000593-F.1

IMPORTANT

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

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

CMS-I-00002692

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

Loading the implement 10

CMS-T-00013794-A.1

10.1 Lowering the implement

CMS-T-00013796-A.1

WARNING

Risk of accidents due to swinging of the lashed machine on the transport vehicle

► *To transport the machine:*
Lower the machine.

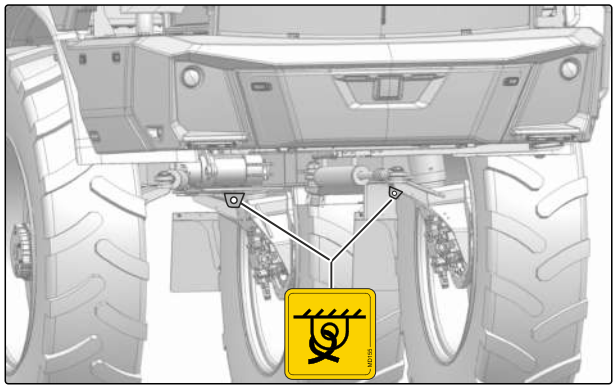
1. Switch on the drive motor.
2. During a setting run, set the track width to the minimum value.
3. In the AmaDrive *"Setting > Machine"* menu, lower the machine for transport.
4. Raise the machine again after transport.

10.2 Lashing the implement

CMS-T-00013795-A.1

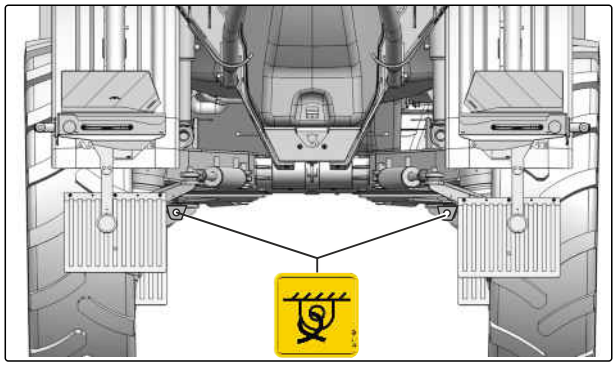
NOTE

Use the marked lashing points for securing the machine on a transport vehicle.



CMS-I-00008624

The implement has 2 lashing points for lashing straps on each side.



CMS-I-00009375

WARNING

Risk of accidents due to improperly attached lashing straps

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

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

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

➡ After transport, the running gear must be lifted again after releasing the lashing.

Disposing of the implement 11

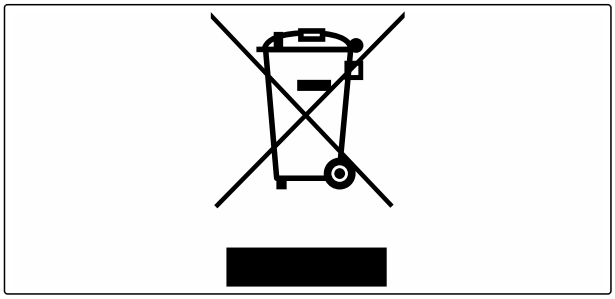
CMS-T-00010906-B.1

ENVIRONMENTAL INFORMATION

Environmental damage due to improper disposal

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

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



CMS-I-00007999

2. Return batteries to the distributor

   or

   Dispose of batteries at a collection point.

