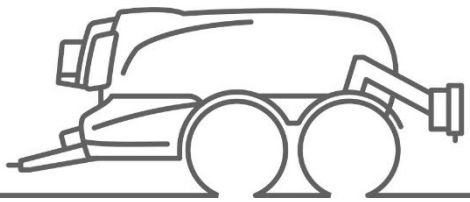
Operating manual

AMAZONE

UX 11201 Super

Trailed field sprayer

with Comfort Package CP



MG7918
BAG0206.11 03.25
Printed in Germany

SmartLearning

Please read this operating manual before initial operation. Keep it in a safe place for future use!

en_US

READING THE INSTRUCTION

manual and to adhere to it should not appear to be inconvenient and superfluous as it is not enough to hear from others and to realise that a machine is good, to buy it and to believe that now everything would work by itself. The person concerned would not only harm himself but also make the mistake of blaming the machine for the reason of a possible failure instead of himself. In order to ensure a good success one should go into the mind of a thing or make himself familiar with every part of the machine and to get acquainted with its handling. Only this way, you would be satisfied both with the machine as also with yourself. To achieve this is the purpose of this instruction manual.

Leipzig-Plagwitz 1872. Rud. Sark.

Identification data

Manufacturer:	AMAZONEN-WERKE H. DREYER SE & Co. KG
Implement ID No.	
Type:	
Permissible system pressure (bar):	
Year of manufacture:	
Factory:	
Basic weight (kg):	
Permissible total weight (kg):	
Maximum load (kg):	

Manufacturer's address

AMAZONEN-WERKE
H. DREYER SE & Co. KG
Postfach 51
D-49202 Hasbergen, Germany
Tel.: + 49 (0) 5405 50 1-0
E-mail: amazone@amazone.de

Spare part orders

Spare parts lists are freely accessible in the spare parts portal at www.amazone.de.

Please send orders to your AMAZONE dealer.

Formalities of the operating manual

Document number: MG7918

Compilation date: 03.25

This operating manual is valid for all versions of the implement.

All of the equipment is described without indicating it as special optional equipment.

A description may be provided for 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.

All information in this operating manual corresponds to the state of knowledge at the time of publication. Due to ongoing development of the implement, deviations are possible between the implement and the information in this operating manual.

No claims can be made based on differences in the specifications, figures or descriptions.

Figures serve as a reference and are to be understood as representations of the principle.

If you want to sell the implement, ensure that the operating manual is supplied with the implement.

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER SE & Co. KG. We thank you for your trust in our products

On receiving the implement, check to see if it has been damaged during transport or if parts are missing. Using the delivery note, check that the implement has been delivered in full, including any special equipment ordered. Damage can only be rectified if problems are claimed immediately.

Before initial operation, read and observe this operating manual, and particularly the safety information. Only after careful reading will you be able to benefit from the full scope of your newly purchased implement.

Please ensure that all the implement operators have read this operating manual before they put the implement into operation.

Should you have any questions or problems, please consult this operating manual or contact your local service partner.

Regular maintenance and timely replacement of worn or damaged parts increases the lifespan of your implement.

User evaluation

Dear Reader,

We update our operating manuals regularly. Your suggestions for improvement help us to create ever more user-friendly operating manuals.

AMAZONEN-WERKE

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1 User information

The User Information section provides information on use of the operating manual.

1.1 Purpose of the document

This operating manual

- describes the operation and maintenance of the implement.
- provides important information on safe and efficient handling of the implement.
- is a component part of the implement and should always be kept with the implement or the towing vehicle.
- must be kept in a safe place for future use.

1.2 Locations in the operating manual

All the directions specified in the operating manual are always seen in the direction of travel.

1.3 Diagrams

Instructions and responses

Activities to be carried out by the user are given as numbered instructions. Always keep to the order of the instructions. The reaction to the handling instructions is given by an arrow. Example:

1. Instruction 1

→ Implement response to instruction 1

2. Instruction 2

Lists

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

- Point 1
- Point 2

Item numbers in diagrams

Numbers in round brackets refer to the item numbers in the diagrams.

Example: (6) = Position 6

2 General safety instructions

This section contains important information on safe operation of the implement.

2.1 Obligations and liability

Comply with the instructions in the operating manual

Knowledge of the basic safety information and safety regulations is a basic requirement for safe handling and fault-free implement operation.

Obligations of the operator

The operator is obliged only to let those people work with/on the implement who

- are aware of the basic workplace safety information and accident prevention regulations.
- Have been introduced to working with/on the implement.
- have read and understood this operating manual.

The operator is obliged

- to keep all the warning symbols on the implement in a legible state.
- to replace damaged warning symbols.

Obligations of the user

Before starting work, anyone charged with working with/on the implement is obliged

- to comply with the basic workplace safety instructions and accident prevention regulations.
- To read and observe the section "General safety information" of this operating manual.
- To read the section "Warning symbols and other labels on the implement" (page 19) of this operating manual and to follow the safety instructions represented by the warning symbols when operating the implement.
- to get to know the implement.
- to read the sections of this operating manual, important for carrying out your work.

If the user discovers that a function is not working properly, then they must eliminate this fault immediately. If this is not the task of the user or if the user does not possess the appropriate technical knowledge, then they should report this fault to their superior (operator).

Risks in handling the implement

The implement has been constructed to the state-of-the art and the recognised rules of safety. However, operating the implement may cause risks and restrictions

- the health and safety of the user or third parties,
- the implement,
- other property.

Only use the implement

- for the purpose for which it was intended.
- in a perfect state of repair.

Eliminate any faults immediately which could impair safety.

Guarantee and liability

Our "General conditions of sales and delivery" are always applicable. These shall be available to the operator, at the latest on conclusion of the contract. Guarantee and liability claims for damage to people or property will be excluded if they can be traced back to one or more of the following causes:

- Improper use of the implement.
- Improper installation, commissioning, operation and maintenance of the implement.
- Operation of the implement with defective safety equipment or improperly attached or non-functioning safety equipment.
- Non-compliance with the instructions in the operating manual regarding commissioning, operation and maintenance.
- Unauthorised design changes to the implement.
- Insufficient monitoring of implement parts which are subject to wear.
- Improperly executed repairs.
- Disasters due to the effects of foreign objects and force majeure.

2.2 Representation of safety symbols

Safety instructions are indicated by the triangular safety symbol and the highlighted signal word. The signal word (danger, warning, caution) describes the severity of the risk and has the following significance:

DANGER

Indicates a direct threat at high risk which will result in death or most serious bodily harm (loss of limbs or long-term harm), should it not be prevented.

If the instructions are not followed, then this will result in immediate death or serious physical injury.

WARNING

Indicates a medium risk, which could result in death or (serious) physical injury if not avoided.

If the instructions are not followed, then this may result in death or serious physical injury.

CAUTION

Indicates a low risk which could cause minor or medium level physical injury or damage to property if not avoided.

IMPORTANT

Indicates an obligation to special behaviour or an activity required for proper machine handling.

Non-compliance with these instructions can cause faults on the machine or disturbance to the environment.

NOTE

Indicates handling tips and particularly useful information.

These instructions will help you to use all the functions of your machine in the best way possible.

2.3 Organisational measures

The operating company must provide the necessary personal protective equipment as per the information provided by the manufacturer of the crop protection agent to be used, such as:

- Chemical-resistant gloves,
- Chemical-resistant overalls,
- Water-resistant footwear,
- Face mask,
- Breathing protection,
- Protective goggles,
- Skin protection agents etc.

The operating manual

- must always be kept at the place at which the implement is operated.
- must always be easily accessible for the user and maintenance personnel.

Check all the available safety equipment regularly.

2.4 Safety and protective equipment

Before starting up the implement each time, all the safety and protection equipment must be properly attached and fully functional. Check all safety and protection equipment regularly.

Faulty safety equipment

Faulty or disassembled safety and protection equipment can lead to dangerous situations.

2.5 Informal safety measures

As well as all the safety information in this operating manual, comply with the general, national regulations pertaining to accident prevention and environmental protection.

When driving on public roads and routes you should comply with the statutory road traffic regulations.

2.6 User training

Only trained and instructed persons should be allowed to work with/on the implement. The responsibilities of the operating and maintenance personnel must be clearly defined.

People being trained may only work with/on the implement under the supervision of an experienced person.

Person / Job	Person specially trained for the activity [1]	Instructed operator[2]	Persons with specialist training (specialist workshop) [3]
Loading/Transport	X	X	X
Start-up	--	X	--
Set-up, tool installation	--	--	X
Operation	--	X	--
Maintenance	--	--	X
Troubleshooting and fault elimination	X	--	X
Disposal	X	--	--

Key: X..permitted --..not permitted

[1] A person who can assume a specific task and who can carry out this task for an appropriately qualified company.

[2] Instructed persons are those who have been instructed in their assigned tasks and in the possible risks in the case of improper behaviour, have been trained if necessary, and have been informed about the necessary protective equipment and measures.

[3] Persons with specialised technical training shall be considered as a specialist. Due to their specialist training and their knowledge of the appropriate regulations, they can evaluate the work with which they have been charged and detect possible dangers.

Comment:

A qualification equivalent to specialist training can be obtained from several years' experience in the relevant field.

If maintenance and repair work on the implement is additionally marked "Workshop work", only a specialist workshop may carry out such work. The personnel of a specialist workshop shall possess the appropriate knowledge and suitable aids (tools, lifting and support equipment) for carrying out the maintenance and repair work on the implement in a way which is both appropriate and safe.

2.7 Safety measures in normal operation

Only operate the implement if all the safety and protection equipment is fully functional.

Check the implement at least once a day for visible damage and check the function of the safety and protection equipment.

2.8 Danger from residual energy

Note that there may be residual mechanical, hydraulic, pneumatic and electrical/electronic energy on the implement.

Use appropriate measures to inform the operating personnel. You can find detailed information in the relevant sections of this operating manual.

2.9 Maintenance and repair work, fault elimination

Carry out prescribed setting, maintenance and inspection work in good time.

Secure all media such as compressed air and the hydraulic system against unintentional start-up.

Carefully fix and secure larger assembly groups to lifting gear when carrying out replacement work.

Regularly check that bolted connections are firmly secured and tighten if necessary.

When the maintenance work is completed, check the function of the safety devices.

2.10 Design changes

You may make no changes, expansions or modifications to the implement without the authorisation of AMAZONEN-WERKE. This also applies when welding support parts.

Any expansion or conversion work shall require the written approval of AMAZONEN-WERKE. Only use modification and accessory parts approved by AMAZONEN-WERKE so that the type approval, for example, remains valid in accordance with national and international regulations.

Vehicles with an official type approval or with equipment connected to a vehicle with a valid type approval or approval for road transport according to the German road traffic regulations must be in the state specified by the approval.

WARNING

Risk of crushing, cutting, being trapped or drawn in, or impact through the failure of support parts.

It is strictly forbidden to

- drill holes in the frame or on the running gear.
- increase the size of existing holes on the frame or the running gear.
- weld on load-bearing parts.

2.10.1 Spare and wear parts and aids

Immediately replace any implement parts which are not in a perfect state.

Only use genuine AMAZONE spare and wear parts, or those approved by AMAZONEN-WERKE, so that the operating permit remains valid according to the national and international regulations. If you use wear and spare parts from third parties, there is no guarantee that they have been designed and manufactured in such a way as to meet the requirements placed on them.

AMAZONEN-WERKE shall accept no liability for damage caused by the use of non-approved spare and wear parts or aids.

2.11 Cleaning and disposal

Handle and dispose of any materials used carefully, in particular

- when carrying out work on lubrication systems and equipment and
- when cleaning using solvents.

2.12 User workstation

The implement may be operated by only one person sitting in the driver's seat of the tractor.

2.13 Warning symbols and other markings on the machine

Always keep all the warning symbols of the machine clean and in a legible state. Replace illegible warning symbols. You can obtain the warning symbols from your dealer using the order number (e.g. MD 075).

Warning symbols – structure

Warning pictograms indicate danger areas on the implement and warn of residual dangers. Permanent or unexpected dangers exist in these areas.

A warning symbol consists of two fields:

Field 1

is a symbol describing the danger, surrounded by triangular safety symbol.

Field 2

is a symbol showing how to avoid the danger.

Warning symbols – explanation

The column **Order number and explanation** provides an explanation of the neighbouring warning symbol. The description of the warning symbols is always the same and specifies, in the following order:

1. A description of the danger.

   For example: risk of cutting

2. The consequence of non-compliance with the risk avoidance instructions.

   For example: causes serious injuries to fingers or hands.

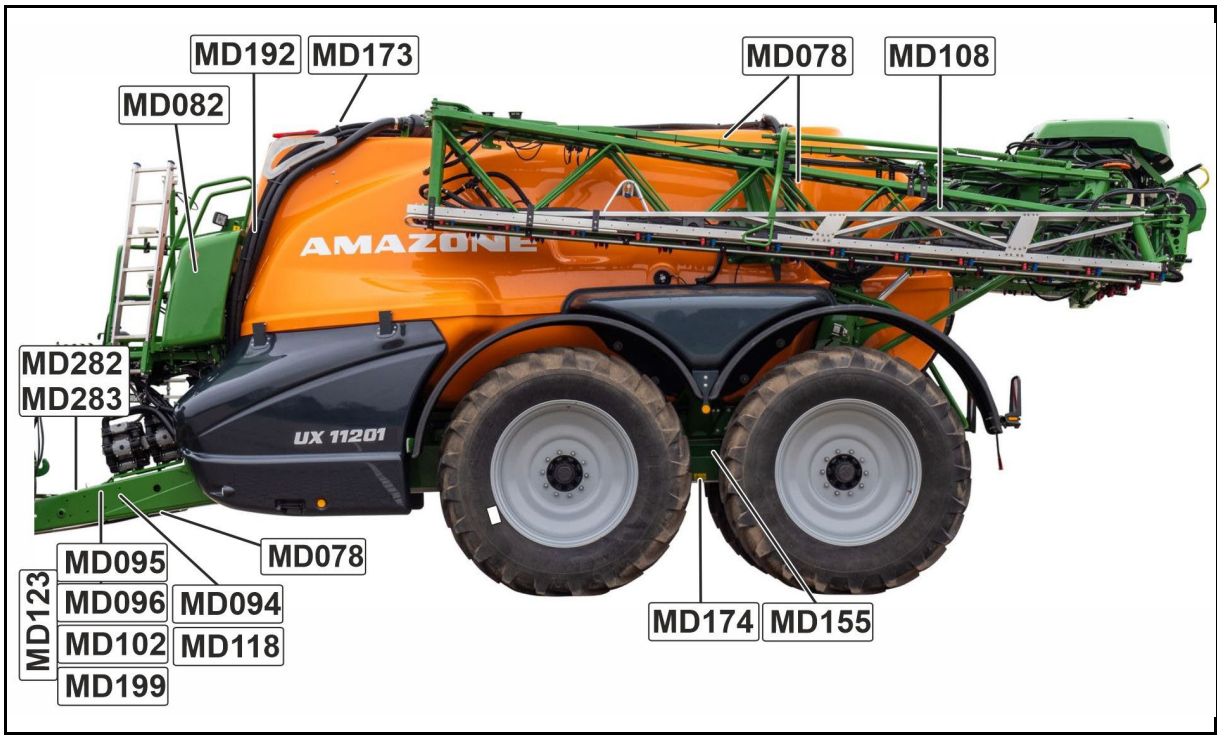
3. The risk avoidance instructions.

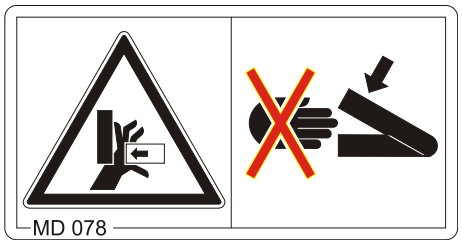
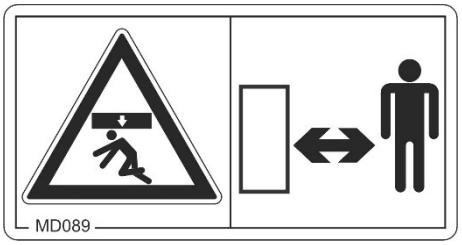
   For example: only touch implement parts when they have come to a complete standstill.

2.13.1 Positions of warning symbols and other labels

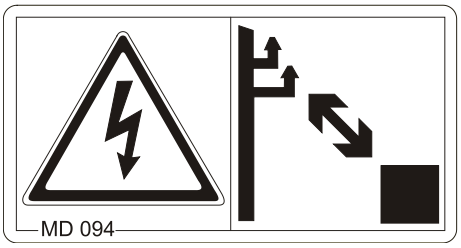
Warning symbols

The following diagrams show the arrangement of the warning symbols on the implement.



Order number and explanation	Warning symbols
MD 076 **Risk of entanglement** • Interrupt the power supply to the implement before approaching the danger zone. • Wait until all moving parts have come to a standstill before reaching into the danger zone. • Ensure that no one is standing in the danger zone or in the vicinity of moving parts.	
MD 078 **Risk of crushing fingers or hands by accessible moving machine parts.** This danger causes serious injuries, including loss of body parts such as fingers or hand. Never reach into the danger area while the tractor engine is running and the universal joint shaft / hydraulic system is connected.	
MD 082 **Danger of falling from treads and platforms when riding on the machine.** This danger causes serious or potentially fatal injuries anywhere on the body. It is forbidden to ride on the implement and/or climb the implement while it is running. This prohibition also applies to implements with step surfaces or platforms. Make sure that nobody is riding on the implement.	
MD 089 **Risk of crushing the entire body due to standing under suspended loads or raised implement parts.** Causes serious, potentially fatal injuries anywhere on the body. • It is forbidden to stand under suspended loads or raised implement parts. • Maintain an adequate safety distance from any suspended loads or raised implement parts. • Ensure that all personnel maintain an adequate safety distance from suspended loads or raised implement parts.	