3. Put recyclable materials in the recycling.

4. Treat operating materials like hazardous waste.

WORKSHOP WORK

5. Dispose of the coolant.

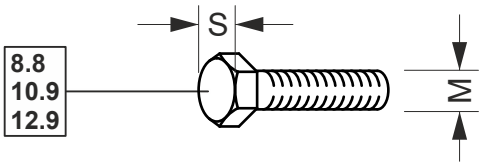
Appendix

12

CMS-T-00014593-B.1

12.1 Bolt tightening torques

CMS-T-00000373-E.1



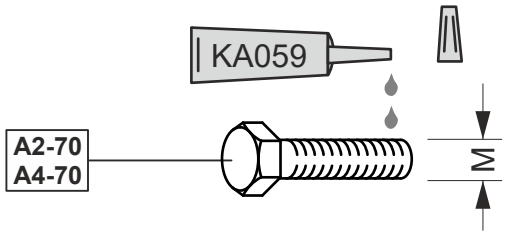
CMS-I-000260

NOTE

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

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

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

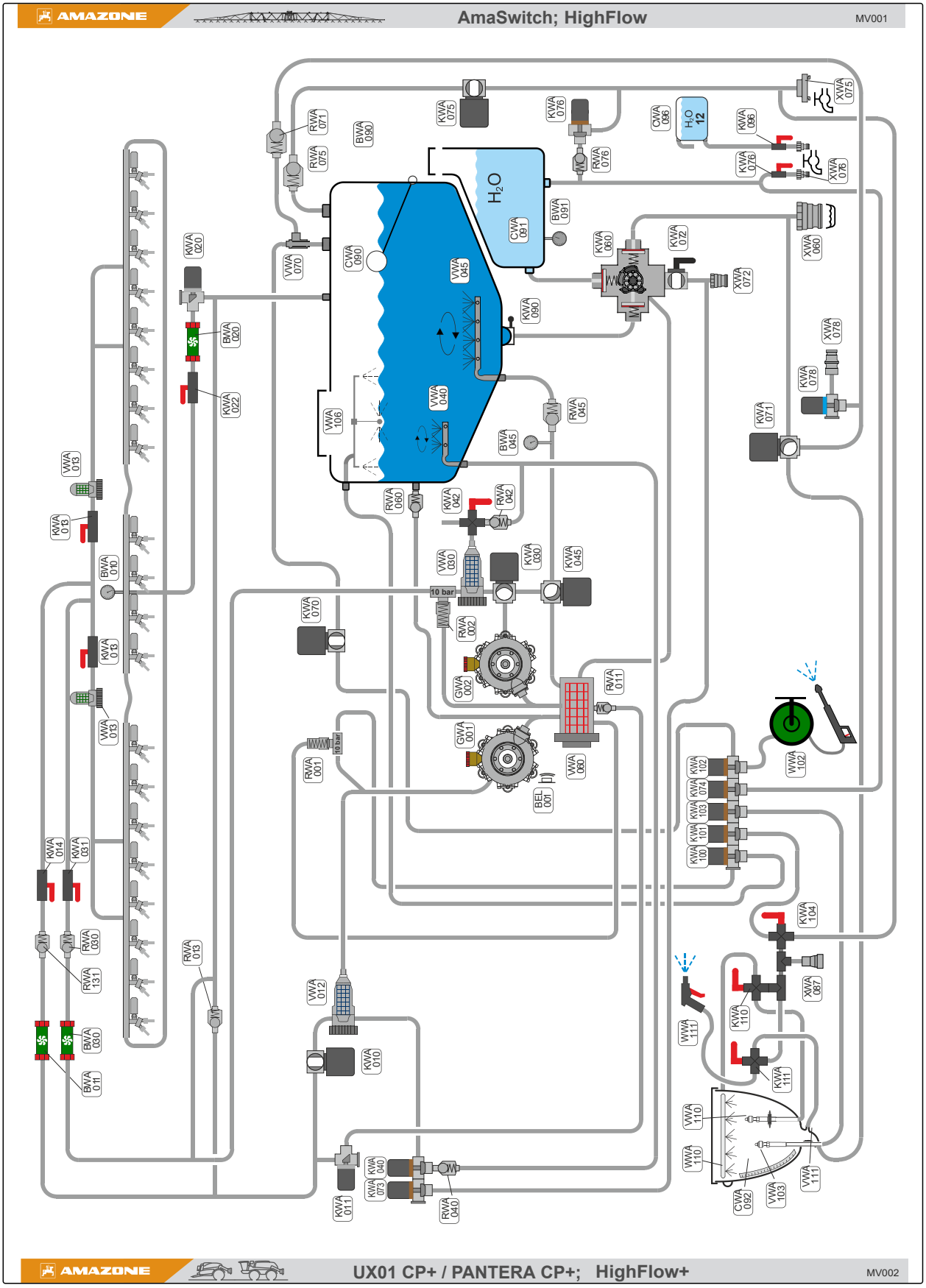


CMS-I-00000065

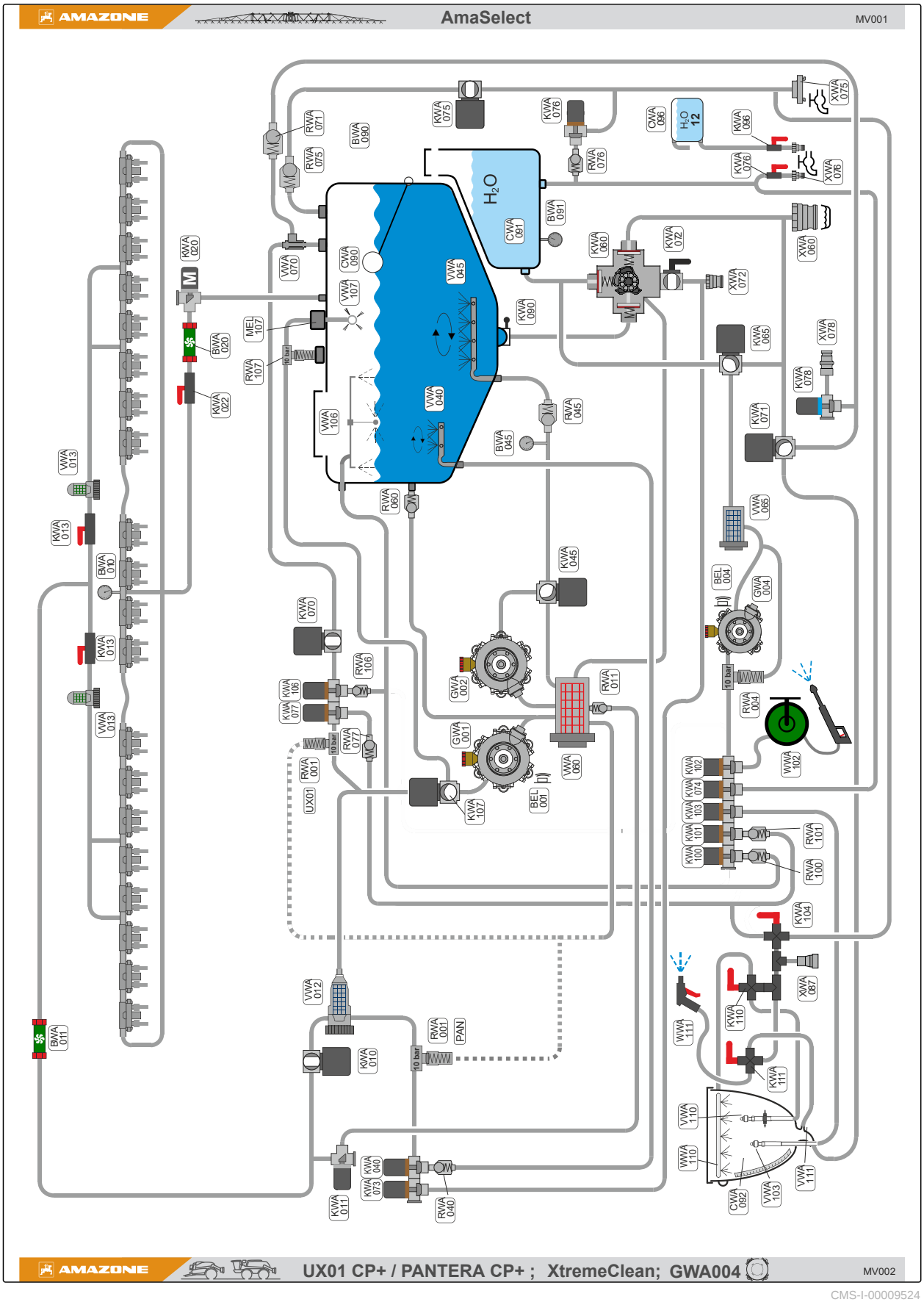
M	Tightening torque	M	Tightening torque
M4	2.4 Nm	M14	112 Nm
M5	4.9 Nm	M16	174 Nm
M6	8.4 Nm	M18	242 Nm
M8	20.4 Nm	M20	342 Nm
M10	40.7 Nm	M22	470 Nm
M12	70.5 Nm	M24	589 Nm

12.2 Pantera CP plus liquid circuit

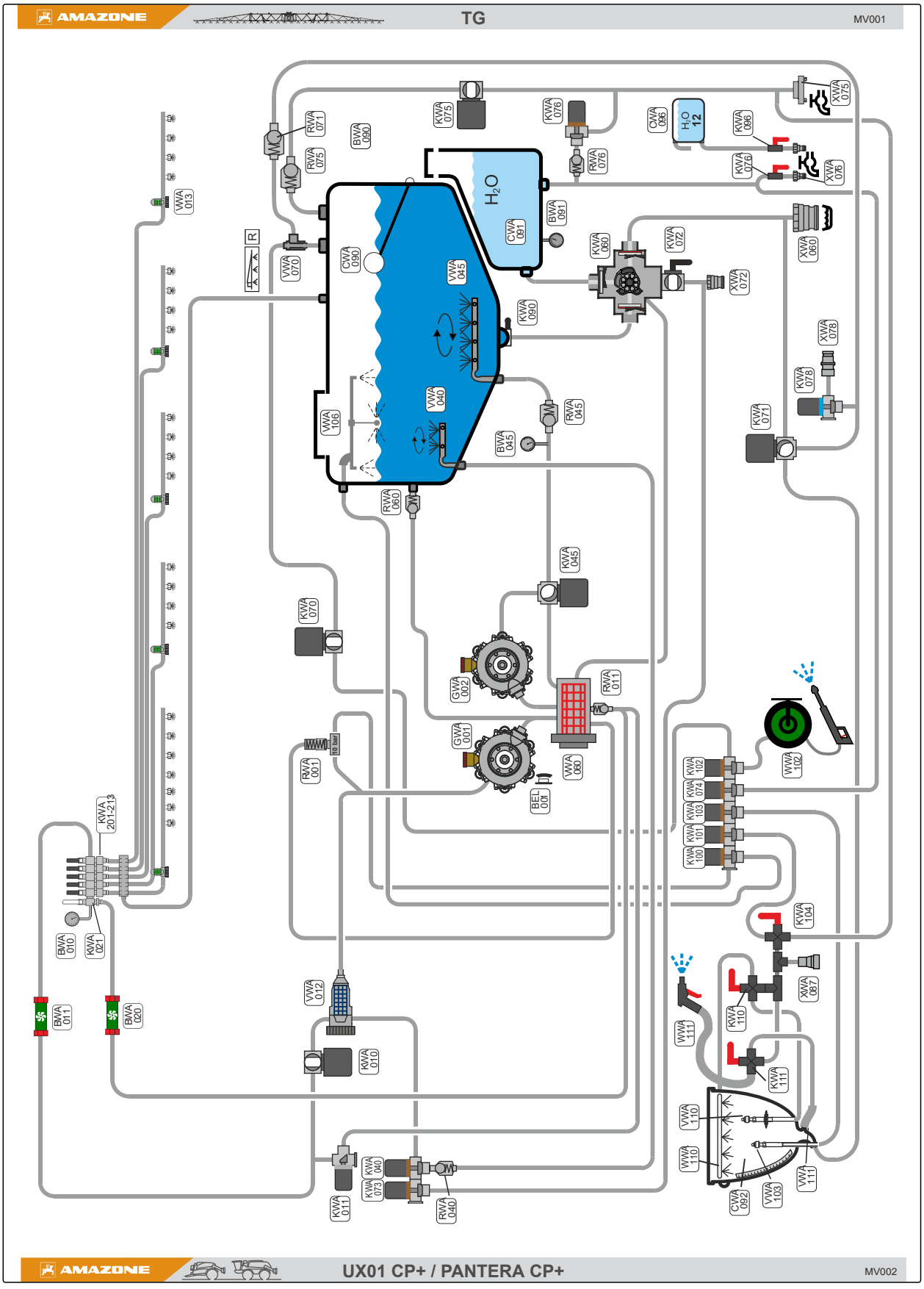
CMS-T-00014449-B.1



CMS-I-00009525



CMS-I-00009524



CMS-I-00009526

Designation	Description		Designation	Description
BWA010	Spray line pressure		VWA013	Spray line filter (optional)
BWA011	Spray line flow sensor		VWA030	HighFlow pressure filter
BWA020	Return flow sensor		VWA040	Secondary agitator
BWA030	HighFlow flow sensor		VWA045	Main agitator
KWA013	DUS pro spray line stop tap		VWA060	Suction filter
KWA014	Spray line stop tap		VWA065	Flushing water pump suction filter
KWA020	Return flow rate control valve		VWA070	Injector
KWA021	Bypass valve		VWA103	Cleaning of the induction bowl
KWA022	Return flow stop tap		VWA106	Internal cleaning of spray liquid tank
KWA031	HighFlow spray line stop tap		VWA107	XtremeClean
KWA131	DirectInject part-width section 1 DI off		VWA108	2. Internal cleaning
KWA230	DUS pressure control valve		VWA110	Canister cleaning
KWA231	DUS tap		VWA111	Jet nozzle
RWA013	AmaSwitch spray line pressure control		WWA102	External wash-down device
RWA020	Return flow non-return valve		WWA110	Ring line
RWA030	HighFlow spray line non-return valve		WWA111	Spray gun
RWA120	DirectInject non-return valve, spray line feed		XWA060	Suction connection
RWA121	DirectInject pump non-return valve		XWA072	Draining connection
RWA131	Spray line non-return valve		XWA075	Pressure filling connection
RWA141	DirectInject spray line non-return valve		XWA076	Pressure filling connection
RWA230	DUS non-return valve		XWA078	Closed transfer system suction connection
VWA012	Pressure filter		XWA087	Closed transfer system pressure connection

12.3 Spray table

CMS-T-00014711-A.1

6	6,5	7	7,5	8	8,5	9	10	11	12	14	16	l/min	bar 100	bar 50					
km/h													015	02	025	03	04	05	06	08
80	74	69	64	60	56	53						0,4	1,4							
100	92	86	80	75	71	67	60	55				0,5	2,2	1,2						
120	111	103	96	90	85	80	72	65	60	51		0,6	3,1	1,8	1,1					
140	129	120	112	105	99	93	84	76	70	60	53	0,7	4,2	2,4	1,5	1,1				
160	148	137	128	120	113	107	96	87	80	69	60	0,8	5,5	3,1	2,0	1,4				
180	166	154	144	135	127	120	108	98	90	77	68	0,9	7,0	4,0	2,5	1,8	1,0			
200	185	171	160	150	141	133	120	109	100	86	75	1,0		4,9	3,1	2,2	1,2			