MD 094



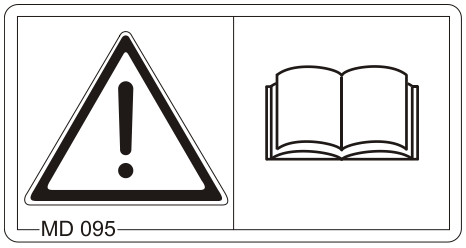
Danger due to overhead power lines

- Never touch overhead power lines with the implement.
- Maintain an adequately safe distance from overhead power lines, particularly, when folding or unfolding implement parts.
- Note that the voltage can also flash over if the safety distance is insufficient.
- Before starting work, check the operating site for overhead power lines and the associated hazards.

Rated voltage	Safety distance from transmission lines
up to 1 kV	1 m
over 1 up to 110 kV	2 m
over 110 up to 220 kV	3 m
over 220 up to 380 kV	4 m

MD 095

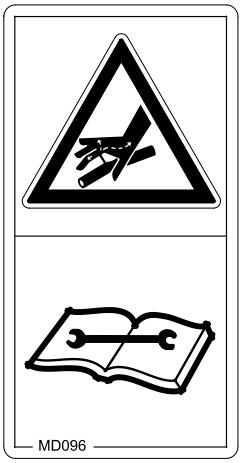
Before commissioning the implement read and observe the operating manual and the safety instructions carefully!



MD 096

Risk of infection due to hydraulic fluid escaping at high pressure

- Have the hydraulic system tested and repaired by a qualified specialist workshop only.
- Stay away from leak points in the hydraulic system.
- If you are injured by hydraulic fluid, get medical attention immediately.



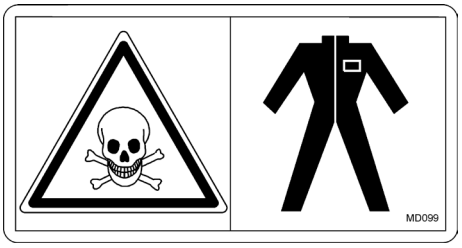
MD 099

Risk of contact with hazardous materials due to improper handling.

Causes serious, potentially fatal injuries anywhere on the body.

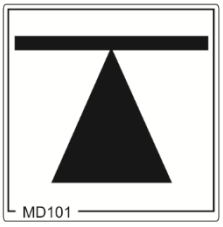
Put on the personal protective equipment.

Before coming into contact with hazardous materials, put on protective clothing. Follow the manufacturer's safety instructions for the materials to be processed



MD101

This symbol indicates application points for using lifting gear (jack).

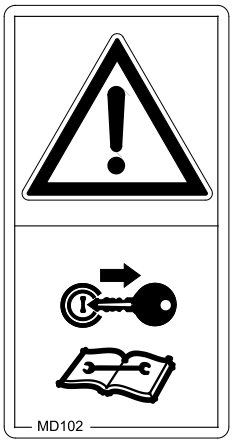


MD 102

Danger from intervention in the implement, e.g. installation, adjusting, troubleshooting, cleaning, maintaining and repairing, due to the tractor and the implement being started unintentionally and rolling.

These dangers can cause extremely serious and potentially fatal injuries.

- Secure the tractor and the implement against unintentional start-up and rolling before any intervention in the implement.
- Depending on the type of intervention, read and understand the information in the relevant sections of the operating manual.

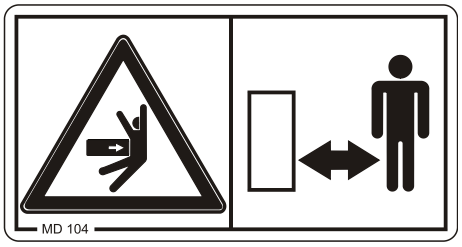


MD 104

Risk of crushing the entire body or bodily impacts due to standing in the swivel range of laterally moving implement parts!

These hazards can cause serious injuries, possibly with fatal consequences.

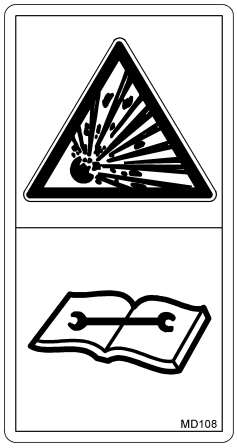
- Maintain an adequate safety distance from moving implement parts while the tractor engine is running.
- Ensure that all personnel maintain an adequate safety distance from moving implement parts.



MD 108

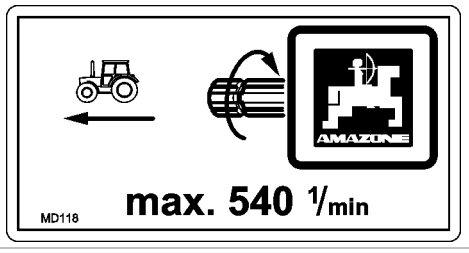
Severe injuries due to incorrect handling of the pressurized hydraulic accumulator

- Have pressurized hydraulic accumulators checked and repaired by a qualified specialist workshop only.



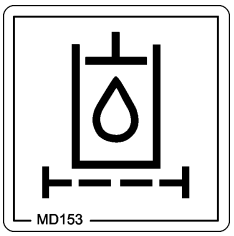
MD 118

This symbol indicates the maximum drive speed (540 rpm) and direction of rotation of the drive shaft on the machine side.



MD 153

This pictogram indicates a hydraulic oil filter.



MD 155

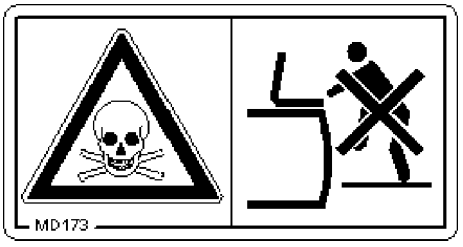
This icon designates the restraint points for tieing the implement to a transport vehicle allowing the implement to be transported in a safe manner.

MD 173

Danger from breathing in hazardous substances due to toxic vapours in the spray liquid tank!

Causes serious, potentially fatal injuries anywhere on the body.

Never climb into the spray liquid tank.

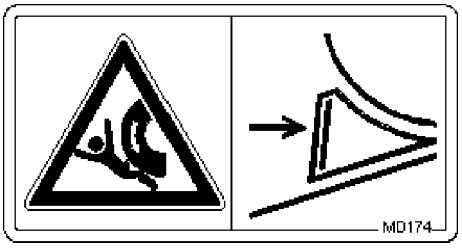


MD 174

Danger from unintended continued movement of the implement!

Will cause serious injuries anywhere on the body or death.

Secure the implement against moving away unintentionally before uncoupling the implement from the tractor. To do this, use the parking brake and/or the wheel chock(s).

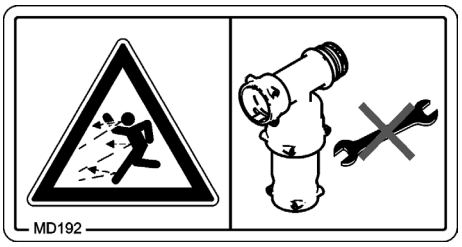


MD 192

Danger of fluids escaping under high pressure while working on hoses and connections under pressure!

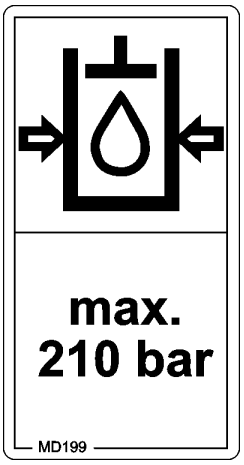
This can result in extremely serious injuries on all parts of the body.

It is not allowed to work on this component.



MD 199

The maximum operating pressure of the hydraulic system is 210 bar.



MD 224

Risk of contact with hazardous materials due to improper use of clear fresh water from the hand wash tank.

This danger can cause extremely serious and potentially fatal injuries.

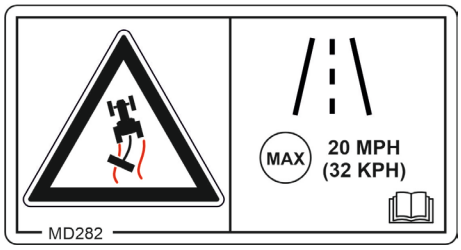
Never use the clear water from the hand wash tank as drinking water.

MD282

Risk of accident due to the implement skidding

Loss of implement control can result in death or severe injuries.

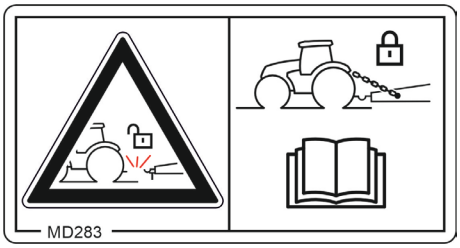
- Do not exceed the transport speed.



MD283

Risk of accident if the implement is not secured

- Always use the safety chain.
- Read and understand the instructions in the operating manual.



2.14 Dangers in case of non-observance of the safety instructions

Non-compliance with the safety information

- can pose both a danger to people and also to the environment and machine.
- can lead to the loss of all warranty claims.

In particular, non-compliance with the safety information could pose the following risks:

- Danger to people through non-secured working areas.
- Failure of important machine functions.
- Failure of prescribed methods of maintenance and repair.
- Danger to people through mechanical and chemical impacts.
- Risk to the environment through leakage of hydraulic fluid.

2.15 Safety-conscious working

Besides the safety information in this operating manual, the generally applicable national workplace safety and accident prevention regulations are binding.

Comply with the accident prevention instructions on the warning symbols.

When driving on public roads and routes, comply with the appropriate statutory road traffic regulations.

2.16 Safety information for users

WARNING

Risk of crushing, cutting, being trapped or drawn in, or impact through inadequate roadworthiness and operational safety.

Before starting up the implement and the tractor, always check their traffic and operational safety.

2.16.1 General safety instructions and accident prevention instructions

- In addition to these instructions, also comply with the generally valid national and safety and accident prevention regulations!
- The warning symbols attached on the implement provide important instructions for safe operation of the machine. Compliance with these instructions is essential for your safety!
- Before moving off and starting up the implement, check the immediate area of the implement (children). Ensure that you can see clearly.
- It is forbidden to ride on the implement or use it as a means of transport!
- Drive in such a way that you always have full control over the tractor with the attached implement.

  In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected or coupled implement.

Coupling and uncoupling the implement

- Only connect and transport the implement with tractors suitable for the task.
- When coupling implements to the tractor's three-point hydraulic system, the attachment categories of the tractor and the implement must always be the same!
- Connect the implement to the prescribed equipment in accordance with the specifications.
- When coupling implements to the front or the rear of the tractor, the following may not be exceeded:
  - The permissible total tractor weight
  - The permissible tractor axle loads
  - The permissible load capacities of the tractor tyres
- Secure the tractor and the implement against unintentional rolling before coupling or uncoupling the implement.
- It is forbidden for people to stand between the implement to be coupled and the tractor while the tractor is approaching the implement.

  Any helpers may only act as guides standing next to the vehicles, and may only move between the vehicles when both are at a standstill.
- Before connecting the implement to or disconnecting the implement from the tractor's three-point hydraulic system, secure the operating lever of the tractor hydraulic system so that unintentional raising or lowering is prevented.

- When coupling and uncoupling implements, move the support equipment (if available) to the appropriate position (stability).
- When actuating the support equipment, there is a danger of injury from contusion and cutting points!
- Be particularly careful when coupling the implement to the tractor or uncoupling it from the tractor! There are nip and shear points in the area of the coupling point between the tractor and the implement.
- It is forbidden to stand between the tractor and the implement when actuating the three-point hydraulic system.
- Coupled supply lines:
  - must give without tension, bending or rubbing on all movements when travelling round corners.
  - must not chafe against other parts.
- The release ropes for quick action couplings must hang loosely and may not release themselves when lowered.
- Also ensure that uncoupled implements are stable!

Use of the implement

- Before starting work, ensure that you understand all the equipment and actuation elements of the implement and their function. There is no time for this when the machine is already in operation!
- Wear tight-fitting clothing! There is an increased risk of loose clothing getting caught or entangled on drive shafts!
- Only place the implement in service after all protective devices have been attached and are in protective position!
- Comply with the maximum load of the connected implement and the permissible axle and drawbar loads of the tractor. If necessary, drive only with a partially filled tank.
- It is forbidden to stand in the working area of the implement.
- It is forbidden to stand in the turning and swivel range of the implement.
- There are crushing and shearing hazards on implement parts actuated by external force (e.g. hydraulically)!
- Only actuate implement parts actuated by external force if personal are maintaining an adequate safety distance to the implement!
- Secure the tractor against unintentional start-up and rolling, before you leave the tractor.

  For this:
  - Lower the implement onto the ground.
  - Apply the parking brake.
  - Switch off the tractor engine.
  - Remove the ignition key.

Implement transportation

- When using public roads, national road traffic regulations must be observed.
- Before moving off, check:
  - the correct connection of the supply lines,
  - the lighting system for damage, function and cleanliness,
  - that the brake and hydraulic system shows no visible signs of defect,
  - that the parking brake is completely released,
  - the functioning of the brake system.
- Ensure that the tractor has sufficient steering and braking power.
  Any implements and front/rear weights connected to the tractor influence the driving behaviour and the steering and braking power of the tractor.
- If necessary, use front weights.
  The tractor front axle must always be loaded with at least 20 % of the empty tractor weight, in order to ensure sufficient steering power.
- Always fix the front or rear weights to the intended fixing points according to regulations.
- Comply with the maximum payload of the connected implement and the permissible axle and drawbar loads of the tractor.
- The tractor must guarantee the prescribed brake delay for the loaded vehicle combination (tractor plus connected implement).
- Check the brake power before moving off.
- When turning corners with the implement coupled, take the wide sweep and centrifugal mass of the implement into account.
- Before moving off, ensure sufficient side locking of the tractor lower links, when the implement is fixed to the three-point hydraulic system or lower links of the tractor.
- Before road transport, move all the swivel implement parts to the transport position.
- Before road transport, secure all the swivel implement parts in the transport position against risky position changes. Use the transport locks intended for this.
- Before road transport, secure the operating lever of the three-point hydraulic system against unintentional raising or lowering of the coupled implement.
- Check that the transport equipment, e.g. lighting, warning equipment and protective equipment, is correctly installed on the implement.
- Before road transport, carry out a visual check that the top and lower link pins are firmly fixed with the linch pin against unintentional release.
- Adjust your forward speed to the prevailing conditions.
- Before driving downhill, switch to a low gear.
- Before road transport, always switch off the independent wheel braking (lock the pedals).

2.16.2 Hydraulic system

- The hydraulic system is under a high pressure.
- Ensure that the hydraulic hose lines are connected correctly.
- When connecting the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the implement and tractor.
- It is forbidden to block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:
  - are continuous or
  - are automatically locked or
  - require a float position or pressure position due to their function.
- Before working on the hydraulic system,
  - Lower the implement.
  - Depressurise the hydraulic system.
  - Switch off the tractor engine.
  - Apply the parking brake.
  - Remove the ignition key.
- Have the hydraulic hose lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if they are damaged or worn. Only use genuine AMAZONE hydraulic hose lines!
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural aging, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose lines made of thermoplastics, other guide values may be decisive.
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.

  Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!

  If you are injured by hydraulic fluid, contact a doctor immediately. Risk of infection.
- When searching for leakage points, use suitable aids, to avoid the serious risk of infection.

2.16.3 Electrical system

- When working on the electrical system, always disconnect the battery (negative terminal).
- Only use the prescribed fuses. If fuses are used that are too highly rated, the electrical system will be destroyed – risk of fire.
- Ensure that the battery is connected correctly – firstly connect the positive terminal and then connect the negative terminal. When disconnecting the battery, disconnect the negative terminal first, followed by the positive terminal.
- Always place the appropriate cover over the positive battery terminal. If there is accidental earth contact, there is a danger of explosion!
- Risk of explosion. Avoid sparking and naked flames in the area of the battery.
- The implement may be equipped with electronic components whose function is influenced by electromagnetic interference from other units. Such interference can pose risks to people, if the following safety information is not observed.
  - In the case of retrofitting electrical units and/or components on the implement, with a connection to the on-board power supply, the operator is responsible for checking whether the installation might cause faults on the vehicle electronics or other components.
  - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 2004/108/EEC in the appropriate version and carry the CE mark.

2.16.4 PTO shaft operation

- Use only the universal joint shafts prescribed by the AMAZONEN-WERKE factories, equipped with the proper safety devices.
- Also read and follow the operating manual from the universal joint shaft manufacturer.
- The protective tube and universal joint shaft guard must be undamaged, and the shield of the tractor and implement PTO shaft must be attached and be in proper working condition.
- Work is prohibited while the safety devices are damaged.
- You can attach and detach the universal joint shaft only when
  - the PTO shaft is switched off.
  - the tractor engine is switched off.
  - the parking brake has been applied.
  - the ignition key has been removed.
- Always ensure that the universal joint shaft is installed and secured correctly.
- When using wide-angle universal joint shafts, always install the wide angle joint at the pivot point between the tractor and implement.

- Secure the universal joint shaft guard by attaching the chain(s) to prevent movement.
- Observe the prescribed pipe overlaps for universal joint shafts in transport and working positions. (Read and follow the operating manual from the universal joint shaft manufacturer.)
- When turning corners, observe the permitted bending and displacement of the universal joint shaft.
- Before switching on the PTO shaft, check that the selected PTO shaft speed of the tractor matches the permitted drive speed of the implement.
- Instruct everyone to leave the danger area of the implement before switching on the PTO shaft.
- While work is being carried out with the PTO shaft, there must be no one in the area of the PTO or universal joint shaft while it is turning.
- Never switch on the PTO shaft while the tractor engine is turned off.
- Always switch off the PTO shaft whenever excessive bending occurs or it is not needed.
- WARNING! After the PTO shaft is switched off, there is a danger of injury from the continued rotation of freewheeling implement parts.

  Do not approach the implement too closely during this time. You must only start work on the implement once all implement parts are at a complete standstill!
- Secure the tractor and implement against unintentional starting and unintentional rolling away before you perform any cleaning, servicing or maintenance work on PTO shaft-driven implements or universal joint shafts.
- After uncoupling the universal joint shaft, place it on the holder provided.
- After removing the universal joint shaft, attach the protective sleeve to the PTO shaft stub.
- When using the travel-dependent PTO shaft, note that the PTO shaft speed depends on the drive speed, and that the direction of rotation reverses when you drive in reverse.

2.16.5 Attached implements

- Comply with the approved combination options for the attachment equipment on the tractor and the implement drawbar.

  Only couple approved combinations of vehicles (tractor and attached implement).
- In the case of single axle implements, observe the maximum permitted drawbar load of the tractor on the attachment equipment.
- Always ensure that the tractor has sufficient steering and braking capacity!

  Implements connected to a tractor can influence your driving behaviour, as well as the steering and braking power of the tractor, in particular in the case of single axle implements with the drawbar load on the tractor.
- Only a specialist workshop may adjust the height of the drawbar on straight drawbars with a drawbar load.
- Implements without brake system:

  Observe the national regulations for implements without a brake system.

2.16.6 Brake system

- Only specialist workshops or recognised brake services can carry out adjustment and repair work on the brake system.
- Have the brake system thoroughly checked regularly.
- If there are any functional faults in the brake system, stop the tractor immediately. Have the malfunction rectified immediately.
- Before performing any work on the brake system, park the implement safely and secure the implement against unintentional lowering and rolling away (wheel chocks)!
- Be particularly careful when carrying out any welding, torch cutting or drilling work in the area of the brake lines.
- Always carry out a braking test after any adjusting or repair work on the braking system.

Pneumatic braking system

- Before coupling the implement, clean any dirt on the sealing rings on the coupling heads of the supply and brake lines.
- Only move off with the implement connected when the pressure gauge on the tractor shows 5.0 bar.
- Drain the air reservoir every day!
- Before driving without the implement, seal the coupling heads on the tractor.
- Hang the coupling heads of the implement supply and brake lines in the appropriate idle couplings.
- When filling up or replacing the brake fluid, use the prescribed fluid. When replacing the brake fluid, comply with the appropriate regulations.
- Do not make any changes to the specified settings on the brake valves!
- Replace the air reservoir if:
  - The air reservoir can be moved in the tensioning belts.
  - The air reservoir is damaged.
  - The rating plate on the air reservoir is rusty, loose or missing

Hydraulic brake system for export implements

- Hydraulic brake systems are not approved in Germany.
- When filling up or replacing the brake fluid, use the prescribed hydraulic fluids. When replacing the hydraulic fluids, comply with the appropriate regulations.

2.16.7 Tyres

- Repair work on tyres and wheels may only be carried out by specialists with suitable installation tools.
- Check the air pressure at regular intervals.
- Inflate tyres to the specified air pressure! If the air pressure in the tyres is too high, then there is a risk of explosions.
- Park the implement in a safe place and lock the implement against unintentional falling and rolling (parking brake, wheel chocks), before carrying out work on the tyres!
- Tighten or retighten all the fixing screws and nuts in accordance with the specifications of AMAZONEN-WERKE.

2.16.8 Field sprayer operation

- Comply with the recommendations provided by the manufacturer of the crop protection product with regard to
  - personal protective equipment
  - warnings concerning the handling of crop protection products
  - regulations on dosing, applications and cleaning
- Pay attention to crop protection legislation regulations!
- It is forbidden to store contaminated protective equipment, spray agent canisters and used filters in the tractor cab.
- Take off protective equipment before entering the tractor cab.
- Never open lines which are under pressure.
- The nominal volume of the spray liquid tank may never be exceeded when filling!

- When handling crop protection products, observe the requirements of the safety data sheet for the substances used as well as the guidelines for personal protective equipment. Depending on the requirement of the safety data sheet of the substances used, the following components belong to your personal protective equipment:
  - protective clothing according to DIN 32781
  - rubber apron according to EN 14605
  - eye protection according to EN 166
  - breathing mask according to DIN EN 143/149/405/14387, at least a half-mask with combined particle filter and gas filter A1-P2 (Colour code: brown-white)
  - protective gloves with cuffs according to DIN 347/388/420
  - foot protection

  Use personal protective equipment if you could come into contact with crop protection products or fertiliser during one of the following activities:
  - filling of the spray liquid tank and addition of chemicals
  - spraying
  - settings on the implement
  - emptying and cleaning the tank
  - using different chemicals
  - maintenance
- Depending on the requirements of the safety data sheet of the active substances used, wear personal protective equipment in the tractor cab.
- Tractors with Category 4 cabs are prescribed when applying certain spray agents.
- Observe the information on the compatibility of crop protection agents and substances for the field sprayer.
- Do not spray any crop protection agents which have a tendency to stick together or set.
- Do not fill field sprayers with water from bodies of water which are open to the public, for the protection of people, animals and the environment.
- Fill the field sprayer only using original AMAZONE filling devices!

2.16.9 Cleaning, maintenance and repair

- Due to toxic vapours in the spray liquid tank, it is generally forbidden to climb into the spray liquid tank.

  Repair work in the spray liquid tank may only be performed by a specialist workshop!

- Repair-, maintenance- and cleaning operations as well as the remedy of function faults should principally be conducted under the following circumstances:

  - the drive is switched off.
  - the tractor engine is at a standstill.
  - the ignition key has been removed.
  - The implement plug has been disconnected from the on-board computer

- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- Secure the raised implement and/or raised implement parts against unintentional lowering before performing any cleaning, maintenance or repair work on the implement!
- When replacing work tools with blades, use suitable tools and gloves.
- Dispose of oils, greases and filters in the appropriate way.
- Disconnect the cable to the tractor generator and battery, before carrying out electrical welding work on the tractor and on attached implements.
- Spare parts must meet at least the specified technical requirements of AMAZONEN-WERKE!
  This is ensured through the use of
  genuine AMAZONE spare parts!
- When repairing field sprayers which have been used for liquid fertiliser application with ammonium nitrate / urea solution, observe the following points:

  Residues of ammonium nitrate / urea solutions may form salts on or in the spray liquid tank by the evaporation of water. This produces pure ammonium nitrate and urea. In its undiluted form, ammonium nitrate is explosive when combined with organic substances, e.g. urea, and subjected to critical temperatures during repair work (e.g. welding, grinding, filing).

  This danger can be eliminated by thoroughly washing out the spray liquid tank or the parts intended for repair with water, as the salt of the ammonium nitrate / urea solution is water-soluble. For this reason, clean the field sprayer thoroughly with water before carrying out repair work.

3 Loading the implement

3.1 Lashing the implement

The implement has 4 lashing points for lashing straps.

WARNING

Risk of accident due to improperly attached lashing straps
If lashing straps are not attached at the marked lashing points, the implement can be damaged when lashing, and this may compromise safety.

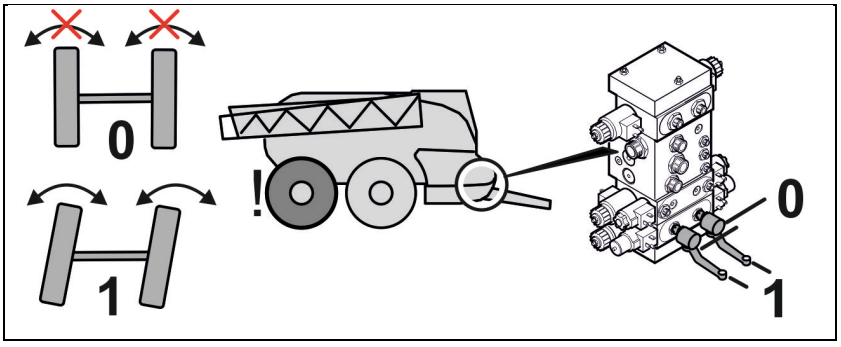
- Attach the lashing straps only at the marked lashing points.

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

Locking the rear axle

Before the implement can be pushed in reverse onto a truck, the rear axle must be locked in the straight-ahead position (position 0).

After unloading, unlock the axle (position 1).

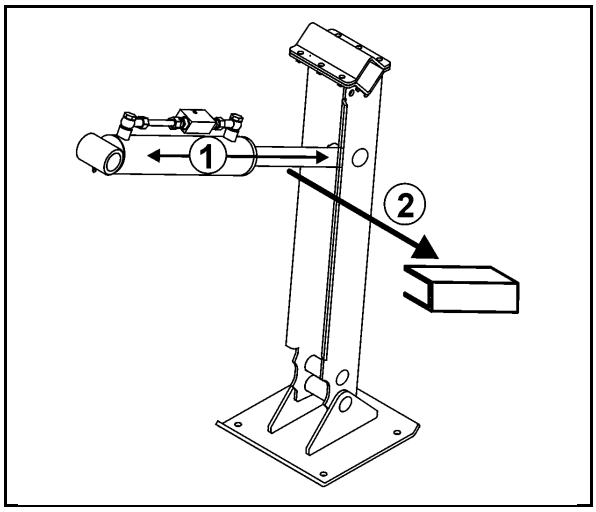


Transport lock for the hydraulic jack

Remove the transport lock for the jack after unloading the implement.

(1) Lift the implement hydraulically using the jack.

(2) Remove the transport lock.



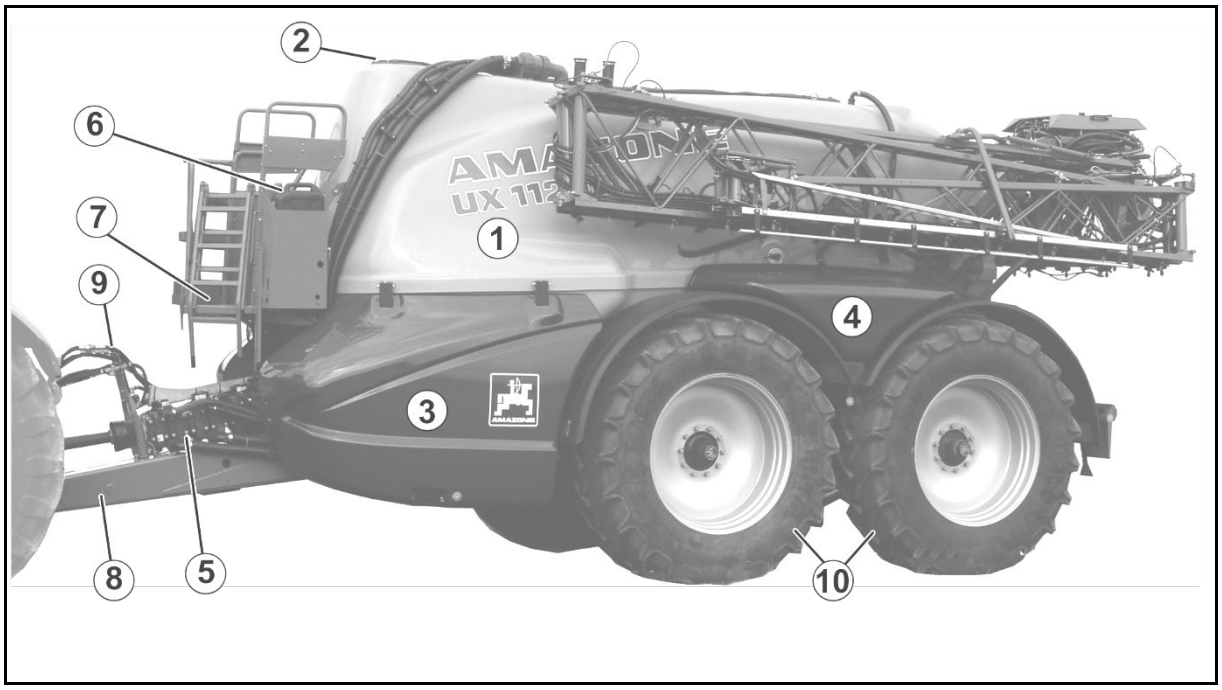
4 Product description

This section:

- provides a comprehensive overview of the implement layout.
- provides the names of the individual assembly groups and operator controls.

If possible, read this section when actually at the implement. This helps you to understand the implement better.

4.1 Overview of assembly groups



(1) Spray liquid tank

(2) Filling opening for spray liquid tank

(3) Control panel and induction bowl behind the swivel-mounted cover

(4) Flushing water tank 1

(5) Spraying and agitator pumps

(6) Hand wash tank

(7) Maintenance platform with ladder

(8) Drawbar

(9) Hose cabinet

(10) Wheels and tires

(1) Flushing water tank 2

(2) Hydraulic jack

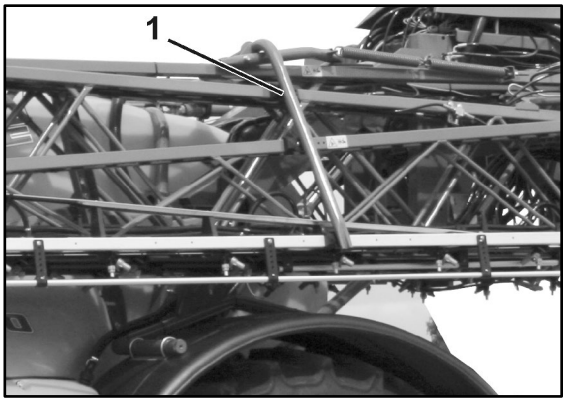
(3) Parking brake, hydraulic block and transport box behind the swiveling cover

(4) Job computer

(5) Super-L boom

4.2 Safety and protection equipment

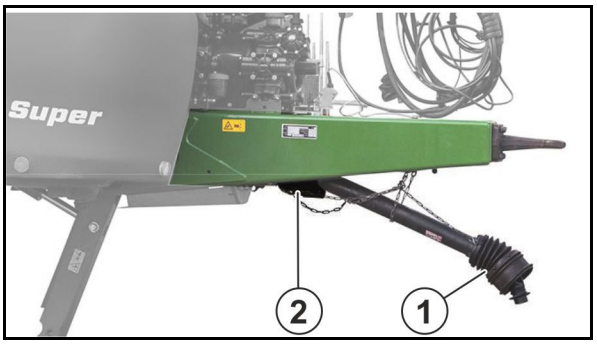
- Transport locking mechanism to prevent the Super-L boom from folding out unintentionally



- Railing on the maintenance platform

(1) Universal joint shaft guard with supporting chains

(2) Implement-side PTO shaft guard



4.3 Supply lines between the tractor and the implement

- Hydraulic hose lines (depending on the equipment)
- Electric cable for lighting
- ISOBUS implement cable
- Brake line with coupling head for pneumatic brake / brake line with connection to the hydraulic brake

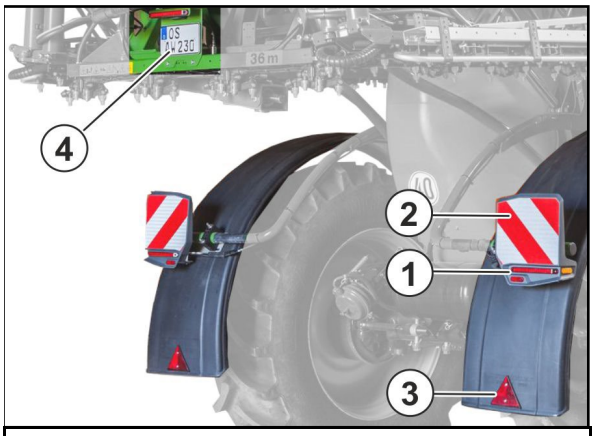
4.4 Transportation equipment

(1) Rear lights, brake lights, turn indicators

(2) 2 warning signs (square)

(3) 2 red reflectors (triangular)

(4) 1 number plate holder with lighting



Reflector, yellow, on the sides at a distance of max. 3 m

(1) Super-L boom:
Additional brake light and position light (not for France)

Connect the lighting system to the 7-pin tractor socket via the pin.

4.5 Intended use

The field sprayer

- is intended for the transportation and application of crop protection agents (insecticides, fungicides, herbicides, etc.) in the form of suspensions, emulsions and mixtures, as well as of liquid fertilisers.
- uses state-of-the-art technology to ensure biological success, provided that all the correct adjustments are made and correct doses are applied. Economical use of spraying agents and low rates of pollution are achieved.
- is intended exclusively for agricultural use, for treating field crops.

The pH value of the spray liquid to be applied (particularly liquid fertiliser) must be greater than 1.5.

Restrictions for use on slopes

(1) Driving on slopes with a full spray liquid tank

(2) Driving on slopes with a partially filled spray liquid tank

(3) Application of residual quantities

(4) Turning

(5) Folding the sprayer boom

	(1)	(2)	(3)	(4)	(5)
Across a slope	15%	15%	15%	15%	20%
Up/down the slope	15%	30%	15%	15%	20%

"Intended use" also iuncludes:

- Compliance with all the instructions in this operating manual.
- Execution of inspection and maintenance work.
- Exclusive use of genuine AMAZONE spare parts.

Other uses to those specified above are forbidden and shall be considered as improper.

For any damage resulting from improper use

- the operator bears the sole responsibility,
- AMAZONEN-WERKE accepts no liability.

4.6 Implement inspection

German inspection plate

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

Have the device inspected at regular intervals by a recognised and certified inspection workshop.

The date for performing the next device inspection is written on the inspection plate on the implement.

4.7 Consequences of using certain crop protection agents

We would like to draw attention to the fact that extended exposure (20 hours) to crop protection agents with which we are familiar, e.g. Lasso, Betanal and Tramat, Stomp, Iloxan, Mudecan, Elancolan and Teridox, can cause damage to the pump diaphragms, hoses, spray lines and tanks. The examples given are in no way intended to represent a comprehensive list.

In particular, we warn against unauthorised mixtures of two or more different crop protection agents.

Substances which have a tendency to stick together or set must not be applied.

When using such aggressive crop protection agents, it is recommended that the spray liquid be applied immediately after preparation and that the sprayer then be thoroughly cleaned afterwards with water.

Viton membranes are available as replacements for pumps. These are resistant to solvent-containing crop protection agents. However their service life is reduced by use at low temperatures (e.g. AUS in frosty conditions).

The materials and components used for AMAZONE field sprayers are safe for liquid fertiliser.

4.8 Danger areas and danger points

The danger area is the area around the machine in which people can be caught:

- by work movements made by the implement and its tools.
- by materials or foreign bodies thrown out of the implement.
- by tools rising or falling unintentionally.
- by unintentional rolling of the tractor and the implement.