220	203	189	176	165	155	147	132	120	110	94	83	1,1		5,9	3,7	2,7	1,5	1,0		
240	222	206	192	180	169	160	144	131	120	103	90	1,2		7,0	4,4	3,2	1,8	1,1		
260	240	223	208	195	184	173	156	142	130	111	98	1,3			5,2	3,7	2,1	1,3	1,0	
280	259	240	224	210	198	187	168	153	140	120	105	1,4			6,0	4,3	2,4	1,6	1,1	
300	277	257	240	225	212	200	180	164	150	129	113	1,5			6,9	5,0	2,8	1,8	1,2	
320	295	274	256	240	226	213	192	175	160	137	120	1,6				5,7	3,2	2,0	1,4	
340	314	291	272	255	240	227	204	185	170	146	128	1,7				6,4	3,6	2,3	1,6	
360	332	309	288	270	254	240	216	196	180	154	135	1,8				7,2	4,0	2,6	1,8	1,0
380	351	326	304	285	268	253	228	207	190	163	143	1,9					4,5	2,9	2,0	1,1
400	369	343	320	300	282	267	240	218	200	171	150	2,0					4,9	3,2	2,2	1,2
420	388	360	336	315	297	280	252	229	210	180	158	2,1					5,4	3,5	2,4	1,4
440	406	377	352	330	311	293	264	240	220	189	165	2,2					6,0	3,8	2,7	1,5
460	425	394	368	345	325	307	276	251	230	197	173	2,3					6,5	4,2	2,9	1,6
480	443	411	384	360	339	320	288	262	240	206	180	2,4					7,1	4,6	3,2	1,8
500	462	429	400	375	353	333	300	273	250	214	188	2,5						5,0	3,4	1,9
520	480	446	416	390	367	347	312	284	260	223	195	2,6						5,4	3,7	2,1
540	499	463	432	405	381	360	324	295	270	231	203	2,7						5,8	4,0	2,3
560	517	480	448	420	395	373	336	305	280	240	210	2,8						6,2	4,3	2,4
580	535	497	464	435	409	387	348	316	290	249	218	2,9						6,7	4,6	2,6
600	554	514	480	450	424	400	360	327	300	257	225	3,0						7,1	5,0	2,8
620	572	531	496	465	438	413	372	338	310	266	233	3,1								3,0
640	591	549	512	480	452	427	384	349	320	274	240	3,2								3,2
660	609	566	528	495	466	440	396	360	330	283	248	3,3								3,4
680	628	583	544	510	480	453	408	371	340	291	255	3,4		LU / XR: 1 – 5 bar						3,6
700	646	600	560	525	494	467	420	382	350	300	263	3,5		AD: 1,5 – 6 bar						3,8
720	665	617	576	540	508	480	432	393	360	309	270	3,6		ID / AI: 2 – 8 bar						4,0
740	683	634	592	555	522	493	444	404	370	318	278	3,7		IDK / Air Mix: 1 – 6 bar						4,3
x 0,88			608	570	537	507	456	415	380	326	285	3,8		TTI: 1 – 7 bar						4,5
H_2O ⇄ AHL			624	585	551	520	468	425	390	335	293	3,9								4,7
x 1,14			640	600	565	533	480	436	400	343	300	4,0								5,0