Within the implement danger area, there are danger points with permanent or unexpected risks. Warning pictograms indicate these danger points and warn against residual dangers, which cannot be eliminated for construction reasons. Here, the special safety regulations of the appropriate section shall be valid.

No-one may stand in the implement danger area:

- as long as the tractor engine is running with a connected universal joint shaft/hydraulic system.
- as long as the tractor and implement are not protected against unintentional start-up and running.

The operating person may only move the implement or switch or drive the tools from the transport position to the working position or vice-versa when there is no-one in the implement danger area.

Danger points exist:

- Between the tractor and field sprayer, particularly when coupling and uncoupling.
- Where there are moving components.
- When the implement is in motion.
- In the swivelling range of the sprayer boom.
- In the spray liquid tank due to toxic vapours.
- Underneath raised, unsecured implements or parts of implements.
- When unfolding/folding the sprayer boom in the area of overhead cables due to contact with overhead cables

4.9 Rating plate

Machine rating plate

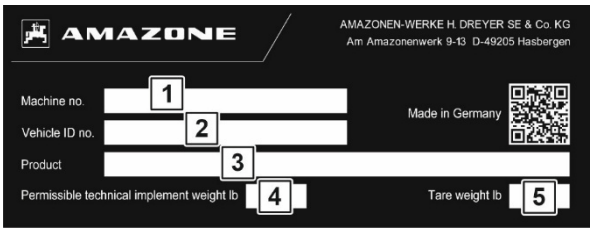
(1) Implement number

(2) Vehicle identification number

(3) Product

(4) Permissible technical implement weight

(5) Tare weight kg



4.10 Conformity

	Directives/Standards designation	
The implement complies with the	• Implement directive	2006/42/EC
	• EMC directive	2014/30/EU

4.11 Technically possible maximum application rate

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The application rate of the implement is limited by the following factors:

- Maximum flow to the sprayer boom of 52 gpm or 200 l/min (HighFlow 105 gpm or 400 l/min).
- Maximum flow per part-width section of 7 gpm or 25 l/min (with 2 spray lines: 10,5 gpm or 40 l/min per part-width section).
- Maximum flow per nozzle body of 1 gpm or 4 l/min.

4.12 Maximum permissible application rate

The permissible application rate of the implement is limited by the minimum required agitator capacity.

The agitator capacity per minute should be 5% of the hopper volume.

This is particularly applicable for active substances that are hard to keep in suspension.

With active substances that are dissolved, the agitator capacity can be reduced.

Determining the permissible application rate depending on the agitator capacity

Calculation formula for the application rate in l/min:

(Agitator capacity per minute = 5% of the tank volume)

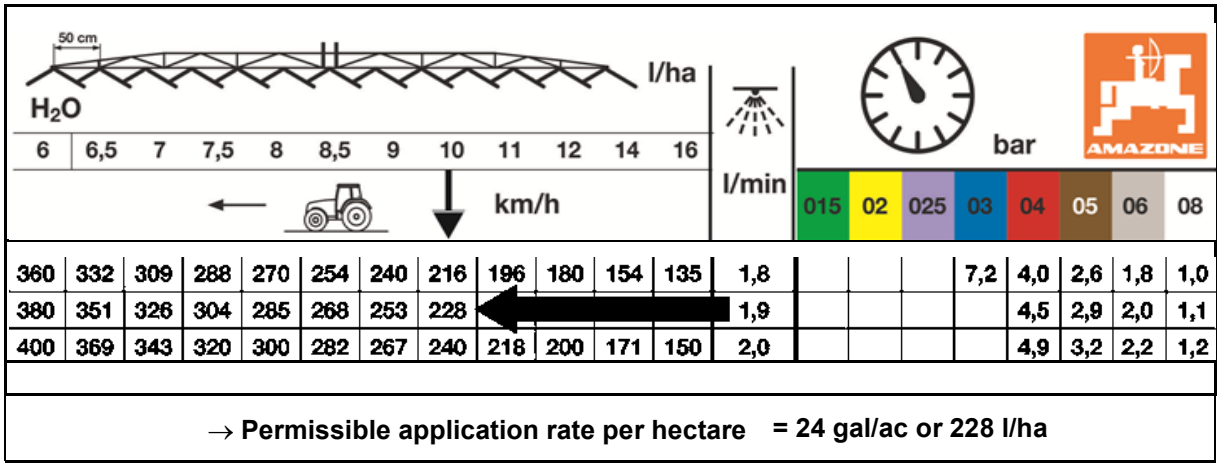
Permissible application rate [gpm]	=	Pump capacity [gpm]	Pump capacity [l/min]	- 0.05 x nominal tank volume [gal]	0.05 x nominal tank volume [l]
				(see technical data)	

Conversion of the application rate in l/ha:

1. Determine the application rate per nozzle (divide the permissible application rate by the number of nozzles).
2. Read the application rate per hectare depending on the speed from the spray table (See page 248).

Example: UX 6201, Pump 2x AR 280, Super L 118 ft / 36 m, 72 nozzles, 6 mph / 10 km/h

Permissible application rate =
2 x 69 gpm – 0,05 x 2959 gal = 37 gpm
2 x 350 l/min - 0,05 x 11200 l = 140 l/min
→ Application rate per nozzle = **0,5 gpm / 1,94 l/min**



→ **Permissible application rate per hectare = 24 gal/ac or 228 l/ha**

4.13 Technical data

4.13.1 Basic implement

Type	UX 11201	
Spray liquid tank Actual volume	3170 gal	12000 l
Nominal volume	2959 gal	11200 l
Flushing water tank	238 gal	900 l
Filling height from the maintenance platform	46 in	1180 mm
Permissible system pressure	145 psi	10 bar
Working speed	2,5 – 11 mph	4 – 18 km/h
Working width	79 – 131 ft	24 – 40 m
Transport width	9,4 ft	2,85 m
Spray pressure adjustment	electric	elektrisch
Spray pressure setting range	11 – 145 psi	0,8 – 10 bar
Spray pressure display	Digital spray pressure display	
Pressure filter	50 (80.100) mesh	
Agitator	automatically	
Spray rate control	Ground speed-related via job computer	
Nozzle height	20 – 98 in	500 – 2500 mm

Part-width sections depending on the working width

Working width	Number	Number of nozzles per part width sections
69 ft / 21 m	5	8-9-8-9-8
	7	6-6-7-4-7-6-6
	9	6-4-5-4-4-4-5-4-6
79 ft / 24 m	5	9-10-10-10-9
	7	6-6-8-8-8-6-6
	9	6-5-5-5-6-5-5-5-6
89 ft / 27 m	7	8-7-8-8-8-7-8
	9	6-6-6-6-6-6-6-6-6
92 ft / 28 m	7	9-7-8-8-8-7-9
	9	7-6-6-6-6-6-6-6-7
98 ft / 30 m	9	8-7-6-6-6-6-6-7-8
105 ft / 32 m	9	8-6-7-7-8-7-7-6-8
108 ft / 33 m	9	7-8-7-7-8-7-7-8-7
	11	6-6-6-6-6-6-6-6-6-6-6
118 ft / 36 m	7	10-10-10-12-10-10-10
	9	9-9-7-7-8-7-7-9-9
118 ft / 79 ft 36 m / 24 m	9	6-7-(9+1)-9-10-9-(9+1)-7-6
128 ft / 39 m	9	7-9-9-9-10-9-9-9-7
	13	6-6-6-6-6-6-6-6-6-6-6-6-6
131 ft / 40 m	9	8-9-9-9-10-9-9-9-8

Technical data: pump equipment

		Spraying pump	Agitator pump
Pump equipment		**BPS 350 M- M**	**BPS 350 M-F**
Delivery capacity at nominal speed	at 145 psi bei 10 bar	350 l /min	350 l /min
Maximum filling capacity from the level		185 gpm without injector 238 gpm with injector 700 l/min ohne Injektor 900 l/min mit Injektor	
Pulsation damping		Accumulator	

The pumps are driven

- directly by the universal joint shaft.

→ Drive speed 540 rpm

- directly by a hydraulic motor.

→ Drive speed 540 rpm

4.13.2 Residual amounts

Technical residue incl. pump

On the level		6 gal / 23 l
Along the contours		
	15% direction of travel to the left	6 gal / 23 l
	15% direction of travel to the right	6 gal / 23 l
Along the gradient		
	15% up the slope	10 gal / 37 l
	15% down the slope	8 gal / 30 l

Technical boom residues

Work-ing width	No. of part witdth sec-tions	Part-width section control						Single nozzle control		
		Without DUS			With DUS			With DUS pro		
		A	B	C	A	B	C	A	B	C
69 ft	5	1,2 gal				0,3 gal	4,1 gal	4,8 gal	0,4 gal	5,2 gal
	7	1,3 gal	2,8 gal	4,1 gal	4,5 gal	0,3 gal	4,8 gal			
	9	1,5 gal	4,2 gal	5,7 gal	6,0 gal	0,4 gal	6,5 gal			
79 ft	5	1,3 gal	2,6 gal	4,0 gal	4,2 gal	0,4 gal	4,5 gal	5,0 gal	0,5 gal	5,5 gal
	7	1,3 gal	3,0 gal	4,4 gal	4,5 gal	0,4 gal	5,0 gal			
	9	1,5 gal	4,5 gal	5,9 gal	6,2 gal	0,5 gal	6,7 gal			
89 ft	7	1,3 gal	3,3 gal	4,5 gal	4,9 gal	0,5 gal	5,4 gal	5,9 gal	0,5 gal	6,4 gal
	9	1,5 gal	4,5 gal	6,1 gal	6,3 gal	0,5 gal	6,9 gal			
92 ft	7	1,3 gal	3,4 gal	4,8 gal	5,0 gal	0,5 gal	5,5 gal	6,0 gal	0,5 gal	6,6 gal
	9	1,5 gal	4,5 gal	6,1gal	6,3 gal	0,5 gal	6,9 gal			
98 ft	9	1,5 gal	4,8 gal	6,2 gal	6,3 gal	0,7 gal	7,0 gal	6,5 gal	0,7 gal	7,2 gal
105 ft	9	1,5 gal	4,9 gal	6,3 gal	6,3 gal	0,7 gal	7,1 gal	7,4 gal	0,7 gal	8,0 gal
108 ft	9	1,5 gal	5,0 gal	6,5 gal	6,6 gal	0,7 gal	7,3 gal	7,3 gal	0,7 gal	8,0 gal
	11	1,6 gal	6,0 gal	7,7 gal	7,8 gal	0,7 gal	8,5 gal			
118 ft	7	1,3 gal	4,2 gal	5,5 gal	5,7 gal	0,8 gal	6,5 gal	7,7 gal	0,8 gal	8,5 gal
	9	1,5 gal	5,2 gal	6,6 gal	6,7 gal	0,8 gal	7,6 gal			
128 ft	9	1,5 gal	5,4 gal	6,9 gal	7,0 gal	0,8 gal	7,8 gal	8,9 gal	0,8 gal	9,7 gal
	13	1,6 gal	7,4 gal	9,1 gal	9,2 gal	0,8 gal	10 gal			
131 ft	9	1,5 gal	5,5 gal	7,0 gal	7,1 gal	0,8 gal	7,9 gal	9,0 gal	0,8 gal	9,8 gal
148 ft	-	-	-	-	-	-	-	10,5 gal	0,8 gal	11,3 gal

Working width	No. of part witdth sections	Part-width section control						Single nozzle control		
		Without DUS			With DUS			With DUS pro		
		A	B	C	A	B	C	A	B	C
21 m	5	4,5 l				1,0 l	15,5 l	18,1 l	1,5 l	19,6 l
	7	5,0 l	10,5 l	15,5 l	17,0 l	1,0 l	18,0 l			
	9	5,5 l	16,0 l	21,5 l	23,0 l	1,5 l	24,5 l			
24 m	5	5,0 l	10,0 l	15,0 l	16,0 l	1,5 l	17,5 l	19,0 l	2,0 l	21,0 l
	7	5,0 l	11,5 l	16,5 l	17,5 l	1,5 l	19,0 l			
	9	5,5 l	17,0 l	22,5 l	23,5 l	2,0 l	25,5 l			
27 m	7	5,0 l	12,5 l	17,5 l	18,5 l	2,0 l	20,5 l	22,4 l	2,0 l	24,4 l
	9	5,5 l	17,5 l	23,0 l	24,0 l	2,0 l	26,0 l			
28 m	7	5,0 l	13,0 l	18,0 l	19,0 l	2,0 l	21,0 l	22,8 l	2,0 l	24,8 l
	9	5,5 l	17,5 l	23,0 l	24,0 l	2,0 l	26,0 l			
30 m	9	5,5 l	18,0 l	23,5 l	24,0 l	2,5 l	26,5 l	24,6 l	2,5 l	27,1 l
32 m	9	5,5 l	18,5 l	24,0 l	24,0 l	2,5 l	27,0 l	27,9 l	2,5 l	30,4 l
33 m	9	5,5 l	19,0 l	24,5 l	25,0 l	2,5 l	27,5 l	27,6 l	2,5 l	30,1 l
	11	6,0 l	23,0 l	29,0 l	29,5 l	2,5 l	32,0 l			
36 m	7	5,0 l	16,0 l	21,0 l	21,5 l	3,0 l	24,5 l	29,3 l	3,0 l	32,3 l
	9	5,5 l	19,5 l	25,0 l	25,5 l	3,0 l	28,5 l			
39 m	9	5,5 l	20,5 l	26,0 l	26,5 l	3,0 l	29,5 l	33,7 l	3,0 l	36,7 l
	13	6,5 l	28,0 l	34,5 l	35,0 l	3,0 l	38,0 l			
40 m	9	5,5 l	21,0 l	26,5 l	27,0 l	3,0 l	30,0 l	34,0 l	3,0 l	37,0 l
45 m	-	-	-	-	-	-	-	39,6 l	3,0 l	42,6 l

DUS: Pressure circulating system
A: Dilutable
B: Not dilutable
C: Total

4.13.1 Payload

Maximum payload	=	Permissible technical implement weight	-	Tare weight

DANGER

Exceeding the maximum permissible payload is prohibited.

Risk of accident due to unstable driving conditions!

Carefully determine the payload, and therefore the permitted filling amount for your machine. Not all filling media can be used to fill the tank completely.

The permissible technical implement weight and the tare weight are specified on the implement rating plate.

Depending on the tyres, the tyre load capacity of both tyres can be lower than the permissible axle load.

In this case, the tyre load capacity limits the permissible axle load.

Tyre load capacity per wheel

- The load index on the tyre indicates the load capacity of the tyre.
- The speed index on the tyre indicates the maximum speed at which the tyre has the tyre load capacity according to the load index.
- The tyre load capacity is only achieved when the tyre inflation pressure matches the nominal pressure.

Load index		**140**	**141**	**142**	**143**	**144**	**145**	**146**	**147**
Tire load capacity	(lb)	5512	5657	5842	6008	6173	6393	6614	6779
	(kg)	2500	2575	2650	2725	2800	2900	3000	3075
Load index		**148**	**149**	**150**	**151**	**152**	**153**	**154**	**155**
Tire load capacity	(lb)	6945	7165	7385	7606	7826	8047	8267	8488
	(kg)	3150	3250	3350	3450	3550	3650	3750	3850
Load index		**156**	**157**	**158**	**159**	**160**	**161**	**162**	**163**
Tire load capacity	(lb)	8819	9094	9370	9645	9921	10196	10472	11023
	(kg)	4000	4125	4250	4375	4500	4625	4750	5000
Load index		**164**	**165**	**166**	**167**	**168**	**169**	**170**	**171**
Tire load capacity	(lb)	11023	11354	11685	12016	12346	12787	13228	13558
	(kg)	5000	5150	5300	5450	5600	5800	6000	6150
Load index		**172**	**173**	**174**	**175**	**176**	**177**	**178**	**179**
Tire load capacity	(lb)	13889	14330	14771	15212	15653	16094	16535	17086
	(kg)	6300	6500	6700	6900	7100	7300	7500	7750

Speed index	A5	A6	A7	A8	B	C	D	E
Permissible maximum speed (mph)	16	19	22	25	31	37	40	44
Permissible maximum speed (kpm)	25	30	35	40	50	60	65	70

Driving with reduced inflation pressure

- When the inflation pressure is lower than the nominal pressure, the tyre load capacity is reduced!

  In that case, observe the reduced payload of the implement.
- Please also follow the specifications of the tyre manufacturer!

WARNING

Danger of accident!

In event of too low inflation pressure, the stability of the vehicle is no longer guaranteed.

4.14 Noise production data

The workplace-related emission value (acoustic pressure level) is 74 dB(A), measured in operating condition at the ear of the tractor driver with the cab closed.

Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

4.15 Necessary tractor equipment

To be able to operate the implement, the tractor must fulfil the power requirements and must be equipped with the necessary hydraulic, electric, and brake connections for the brake system.

Tractor engine power

starting at 110 kW (150 HP)

Electrical equipment

Battery voltage:	• 12 V (volts)
Lighting socket:	• 7-pin

Hydraulic system

Maximum operating pressure:	• 3045 psi/ 210 bar	
Tractor pump capacity:	Profi boom folding	6,6 gmp/ 25 l/min
	Drawbar or stub axle steering	2,7 gmp/ + 10 l/min
	ContourControl	2,7 gmp/ + 10 l/min
	Flushing water pump	9,2 gmp/ + 35 l/min
	Hydraulic spray pump drive	20 gmp/ + 75 l/min
Implement hydraulic fluid:	• HLP68 DIN 51524 The implement hydraulic fluid is suitable for the combined hydraulic fluid circuits of all standard tractor brands.	
Tractor control units	• Depending on the equipment, see on page 67.	

Brake system (depending on equipment)

Dual-circuit pneumatic brake system:	• Coupling head (red) for the supply line • Coupling head (yellow) for the brake line
or	
Single-circuit hydraulic brake system	• Hydraulic coupling in accordance with ISO 5676

The hydraulic brake system is not allowed in Germany and several other EU countries!

PTO shaft (depending on the equipment)

Required speed:	• 540 rpm
Direction of rotation:	• Clockwise, viewed from rear toward the tractor.

5 Layout and function of the basic implement

5.1 Method of operation

Through the suction valve chest and the suction filter (2), the spraying pump (1) draws

- spray liquid from the spray liquid tank.
- fresh water via the external suction port (3).
- flushing water from the flushing water tank.

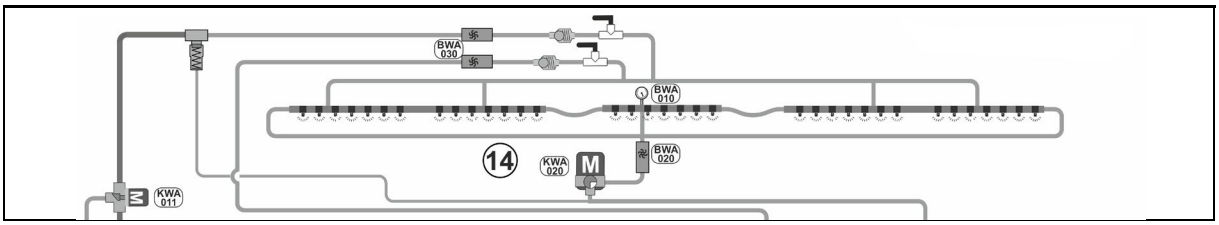
Thus, the drawn liquid is conveyed to

- the part-width section valves (5) via the pressure filter (4). The part-width section valves take over the distribution to the spray lines.
  Alternatively:

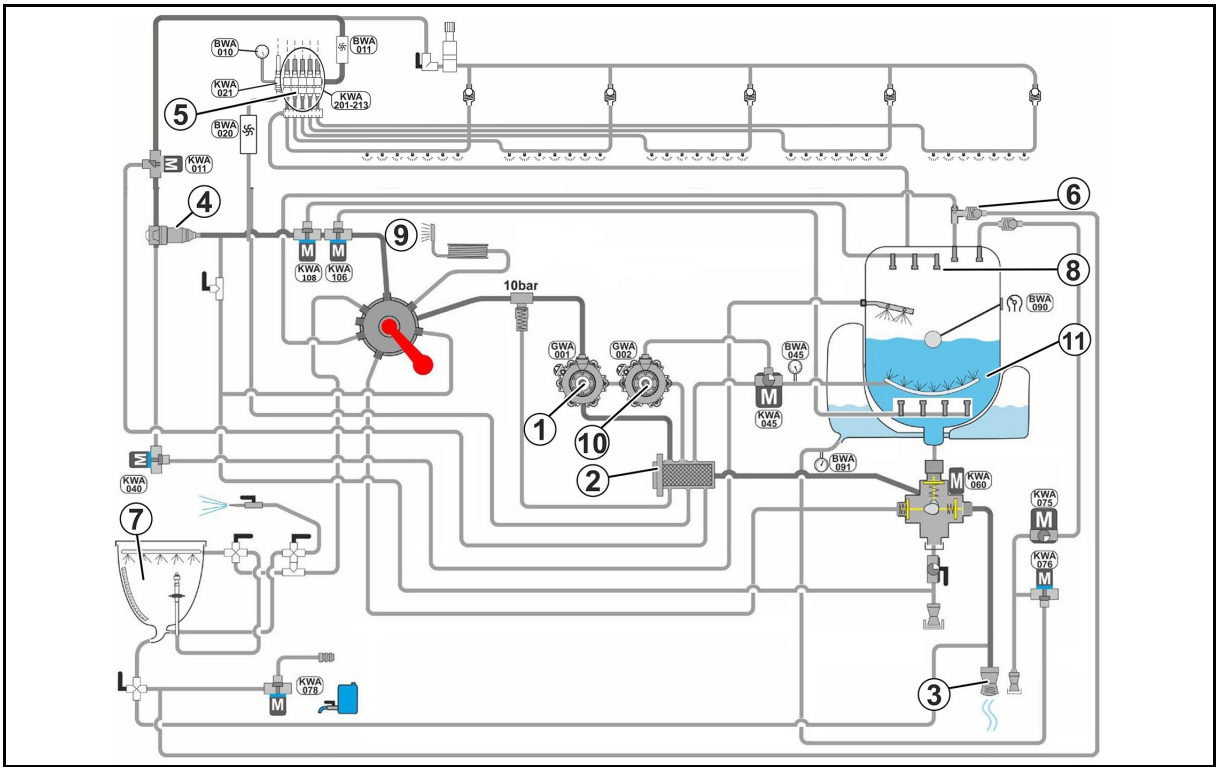
  through the pressure filter (4) to the single nozzle control (12).
- to the injector (6) and the induction bowl (7).
  To prepare the spray liquid, pour the required quantity of agent into the induction bowl and draw into the spray liquid tank.
- directly in the spray liquid tank.
- to the internal (8) or external cleaning switch tap (9).

The agitator pump (10) supplies the main agitator (11) in the spray liquid tank. When switched on, the main agitator ensures that the spray liquid is homogeneous.

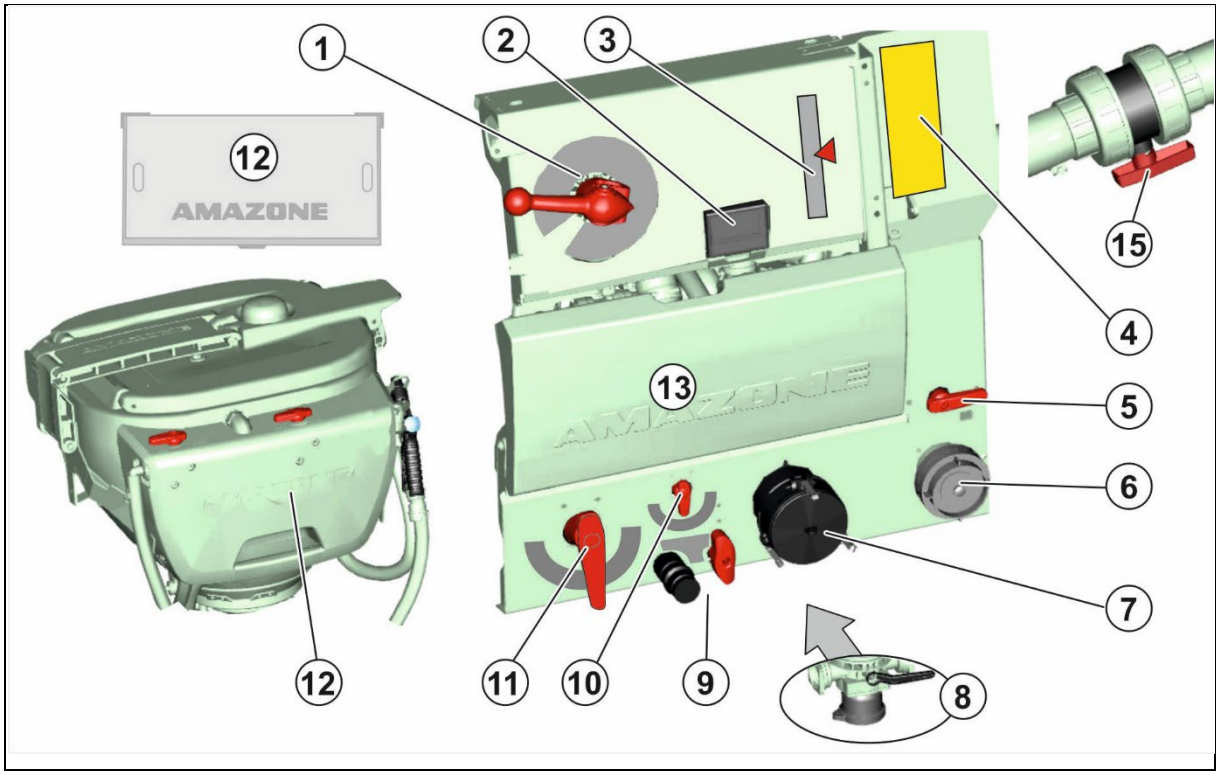
single nozzle control



Part-width section control



5.2 Control panel



(1) Pressure valve chest (DA) switch tap

(2) TwinTerminal

(3) Suction valve chest (SA) display

(4) Spray table sticker

(5) Flushing water tank pressure filling (PF) stop tap

(6) Filling connection (pressure) for spray liquid tank (optional) / flushing water tank

(7) Filling connection (suction) for spray liquid tank, flushing water tank

(8) Quick emptying / draining of the suction filter, draining the final residual quantity with the stop tap (EW)

(9) Drip-free plug-in coupling with switch tap (GA)

(10) Switch tap for supplying the induction bowl with suction filling / pressure filling (QU)

(11) Switch tap injector (IJ)

(12) Swivelling induction bowl in transport position

(13) Maintenance flap

(14) Transport box for separate storage of contaminated and non-contaminated protective equipment

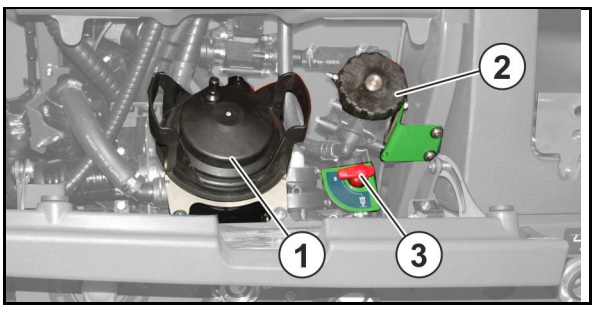
(15) Spray liquid tank outlet stop tap as emergency activation in case of damage

Under the maintenance flap

(1) Suction filter

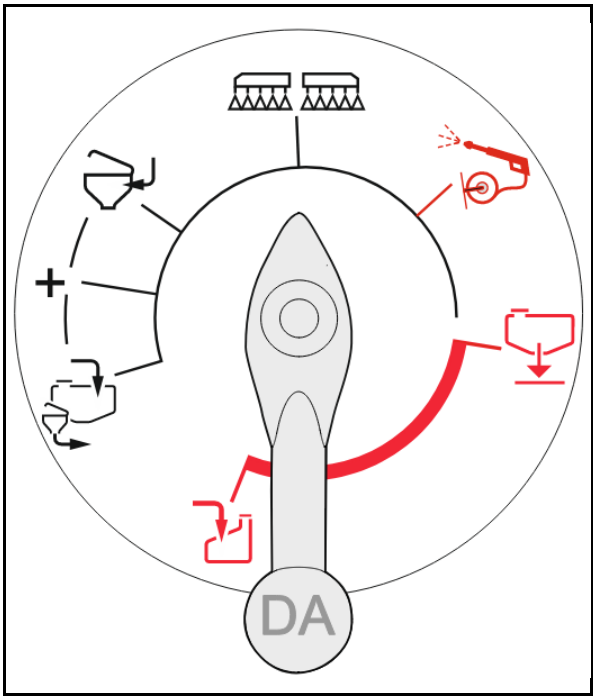
(2) Pressure filter

(3) Switch tap for draining the pressure filter



Switch taps on the control panel

Pressure valve chest switch tap (DA)



- Fill spray liquid tank via suction connection / suction from the induction bowl
- Supply induction bowl
- + (+) Switch the functions simultaneously.
- Sprayers

Pay particular attention to the corresponding sections of the operating manual when using the functions marked in red!

- External cleaning
- Quick emptying
- Filling the flushing water tank

WARNING

Contamination of the soil due to operating errors with the pressure valve chest switch tap.

Never swivel the pressure valve chest switch tap accidentally to the quick emptying function.

The spray liquid tank is quick-emptied via the pump.

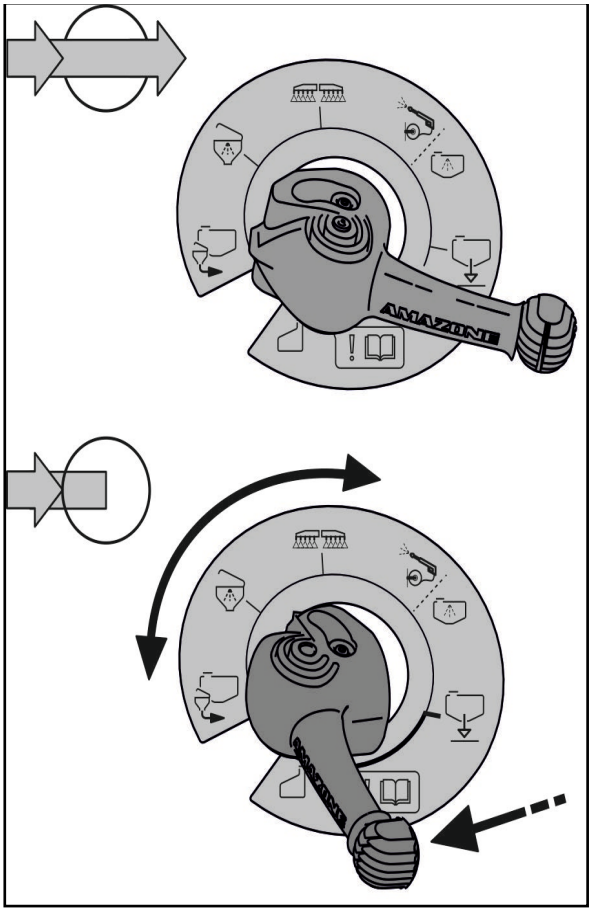
Contamination of the flushing water tank due to operating errors with the pressure valve chest switch tap.

Never swivel the pressure valve chest switch tap accidentally to the flushing water tank filling function when the pump is conveying spray liquid.

The spray liquid is pumped into the flushing water tank.

Operation of the pressure valve chest:

- Liquid circulation  switched on the pressure side.
- Switch tap is locked.



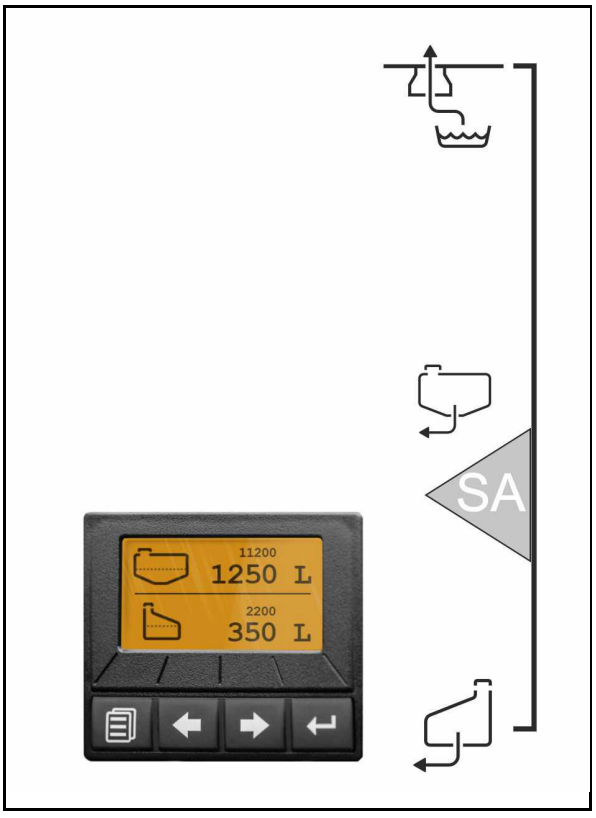
- Liquid circulation blocked on the pressure side.
- Switch tap unlocked, selection of the function is possible.

Suction valve chest display (SA)

-  Suction via suction hose
-  Suction from spray liquid tank
-  Suction from flushing water tank

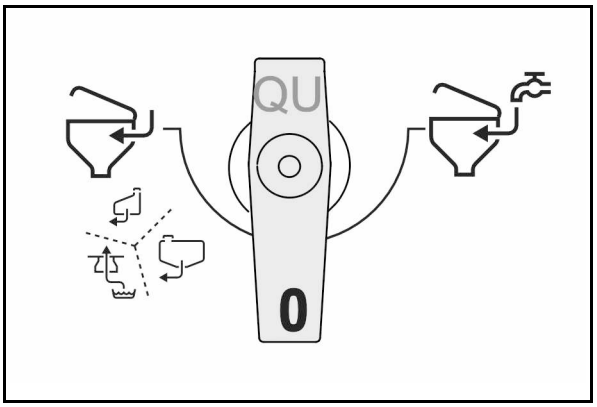
TwinTerminal

The suction valve chest is electrically switched via the TwinTerminal



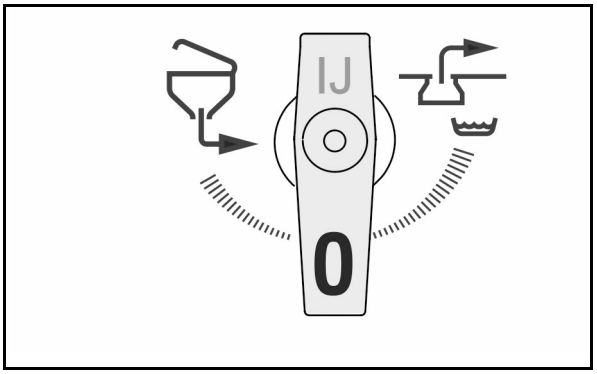
Switch tap source for induction bowl (QU)

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



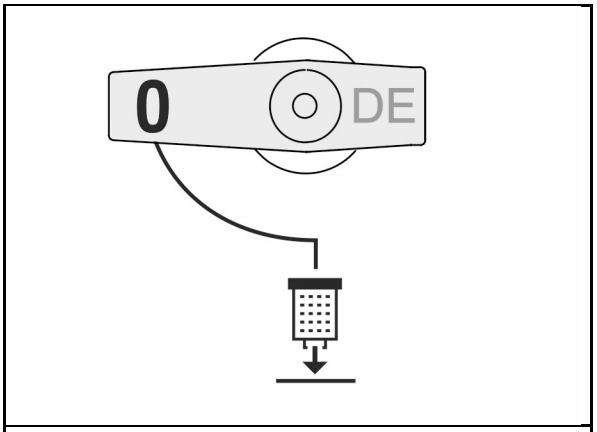
Switch tap injector (IJ)