ME 735

CMS-I-00009362

12.4 Fuses and relays

CMS-T-00014617-A.1

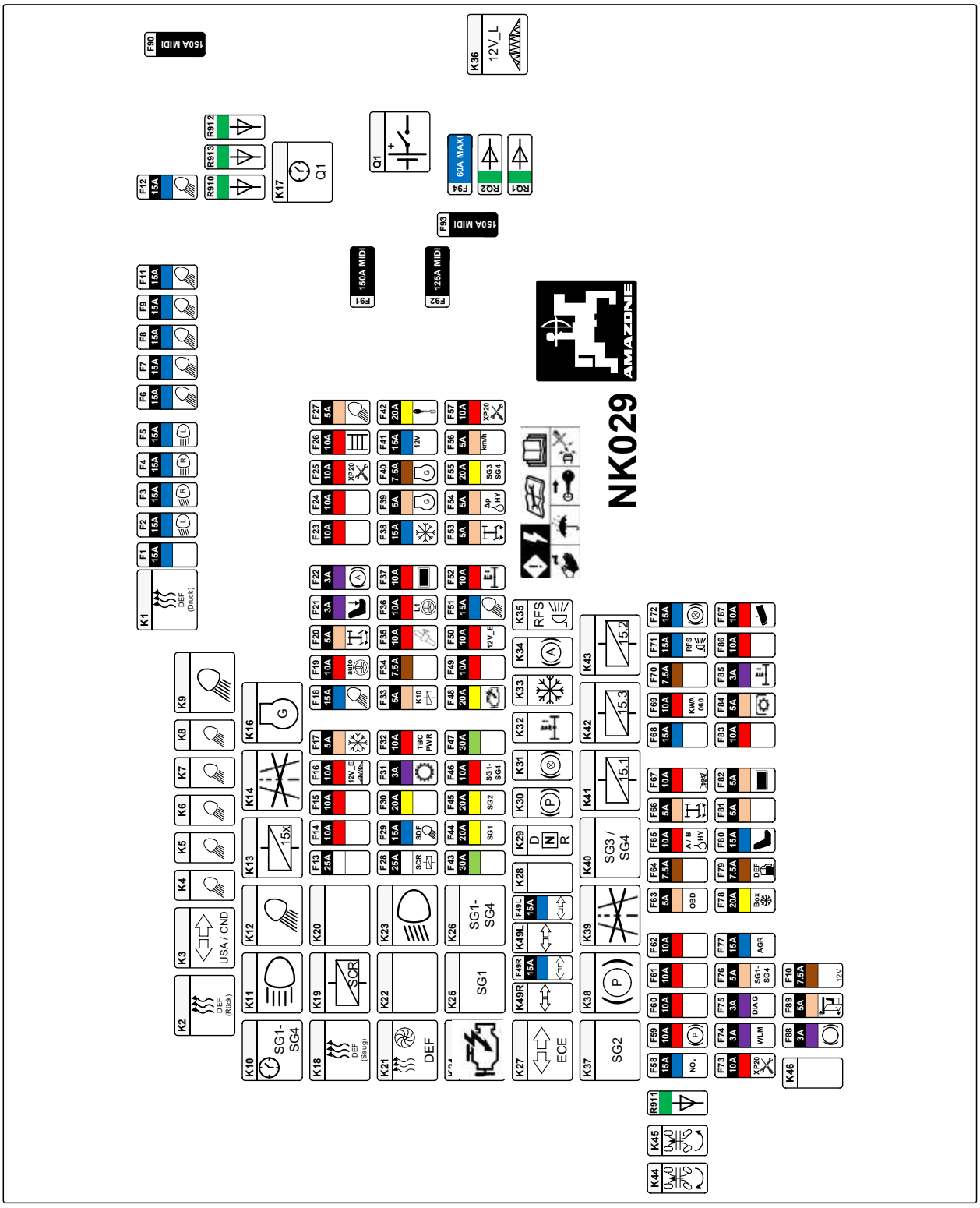
12.4.1 Main fuse

CMS-T-00014618-A.1

The main fuse is located on the battery on the right under the cab.