-  Suction from induction bowl
-  Increase filling capacity using injector



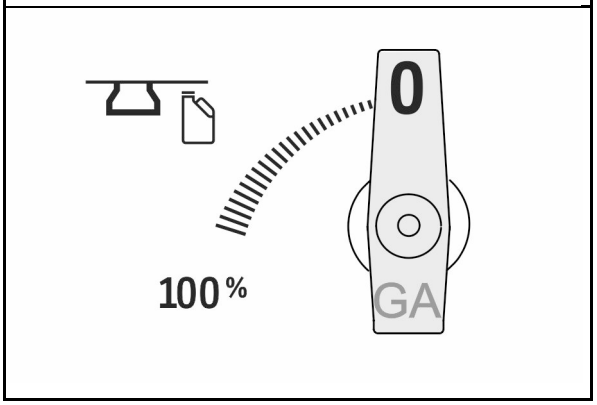
Pressure filter switch tap (DE)

-  Drain pressure filter



Suction from container switch tap (GA)

- 100% maximum suction capacity



5.3 Induction bowl

(1) Swivelling induction bowl for pouring, dissolving and drawing in crop protection agents and urea.
Holding capacity of approx. 60 l

(2) Locking mechanism for folding cover

(3) Canister flushing push button

(4) The open folding cover can be used as a shelf

(5) Switch tap EA

(6) Handle to swivel the induction bowl into working or transport position

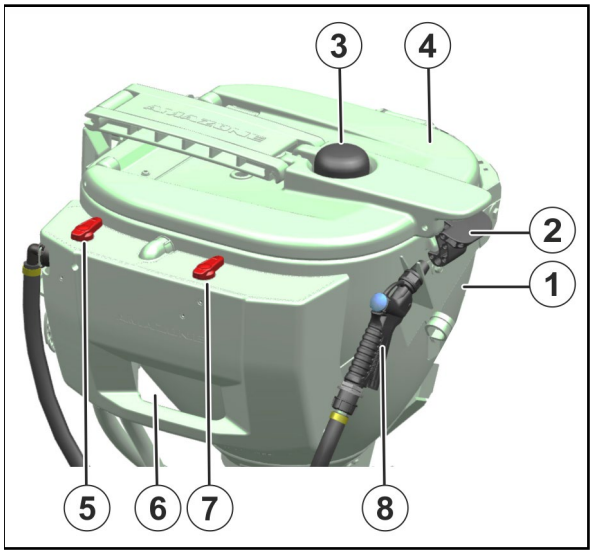
(7) Switch tap EB

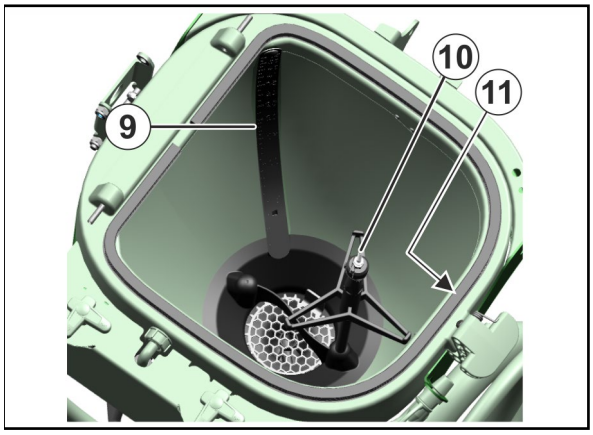
(8) Spray pistol for cleaning the control panel

(9) Scale to show the contents

(10) Cleaning nozzle for canisters with pressure plate

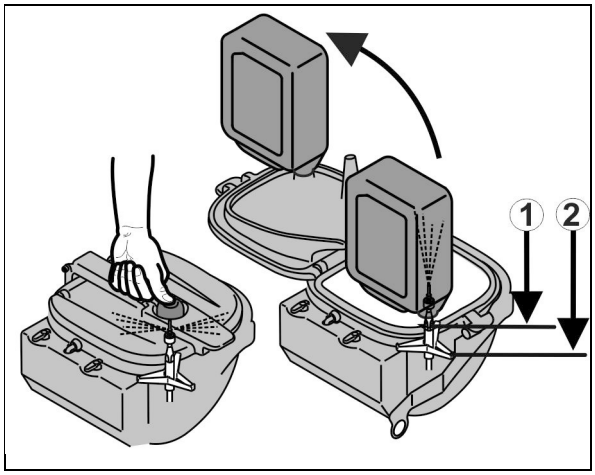
(11) Induction bowl cleaning nozzle





Water escapes from the canister flushing nozzle if

- the pressure plate is pressed downwards.
- the button presses the canister flushing nozzle downwards when the folding cover is closed.

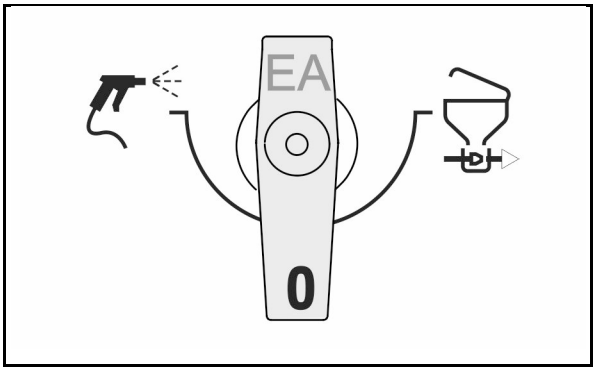


5.3.1 Switch taps on the induction bowl

- **Switch tap (EA)**

  o  External cleaning of induction bowl

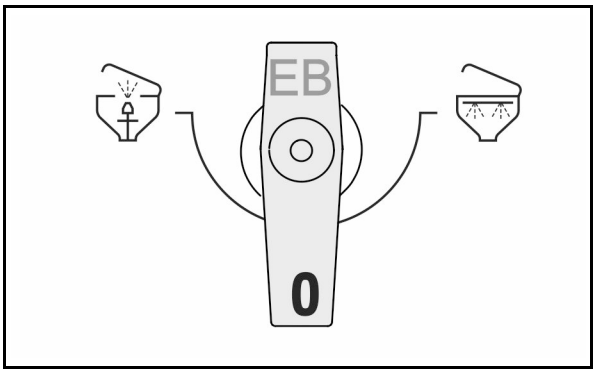
  o  Dissolve agent with mixing nozzle



- **Switch tap (EB)**

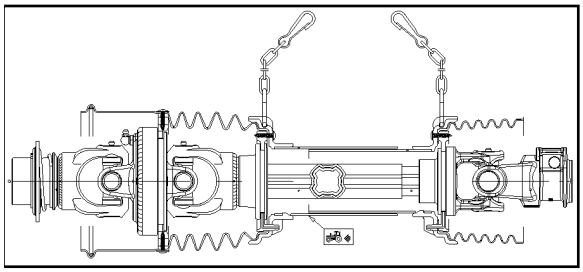
  o  Clean canister / clean induction bowl

  o  Flushing via ring line



5.4 Universal joint shaft

The wide-angle universal joint shaft is responsible for transmitting the force between the tractor and the implement.



WARNING

Danger of crushing from tractor and implement unintentionally starting up or rolling away!

Couple or uncouple the wide-angle universal joint shaft to / from the tractor only when tractor and implement have been secured against unintentional starting and unintentional rolling away.

WARNING

Danger of being entangled and drawn in by a universal joint shaft without guard or damaged protective equipment!

- Never use the PTO shaft if the safety device is missing or damaged, or without correctly using the supporting chain.
- Before each use, check that
  - all protective devices for the universal joint shaft are installed and fully functional.
  - the clearance around the universal joint shaft is sufficient in all operating positions. Lacking clearance causes damage to the universal joint shaft.
- Attach the supporting chains in such a way as to ensure sufficient swivelling range in all operating positions of the universal joint shaft. Supporting chains must not become caught on machine or tractor parts.
- Have any damaged or missing parts of the universal joint shaft replaced immediately with OEM parts from the universal joint shaft manufacturer.
  Please note that the universal joint shaft can only be repaired by a specialist workshop.
- With the implement uncoupled, place the universal joint shaft in the intended holder. This protects the universal joint shaft from damage and soiling.
  - Never use the supporting chain of the universal joint shaft to suspend the uncoupled universal joint shaft.

WARNING

Danger of being entangled and drawn in by unprotected parts of the universal joint shaft in the force transmission area between the tractor and the driven implement!

Work only when the drive between the tractor and driven implement is fully guarded.

- The unprotected parts of the universal joint shaft must always be guarded by a shield on the tractor and a universal joint shaft guard on the implement.
- Check that the shield on the tractor or the universal joint shaft guard on the implement and the safety devices and guards of the extended universal joint shaft overlap by at least 50 mm. If not, the implement may not be driven by the universal joint shaft.

- Use only the provided universal joint shaft or the provided universal joint shaft type.
- Read and follow the operating manual provided for the universal joint shaft. Correct use and maintenance of the universal joint shaft prevents serious accidents.
- When coupling the universal joint shaft, observe
  - the operating manual provided for the universal joint shaft.
  - the permitted drive speed of the implement.
  - the correct installation length of the universal joint shaft. Refer to the section "Adjusting the length of the universal joint shaft to the tractor", page 129.
  - the correct installation position of the universal joint shaft. The tractor symbol on the protective tube of the universal joint shaft identifies the tractor-side connection of the universal joint shaft.
- Always mount the overload or freewheel clutch on the implement side if the universal joint shaft has an overload or freewheel clutch.
- Before switching on the PTO shaft, observe the safety instructions for PTO shaft operation in the section "Safety information for the operator", page 31.

5.4.1 Coupling the universal joint shaft

WARNING

Danger due to crushing and impact due to lacking clearance when coupling the universal joint shaft!

Couple the universal joint shaft to the tractor before you couple the implement to the tractor. In this way, you have enough clearance to safely couple the universal joint shaft.

1. Drive the tractor up to the implement in such a way that a gap (approx. 25 cm) remains between tractor and implement.
2. Secure the tractor against unintentional starting and unintentional rolling away, refer to the section "Securing the tractor against unintentional starting and rolling away" starting at page 131.
3. Check whether the PTO shaft of the tractor is switched off.
4. Clean and grease the PTO shaft on the tractor.
5. Push the latch of the universal joint shaft onto the tractor PTO shaft until the latch noticeably engages. When coupling the universal joint shaft, observe the supplied operating manual for the universal joint shaft and the permitted PTO shaft speed for the implement.

The tractor symbol on the protective tube of the universal joint shaft identifies the tractor-side connection of the universal joint shaft.

6. Secure the universal joint shaft guard using the supporting chain(s) to prevent movement.
   - 6.1 Fasten the supporting chain(s) as perpendicular to the universal joint shaft as possible.
   - 6.2 Attach the supporting chain(s) in a way that ensures sufficient swivelling range of the universal joint shaft in all operating positions.

CAUTION

Supporting chains must not become caught on machine or tractor parts.

7. Check whether the clearance around the universal joint shaft is sufficient in all operating positions. Lacking clearance causes damage to the universal joint shaft.
8. Eliminate lacking clearance (if necessary).

5.4.2 Uncoupling the universal joint shaft

WARNING

Danger due to crushing and impact due to lacking clearance when uncoupling the universal joint shaft!

First uncouple the implement from the tractor, before you uncouple the universal joint shaft from the tractor. In this way, you have enough clearance to safely uncouple the universal joint shaft.

CAUTION

Danger due to burns on hot components of the universal joint shaft!

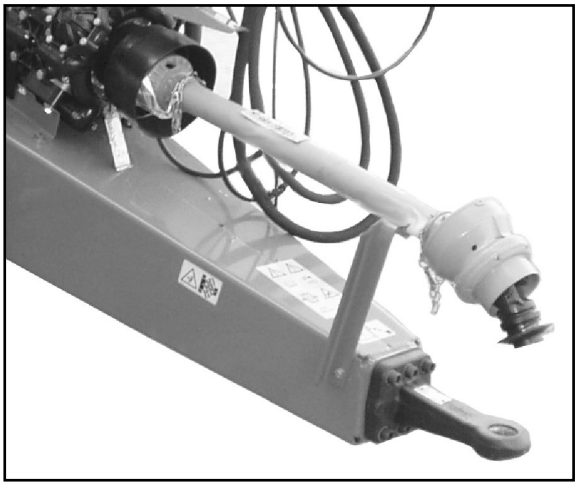
This danger causes light to serious injuries to the hands.

Do not touch any strongly heated components of the universal joint shaft (especially the couplings).

- After uncoupling the universal joint shaft, place it in the holder provided. This protects the universal joint shaft from damage and soiling.

  Never use the supporting chain of the universal joint shaft to suspend the uncoupled universal joint shaft.
- Clean and lubricate the universal joint shaft if it is going to be out of use for a long time.

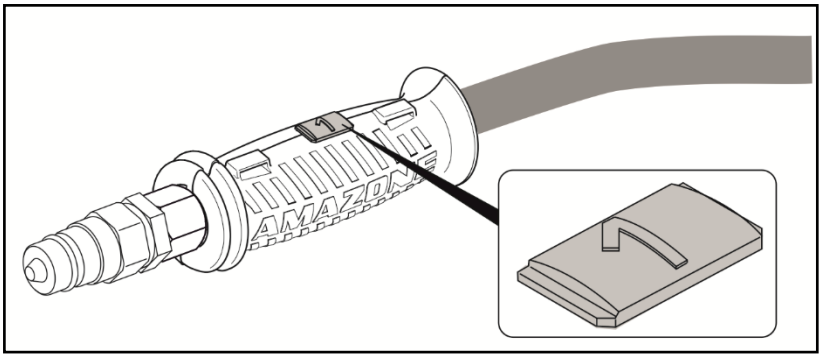
1. Uncouple the implement from the tractor. For this purpose, see the section "Uncoupling the implement", page 139.
2. Drive the tractor up to the implement in such a way that a gap (approx.10 in / 25 cm) remains between tractor and implement.
3. Secure the tractor against unintentional starting and unintentional rolling away, refer to the section "Securing the tractor against unintentional starting and rolling away" starting at page 131.
4. Pull the latch of the universal joint shaft off of the tractor PTO shaft until the latch noticeably engages. When uncoupling the universal joint shaft, observe the operating manual supplied by the universal joint shaft manufacturer.
5. Place the universal joint shaft in the intended holder.
6. Clean and lubricate the universal joint shaft when it is not going to be used for a longer period of time.



5.5 Hydraulic connections

- All hydraulic hose lines are equipped with grips.

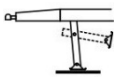
  Coloured markings with a code number or code letter have been applied to the gripping sections in order to assign the respective hydraulic function to the pressure line of a tractor control unit!



  Films are stuck on the implement for the markings that illustrate the respective hydraulic function.

- The tractor control unit must be used in different types of activation, depending on the hydraulic function.

Latched, for a permanent oil circulation	∞
Tentative, activate until the action is executed	
Float position, free oil flow in the control unit	

Labelling		Function			Tractor control unit	
blue	3		Double acting	Lifting	doppelt-wirkend	
	4			Lowerinn		
beige	3		**SingleTrail**		Single-acting	
yellow	3		**Lift module (optional)**	Lift	doppelt-wirkend	
	4			Lower		
red	P	Permanent oil circulation			Single-acting	∞
red	T	Pressure-free return flow				
red	LS	Load sensing control line (optional)				

WARNING

Danger of infection from escaping hydraulic fluid at high pressure!

When coupling and uncoupling the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the implement and tractor sides.

If you are injured by hydraulic fluid, contact a doctor immediately.

Oil return flow

Maximum permissible pressure in the oil return: 76 psi / 5 bar

Therefore, do not connect the oil return to the tractor control unit, but rather to a pressure-free oil return with a large plug coupling.

WARNING

Only use DN16 lines for the oil return and select short return paths.

Only apply pressure to the hydraulic system when the free return line is coupled correctly.

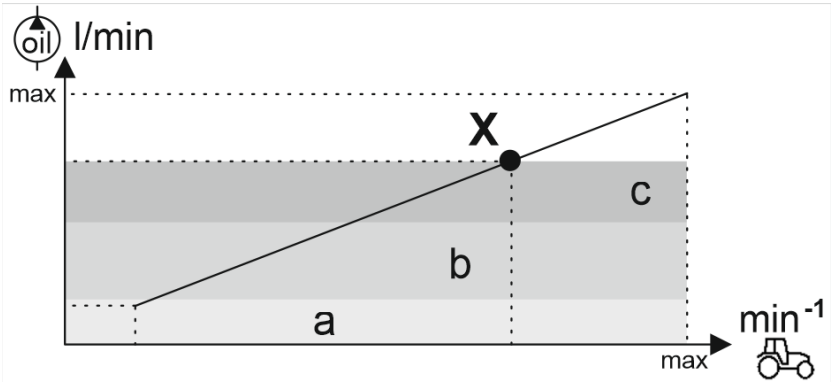
Install the supplied coupling sleeve to the pressure-free oil return.

Oil volume flow

Depending on the implement equipment (equipment a, b, c), the implement requires a specific oil volume flow that must be provided by the tractor.

Select the tractor such that it provides the required oil volume flow at operating point X on the field and also on the headlands with a moderate engine speed. You must also consider the tractor's own requirements.

An oil shortage impairs the functioning of the implement and can cause damage to the implement.



Load sensing operation

For load sensing operation, move the switch tap on the hydraulic block to the corresponding position

5.5.1 Coupling the hydraulic hose lines

WARNING

Risk of being crushed, cut, caught, drawn in or struck due to faulty hydraulic functions when the hydraulic hose lines are connected incorrectly!

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

- Check the compatibility of the hydraulic fluids before connecting the implement to the hydraulic system of the tractor.
  Do not mix any mineral oils with biological oils.
- Observe the maximum approved hydraulic fluid pressure of 210 bar.
- Only couple clean hydraulic connectors.
- Push the hydraulic connector(s) into the hydraulic sleeves until you feel them lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Swivel the actuation lever on the control valve on the tractor to float position (neutral position).
2. Clean the hydraulic connectors of the hydraulic hose lines before you couple the hydraulic hose lines to the tractor.
3. Connect the hydraulic hose line(s) to the tractor control unit(s).