12.4.2 Central electrical system

CMS-T-00014619-A.1



CMS-I-00009259

The central electrical system is located under the armrest in the cab floor.

Fuses under the armrest		
Number	**Thickness**	**Function**
F1	15 A	Spare
F2	15 A	Dipped beam, left side
F3	15 A	Dipped beam, right side
F4	15 A	Full beam, right side
F5	15 A	Full beam, left side
F6	15 A	Work floodlights, vehicle contour, left side EEL1524
F7	15 A	Work floodlights, vehicle contour, right side EEL1527
F8	15 A	Work floodlights, spare (F)
F9	15 A	Spare
F10	7.5 A	Main switch, battery on / fuse test
F11	15 A	Work floodlight casing, right side
F12	15 A	Work floodlight casing, left side
F13	25 A	Spare
F14	10 A	Spare
F15	10 A	Spare
F16	10 A	12V_E field sprayer
F17	5 A	Relay for climate control / 12V_L field sprayer
F18	15 A	ASW spare (D)
F19	10 A	Automatic steering system
F20	5 A	Steering RA
F21	3 A	Seat contact
F22	3 A	Autohold relay
F23	10 A	Spare
F24	10 A	Spare
F25	10 A	Connector XP20
F26	10 A	Ladder / track correction
F27	5 A	Work floodlights storage compartment
F28	25 A	Main relay SCR heater
F29	15 A	Full-beam headlights / work floodlights, Sidefinder
F30	20 A	Spare
F31	3 A	Emergency operation button
F32	10 A	TBC PWR terminal

Fuses under the armrest		
Number	**Thickness**	**Function**
F33	5 A	Supply relay K10
F34	7.5 A	Parking brake
F35	10 A	GPS antennas
F36	10 A	Connector L1
F37	10 A	AMADRIVE
F38	15 A	Air conditioner compressor
F39	5 A	Charging control signal D+
F40	7.5 A	Charging control signal D+
F41	15 A	Cigarette lighter
F42	20 A	Ignition lock
F43	30 A	Engine control unit EMR (AEL1045)
F44	20 A	CU1 (AEL1041)
F45	20 A	CU2 (AEL1042)
F46	10 A	Switch-on signal CU1-4
F47	30 A	Spare
F48	20 A	Engine start terminal 50
F49	10 A	Spare
F49L	15 A	Turn indicator, left
F49R	15 A	Turn indicator, right
F50	10 A	12V_E terminal
F51	15 A	Work floodlights, spare (H')
F52	10 A	Hard / soft spring suspension (only Pantera 450x)
F53	5 A	Steering RA
F54	5 A	Constant pressure sensor
F55	20 A	CU3 (AEL1043) / CU4 (AEL1044)
F56	5 A	Wheel speed sensor / steering potentiometer
F57	10 A	Connector XP20
F58	15 A	NOx sensors
F59	10 A	Parking brake sensor / spring suspension pressure sensor RA
F60	10 A	Spare
F61	10 A	Spare
F62	10 A	Spare