5.5.2 Uncoupling the hydraulic hose lines

Implements with LS or accumulator charging circuit:

- Only uncouple the hydraulic hoses when the tractor is switched off.
- Observe the sequence for uncoupling.
  1. Hydraulic hose P
  2. Hydraulic hose LS
  3. Hydraulic hose T

1. Swivel the actuation lever on the tractor control unit on the tractor to float position (neutral position).
2. Release the hydraulic connectors from the hydraulic sockets.
3. Protect the hydraulic connector and hydraulic connector socket from soiling using the dust protection caps.
4. Place the hydraulic hose lines in the hose cabinet.

5.6 Pneumatic brake system

Observing the maintenance intervals is essential for proper functioning of the dual line service brake system.

The brake drums are fitted with self regulating brake levers that make sure that the wear to the brake linings is compensated.

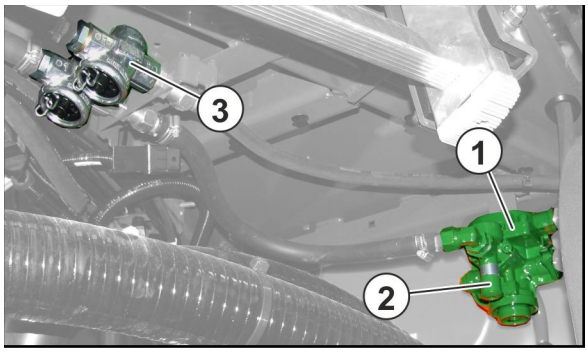
(1) Brake valve

(2) Release valve with actuation button

The actuation button

- ○ must be pushed in up to the stop to release the service brake system, e.g. to manoeuvre the uncoupled trailed sprayer.
- o must be pulled out up to the stop and the trailed sprayer is braked again by the supply pressure coming from the air reservoir.

(3) Line filter



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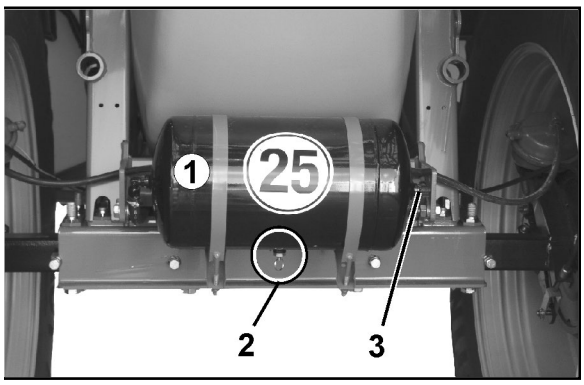
(1) Air reservoir

(2) Drainage valve for condensation water.

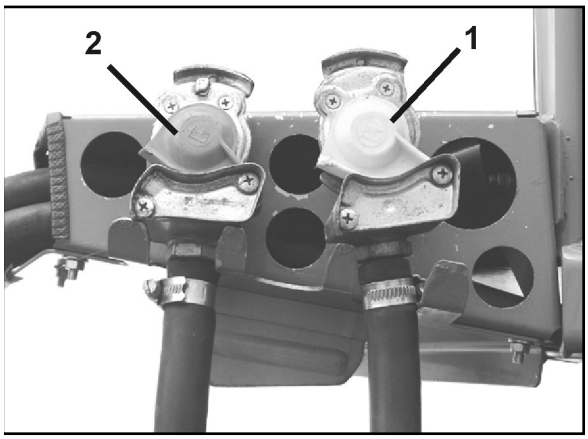
(3) Test connection



- **Dual-circuit pneumatic braking system**

(1) Brake line coupling head (yellow)

(2) Supply line coupling head (red)



Automatic load-dependent braking force regulator (ALB)

WARNING

Risk of accident due to improper function of the brake system!

You may not change the adjustment dimension on the automatic load-dependent braking force regulator. The adjustment dimension must correspond to the value specified on the ALB rating plate.

The brake drums are fitted with self-regulating brake levers that ensure wear of the brake linings is compensated.

The axles are equipped with an automatic load-dependent braking force compensator (ALB).

Inlet pressure: 94 psi / 6.5 bar

Adjustment data depending on the axle load:

Axle load (per axle)	Bellows pressure	Outlet pressure
2 x 8050 lb 2 x 3650 kg	508 psi 35 bar	45 psi 3,1 bar
20945 lb 2 x 9500 kg	1523 psi 105 bar	94 psi 6,5 bar

5.6.1 Coupling the brake system

WARNING

Risk of contusions, cuts, dragging, catching or knocks from incorrectly functioning brake system.

- When coupling the brake and supply line, ensure that:
  - the sealing rings of the coupling heads are clean.
  - the sealing rings of the coupling heads form a proper seal.
- Always replace damaged seals immediately.
- Drain the air reservoir before the first journey every day.
- Only move off with the implement connected when the pressure gauge on the tractor shows 5.0 bar!

WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through the accidentally rolling implement, if the service brake is released.

Dual-circuit pneumatic braking system:

- Always couple the hose coupling on the brake line (yellow) first and then the hose coupling on the supply line (red).
- The service brake on the machine is immediately released from the brake setting if the red hose coupling is coupled.

1. Open the cover of the coupling head on the tractor.
2. Pneumatic braking system:
   - 2.1 Properly fasten the coupling head of the brake line (yellow) in the coupling marked in yellow on the tractor.
   - 2.3 Properly fasten the coupling head of the supply line (red) in the coupling marked red on the tractor.
   - → When coupling the supply line (red), the supply pressure coming from the tractor automatically pushes out the button for the release valve on the trailer brake valve
3. Release the parking brake and/or remove the wheel chocks.

5.6.2 Uncoupling the brake system

WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through the accidentally rolling implement, if the service brake is released.

Dual-circuit pneumatic braking system:

- Always uncouple the supply line hose coupling (red) first, and then the brake line hose coupling (yellow).
- The service brake of the machine only moves into the brake position when the red hose coupling has been uncoupled.
- Halten Sie diese Reihenfolge unbedingt ein, da sonst die Betriebs-Bremsanlage löst und sich die ungebremste Maschine in Bewegung setzen kann.

When the implement is uncoupled or torn off, the supply line to the trailer brake valve is vented. The trailer brake valve is automatically switched over and actuates the service brake system depending on the automatic load-dependent braking force regulation.

1. Secure the implement against unintentionally rolling away. To do this, use the parking brake and / or the wheel chocks.
2. Pneumatic braking system
   2.1 Release the supply line coupling head (red).
   2.2 Release the brake line coupling head (yellow).
3. Close the covers of the coupling heads on the tractor.

5.7 Single-circuit hydraulic brake system

The tractor requires a hydraulic brake device to activate the single-circuit hydraulic brake system.

5.7.1 Coupling the single-circuit hydraulic brake system

Only couple clean hydraulic connectors.

1. Remove the protective caps.
2. If necessary, clean the hydraulic connector and hydraulic socket.
3. Couple the implement's hydraulic socket with the tractor's hydraulic connector.
4. Tighten the threaded hydraulic union hand tight (if present).

5.7.2 Uncoupling the hydraulic brake system

1. Loosen the hydraulic screw connection (if present).
2. Protect the hydraulic connector and hydraulic connector socket from soiling using the dust protection caps.
3. Place the hydraulic hose line in the hose cabinet.

5.7.3 Emergency brake

If the implement is disconnected from the tractor while driving, the emergency brake stops the implement.

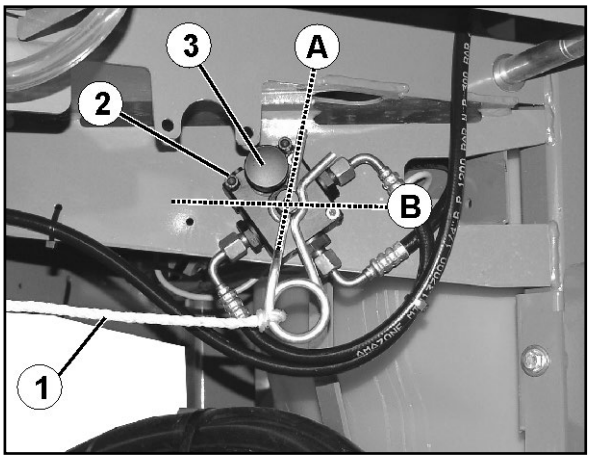
(1) Ripcord

(2) Brake valve with pressure reservoir

(3) Hand pump to relieve the brake

(A) Brake released

(B) Brake actuated



DANGER

Before driving off, put the brake into operating position.

Here's how:

1. Attach the ripcord to a sturdy point on the tractor.
2. Actuate the tractor brake with the tractor motor running and the hydraulic brake connected.

→ Pressure accumulator of the emergency brake will be charged.

DANGER

Risk of accidents due to disfunctional brakes!

After pulling out the spring cotter pin (e.g. when triggering the emergency brake), be sure to reinsert the spring cotter pin into the brake valve from the same side. Otherwise, the brakes are without function.

After the spring cotter pin has been reinserted, it is necessary to perform a brake test for the service brake and for the emergency brake.

When the implement is uncoupled, the pressure accumulator presses hydraulic oil:

- into the brake and brakes the implement,

or

- into the hose line to the tractor and impedes the coupling of the brake line to the tractor.

In these cases, relieve pressure using the hand pump on the brake valve.

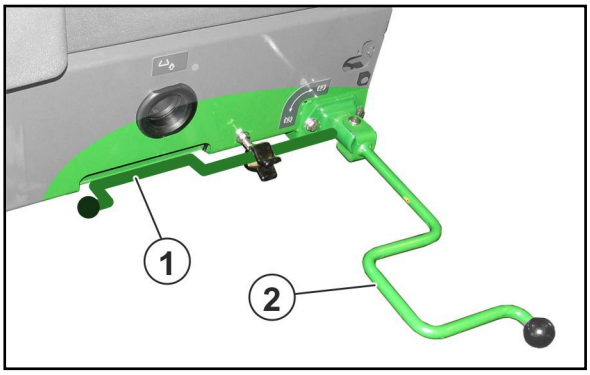
5.8 Parking brake

The applied parking brake secures the uncoupled implement against accidental rolling away. The parking brake is actuated with the spindle and cable pull when turning the crank.

(1) Crank; locked in resting position

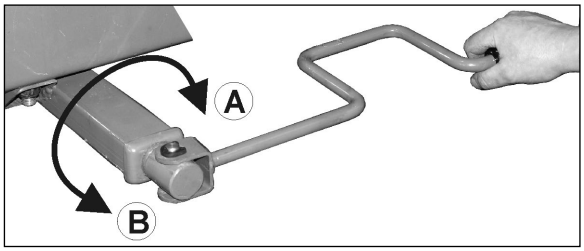
(2) Crank in operating position

new



- Crank position for releasing / applying in the end area.

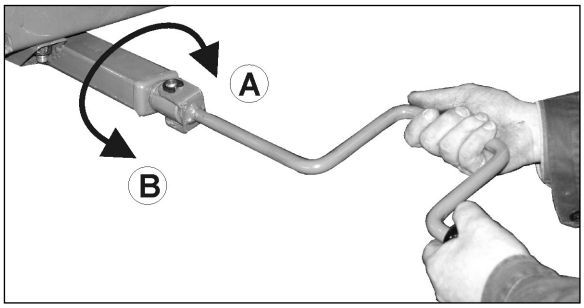
  (the parking brake requires approx. 44 lb / 20 kg manual force to be applied).



- Crank position for quick releasing / applying.

  (A) Apply the parking brake.

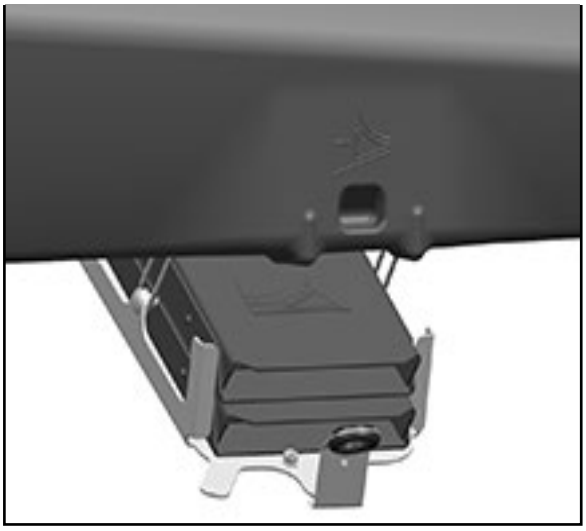
  (B) Release the parking brake.



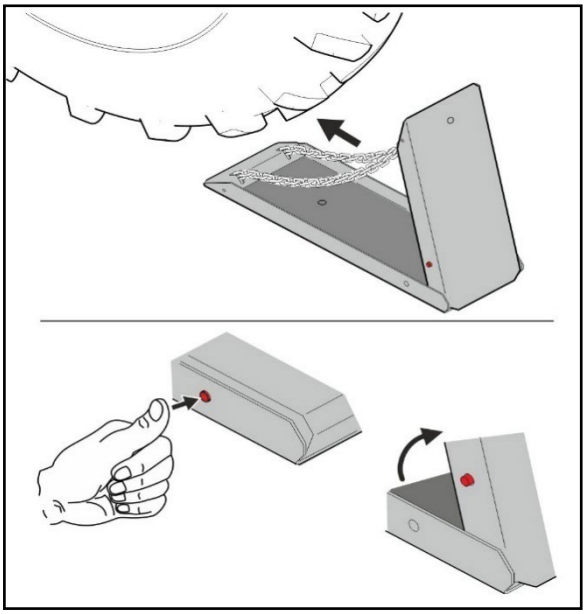
- Correct the setting of the parking brake if the spindle's tension is no longer sufficient.
- Ensure that the cable pull is not lying or rubbing against other vehicle parts.
- When the parking brake is released, the cable pull must be slightly slack.

5.9 Foldable wheel chocks

The wheel chocks are fastened in a swivelling mount under the right flushing water tank.



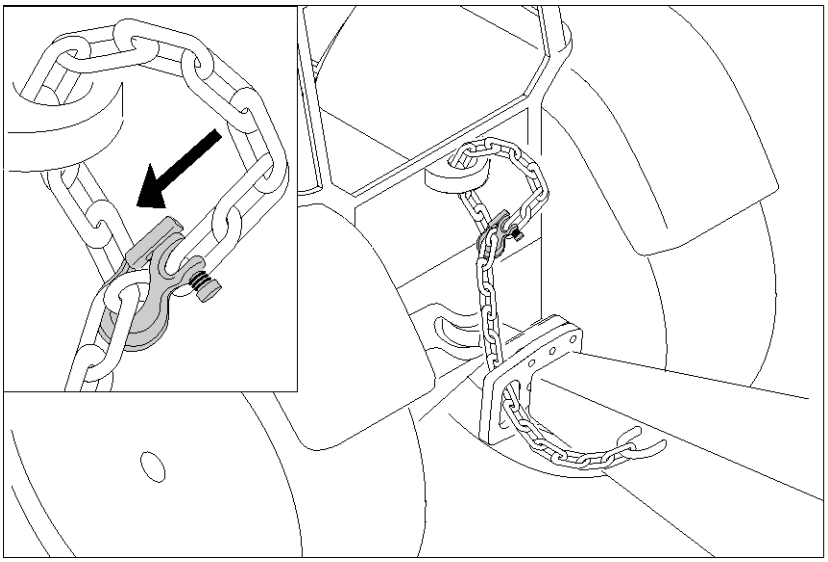
Put the foldable wheel chocks into operating position by pressing the button and apply directly on the wheels before uncoupling.



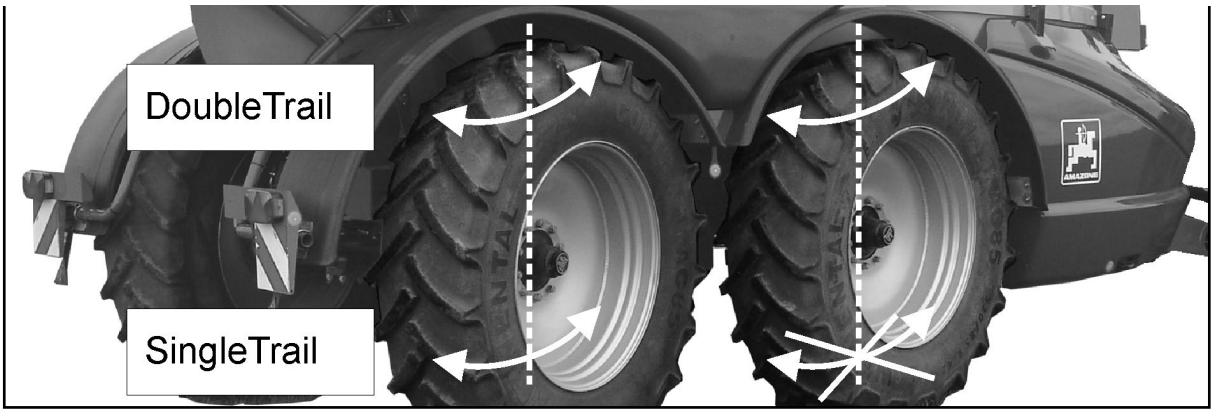
5.10 Safety chain between tractor and implements

Depending on country-specific regulations, implements are equipped with a safety chain.

The safety chain must be mounted at a suitable point on the tractor as prescribed before travelling.



5.11 Tandem axle



Depending on the equipment, the implement is provided with the following tandem axle:

- A DoubleTrail tandem axle consisting of two steering axles
- A SingleTrail tandem axle consisting of a fixed and a trailing axle

DoubleTrail tandem axle

With control terminal for adjustment of field mode, road mode, slope mode, and maneuvering.

Field mode: Both axles are hydraulically activated and steered.

Road mode: The front axle is locked hydraulically via the control terminal. The rear axle is hydraulically activated and steered.

SingleTrail tandem axle

The front axle is designed as a rigid axle.

The rear steering axle has a connection to a tractor control unit.

Field mode: The rear axle trails freely behind the tractor.

→ Operate the *beige* tractor control unit in float position.