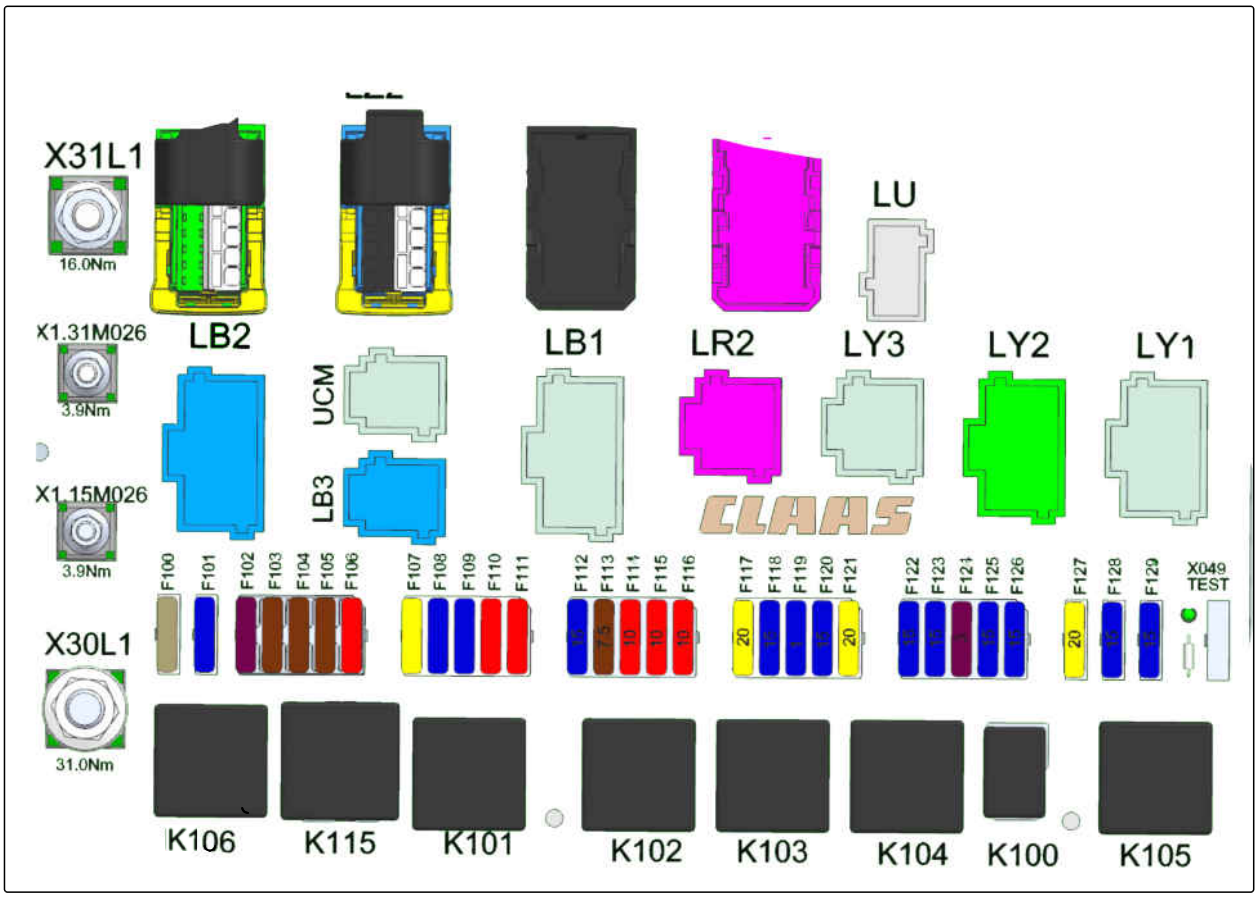
Fuses under the armrest		
Number	**Thickness**	**Function**
F63	5 A	Connector XOBD
F64	7.5 A	Supply, USB port
F65	10 A	High pressure A-B sensor / hydraulic oil tank
F66	5 A	Steering RA
F67	10 A	Disconnect the battery 7200 sec.
F68	15 A	Audible buzzer / wiper system
F69	10 A	Suction tap motor (CP)
F70	7.5 A	Spare
F71	15 A	Reversing light
F72	15 A	Brake light
F73	10 A	Connector XP20
F74	3 A	Warning display module
F75	3 A	Diagnosis connector EMR
F76	5 A	CU1-CU4
F77	15 A	EGR valve
F78	20 A	Cool box
F79	7.5 A	DEF fill level / quality sensor
F80	15 A	Driver's seat
F81	5 A	Spare
F82	5 A	AMADRIVE
F83	10 A	Engine control unit EMR (AEL1045) / DEUTZ engine
F84	5 A	Work floodlights control panel / spray liquid pump sensor
F85	3 A	Height-adjustable running gear sensors (only Pantera 450x)
F86	10 A	GPS antennas / connector L1
F87	10 A	Camera system
F88	3 A	Brake actuation sensor
F89	5 A	Door contact switch
F90	150 A MIDI	12V_terminal 30 F90
F91	150 A MIDI	12V_terminal 30 F91
F92	125 A MIDI	12V_terminal 30 F92
F93	150 A MIDI	12V_terminal 30 F93
F94	60 A MAXI	12V_L field sprayer

Relay under the arm rest	
Number	**Function**
K1	DEF pressure line heater relay
K2	DEF return flow line heater relay
K3	Relay, indicator USA/CND
K4	Relay, dipped beam spare
K5	Relay, work floodlights spare (F)
K6	Relay, spare
K7	Relay, work floodlights spare (H')
K8	Relay, work floodlights spare (D)
K9	Relay, work floodlight casing, right/left (H)
K10	Time relay +Ub CU1-CU4
K11	Full beam relay
K12	Relay, work floodlights, vehicle contour (G)
K13	Relay, terminal 15x
K14	Relay, field/road
K16	Relay, charge control signal D+
K17	Relay, automatic voltage shut-off
K18	Relay, DEF suction line heater
K19	Main relay SCR heater
K20	Relay 12 V socket
K21	Relay, heating element feed
K22	Relay +Ub CU5
K23	Relay, dipped beam
K24	Relay, engine start
K25	Relay +Ub CU1
K26	Relay, switch-on signal
K27	Relay, indicator RDW
K28	Relay, spare
K29	Relay, neutral switch
K30	Relay, parking brake (automatic)
K31	Relay, brake light
K32	Relay, spring suspension hard/soft (ONLY 4504)
K33	Relay, air conditioner compressor
K34	Relay, AutoHold
K35	Relay, reversing light
K36	Relay 12V_L

Relay under the arm rest	
Number	**Function**
K37	Relay +Ub CU2
K38	Relay, parking brake
K39	Relay, field signal +30 sec
K40	Relay +Ub CU3/CU4
K41	Relay, terminal 15.1
K42	Relay, terminal 15.3
K43	Relay, terminal 15.2
K44	Relay, steering system shut-off RA left
K45	Relay, steering system shut-off RA right
K46	Relay, spare
K49L	Relay, indicator L USA/CND
K49R	Relay, indicator R USA/CND
Q1	Battery isolating relay

12.4.3 Central electrical system in the cab

CMS-T-00014620-A.1



CMS-I-00009260

The central electrical system in the cab is found on the right in the cab roof.

Fuses in the cab roof		
Number	**Thickness**	**Function**
F100	25 A	Cab fan
F101	30 A	LI15 spare
F102	3 A	Module, automatic air-conditioning system / light control
F103	7.5 A	Parking lights, right
F104	7.5 A	Parking lights, left
F105	7.5 A	Switch illumination / reading lamp / 3rd rear light
F107	20 A	Module, automatic air-conditioning system / light control
F109	15 A	Spare
F110	10 A	Radio, terminal 15
F111	10 A	Blade fuse 10 A/32 V
F112	15 A	Indicator system
F113	7.5 A	Outside rear view mirror
F114	10 A	Terminal 15D free
F115	10 A	Hydraulic system switch option
F116	10 A	Work floodlights, spare (B)
F117	20 A	Work floodlights, cab, outer right/ left (B)
F118	15 A	Indicator system
F119	15 A	Work floodlights, cab, centre right/ left (B)
F120	15 A	Work floodlights, mirror arm, inner right
F121	20 A	Work floodlights, cab roof, centre
F122	15 A	Work floodlights, railing inner
F123	15 A	Work floodlights, mirror arm, outer right (C) EEL1541
F124	3 A	Reading lamp / interior lighting
F125	15 A	Work floodlights, mirror arm, outer left (C) EEL1537
F126	15 A	Work floodlights, railing outer (A')
F127	20 A	Revolving beacon
F128	15 A	Radio terminal 30

Fuses in the cab roof		
Number	**Thickness**	**Function**
F129	15 A	Light switch

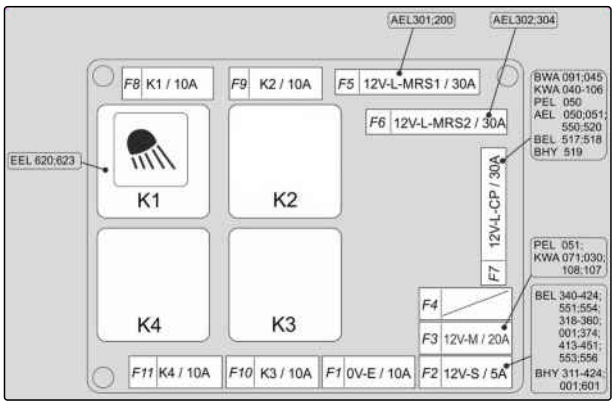
Relay in the cab roof	
Number	**Function**
K100	Relay, revolving beacons
K101	Relay, work floodlights cab roof (B)
K102	Relay, work floodlights cab centre (A)
K103	Relay, work floodlights, railing inner (C)
K104	Relay, work floodlights, railing centre (C)
K105	Relay, work floodlights, railing outer (A')
K106	Relay, air conditioning system
K115	Terminal 15D

12.4.4 Electrical system for the sprayer boom

CMS-T-00014621-A.1

The electrical system for the sprayer boom is located in the fuse box on the control panel.

CMS-I-00009290



CMS-I-00009289

Fuses on the control panel		
Number	**Thickness**	**Function**
F1	10 A	OV_E
F2	5 A	12V-L-S Tilting cylinder pressure, right side
F3	20 A	12V_M (NZ163)
F4	30 A	Spare (NZ163)
F5	30 A	12V_L_MRS1
F6	30 A	12V_L_MRS2
F7	30 A	12V_C_CP
F8	10 A	Work lights, boom (NZ163)
F9	10 A	Spare (NZ163)
F10	10 A	Spare (NZ163)
F11	10 A	Spare (NZ163)

Relays on the control panel	
Number	**Function**
K1	Work lights (NZ163)
K2	Intensive cleaner 1 (NZ163)
K3	Spare (NZ163)
K4	Intensive cleaner 2 (NZ163)

12.4.5 Electrical system for AmaSelect

The fuses are located under the cover hood on the centre segment of the boom.

CMS-T-00014623-A.1

CMS-I-00009288

Fuses for AmaSelect		
Number	**Thickness**	**Function**
–-	15 A	AmaSelect motor
–-	15 A	AmaSelect lighting

12.5 Other applicable documents

CMS-T-00014649-A.1

- Operating manual of the control terminal
- Operating manual for the ISOBUS software
- Operating manual for the Deutz engine
- Operating manual and maintenance instructions for the air conditioning system
- Operating manual for the radio

Directories 13

13.1 Glossary

CMS-T-00014648-A.1

M

Machine

The self-propelled field sprayer is always referred to as the machine in this operating manual.

O

Operating materials

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

S

Spray liquid

Mixture of spray agent and water.

Spray agent

Concentrated liquid fertiliser or crop protection product.

13.2 Index

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