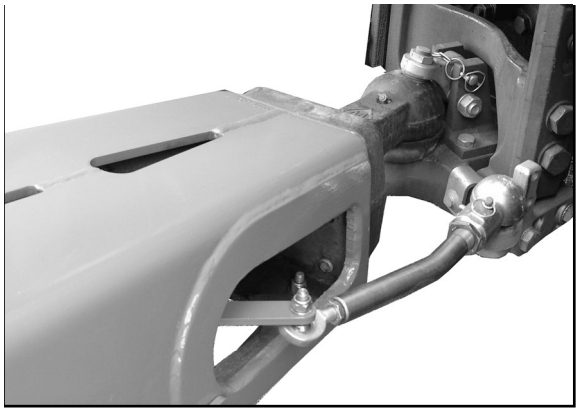
Road mode: Lock rear axle in center position.

→ Activate and lock the *beige* tractor control unit.

For speeds less than 15 km/h, the axle may trail freely.

DoubleTrail tandem axle:

The angle of the implement relative to the tractor is detected by a steering rod with ball coupling head 50, which is coupled to the tractor..



5.12 Hydropneumatic spring suspension

The hydropneumatic spring suspension includes an automatic level regulation device independent of load status.

In manual mode, the implement can be lowered

- to reduce the overhead clearance.
- to switch off the spring suspension.

WARNING

Danger of accident due to unstable driving behavior!

Always operate the hydro-pneumatic spring suspension in automatic mode.

See Control Terminal operating manual.

5.13 Hydraulic jack

The hydraulically actuated jack supports the uncoupled trailed sprayer. It is actuated using a double-acting control valve.

***Blue* tractor control unit**

DANGER

When parking the implement on the hydraulic jack, it may only be slanted by max. 30° from the vertical plane.

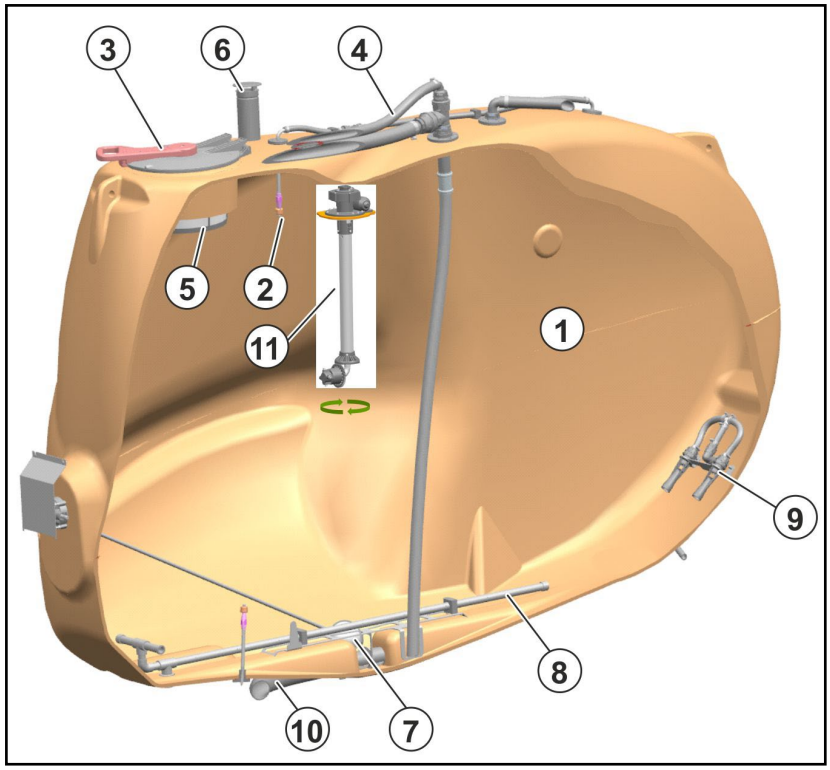
- When actuating the jack, step on the tractor clutch to relieve the pin of the trailer coupling / hitch.

Before starting off, check the raised position of the jack!

5.14 Spray liquid tank

The spray liquid tank is filled via

- the filling opening,
- the suction hose (optional) on the suction port,
- the pressure filling connection (optional)



(1) Spray liquid tank
(2) Internal cleaning
(3) Folding screw lid for the filling opening
(4) External filling
(5) Filling sieve
(6) Ventilation
(7) Float for determining the fill level
(8) Agitator
(9) Secondary agitator
(10) Drain
(11) XtremeClean high-pressure cleaning, only for Comfort Package / Comfort Package Plus

Folding screw lid for the filling opening

- To open the lid, rotate to the left and swing open.
- To close the lid, fold down and rotate to the right until tight.

5.14.1 Maintenance platform with ladder

Maintenance platform with ladder to reach the inspection hatch.

DANGER

- **Risk of injury from toxic vapours!**

  Never climb into the spray liquid tank.

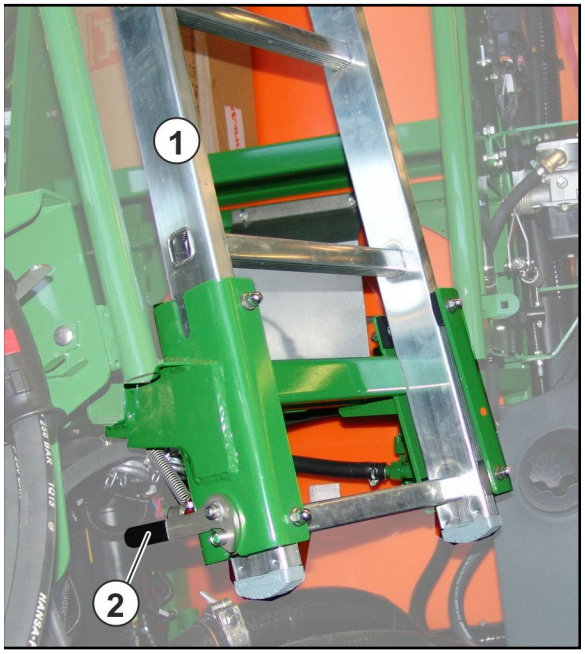
- **Risk of falling when riding on the implement!**

  It is strictly forbidden to ride on the field sprayer!

Ensure that the ladder is locked in transport position.

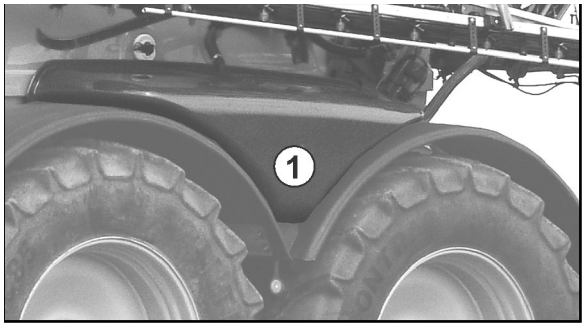
(1) Ladder locked in transport position.

(2) Automatic locking mechanism with unlocking using the hand lever



5.15 Flushing water tank

Fill only clear fresh water in the flushing water tank.



Clear fresh water is carried in the flushing water tank. This water is used to

- dilute the residual quantity in the spray liquid tank when finishing spraying operation.
- clean (flush) the whole field sprayer in the field.
- clean the suction chest and the spray lines when the tank is full.

Two interconnected flushing water tanks.

(Total 238 gal / 900 l volume).

5.16 Hand wash unit

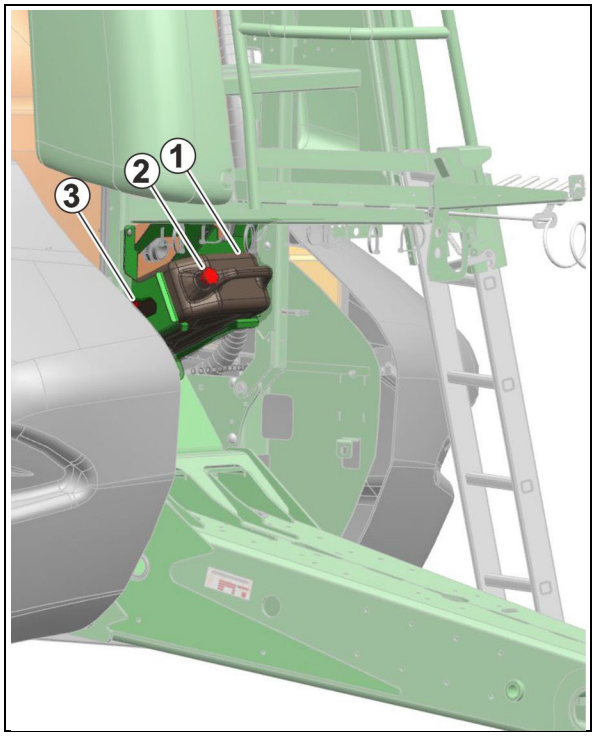
(1) Hand wash tank (tank content: 6 gal / 22l)

(2) Filling opening with lid

(3) Stop tap for clear fresh water

- o for hand washing or
- o for cleaning the spray nozzles.

- Soap dispenser



WARNING

Risk of poisoning by contaminated water in the hand wash tank!

Never use the water from the hand wash tank as drinking water! The materials of the hand wash tank are not food safe.

WARNING

Forbidden contamination of the hand wash tank with crop protection products or spray liquid!

Only fill the hand wash tank with clear fresh water, and never with crop protection product or spray liquid.

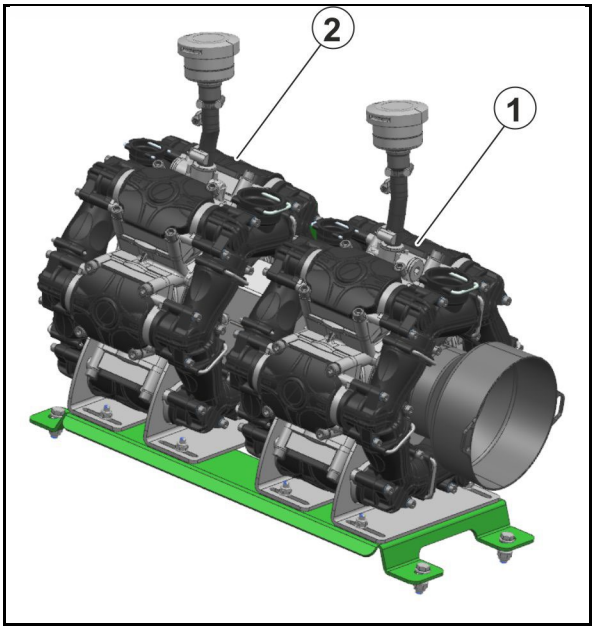
Ensure that you always carry enough clear fresh water when operating the field sprayer. Check and fill the hand wash tank when you fill the spray liquid tank.

5.17 Pump equipment

Spray liquid pump equipment with universal joint shaft drive or hydraulic drive

(1) Spray liquid pump

(2) Agitator pump



Never exceed the maximum permissible pump drive speed of 540 rpm!

Hydraulic pump drive

- The maximum pump speed is hydraulically limited to 540 rpm.
- The pump speed is adjusted and displayed via the control terminal.

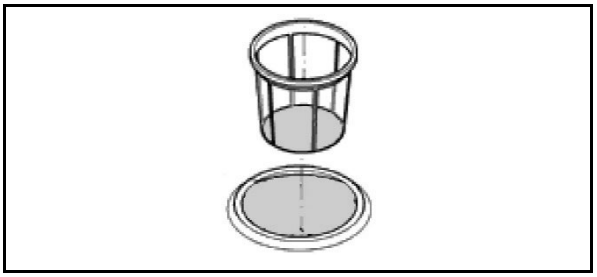
5.18 Filter equipment

- Use all the filters provided with the filter equipment. Clean the filters regularly (refer to the "Cleaning" section, page 188). Fault-free field sprayer operation can only be achieved by correct filtering of the spray liquid. Correct filtering has a significant effect on the success of the crop protection measures.
- Pay attention to the permissible combinations of filters and mesh sizes. The mesh sizes for the self cleaning pressure filter and the nozzle filters must always be smaller than the nozzle opening of the nozzles in question.
- Ensure that the use of pressure filter inserts with 80 or 100 mesh / inch for some crop protection agents can filter out active agents. In individual cases, enquire with crop protection agent manufacturers.

Sieve against foreign objects

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

Mesh size: 0,04 in / 1.00 mm



5.18.1 Suction filter

The suction filter filters

- the spray liquid during spraying operation.
- the water when filling the spray liquid tank via the suction hose.

Mesh size: 0,02 in / 0.60 mm

5.18.2 Self-cleaing pressure filter

The self cleaning pressure filter

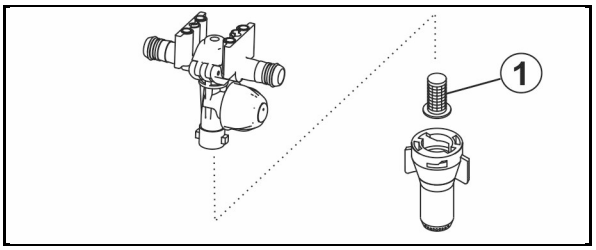
- prevents the nozzle filter upstream of the spraying nozzle from becoming blocked.
- has a greater mesh count/inch than the suction filter.

When the additional 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.

Overview of the pressure filter inserts

- 50 mesh/inch (standard), blue
  for nozzle size '03' and larger
  Filter area: 0,33 in² / 216 mm²
  Mesh size: 0,01 in / 0.35 mm
- 80 mesh/inch, yellow
  for nozzle size '02'
  Filter area: 0,33 in² / 216 mm²
  Mesh size: 0,007 / 0.20 mm
- 100 mesh/inch, green
  for nozzle size '015' and smaller
  Filter area: 0,33 in² / 216 mm²
  Mesh size: 0,006 in / 0.15 mm

5.18.3 Nozzle filters



The nozzle filters (1) prevent clogging of the spray nozzle.

Overview of the nozzle filters

- 24 mesh/inch,
  for nozzle size '06' and larger
  Filter area: 0,33 in² / 5.00 mm²
  Mesh size: 0,02 in / 0.50 mm
- 50 mesh/inch (standard),
  for nozzle size '02' to '05'
  Filter area: 0,33 in² / 5.07 mm²
  Mesh size: 0,01 in / 0.35 mm
- 100 mesh/inch,
  for nozzle size '015' and smaller
  Filter area: 0,33 in² / 5.07 mm²
  Mesh size: 0,006 in / 0.15 mm

5.19 Application rate increase with HighFlow

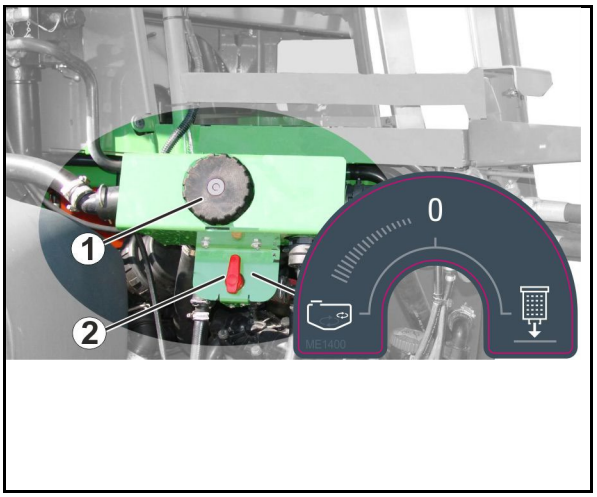
- Optional application rate increase for applying liquid fertiliser.

  The maximum application rate is increased to up to max. 106 gpm [400 l/min].
- In doing so, the agitator pump is used to increase the application rate. It is then only partially used as an agitator drive, or not at all.

When using HighFlow, ensure sufficient agitator capacity.

- The high-performance liquid fertilisation is switched on and off via the control terminal.

The HighFlow valve chest is located on the right of the platform.

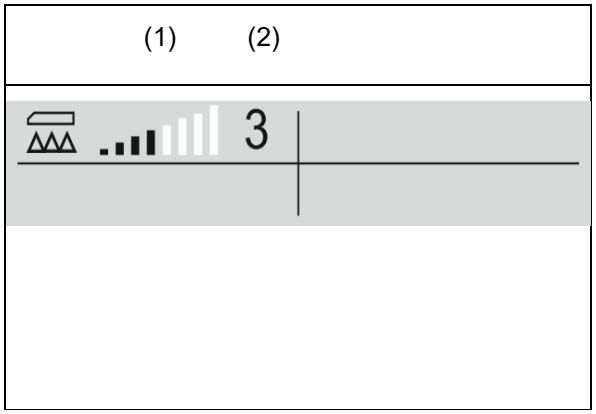


(1) Additional pressure filter

(2) Switch tap for secondary agitator / draining the residual quantity from the pressure filter

- o Agitator running at maximum
- o **0** – Agitator off
- o Drain pressure filter

Control terminal: Multi-function display



(1) The display of the rate control valve position as a bar diagram provides information as to whether the forward speed / application rate can be increased or the agitator capacity must be reduced.

→ The more bars are marked, the greater the quantity that is delivered to the boom.

(2) The digit (value 1-6) for HighFlow shows the portion that is used by the agitator pump for spraying.

5.20 Towing device (optional)

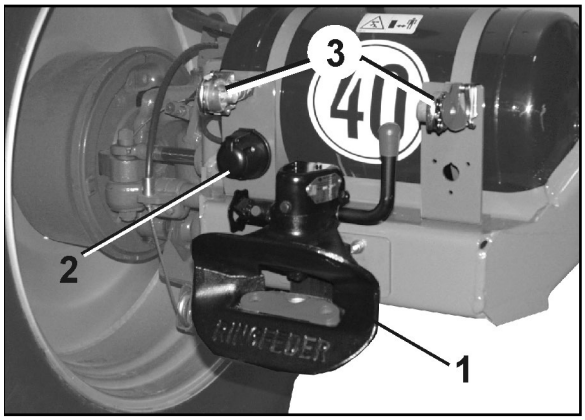
The automatic drawbar is used to pull braked trailers

- with a permissible total weight of 26455 lb / 12000 kg and pneumatic brake.
- with a permissible total weight of 17640 lb / 8000 kg and overrun brake.
- with a total weight that is lower than the permissible total weight of the field sprayer.
- without drawbar load.
- with towing eye 40 DIN 74054.

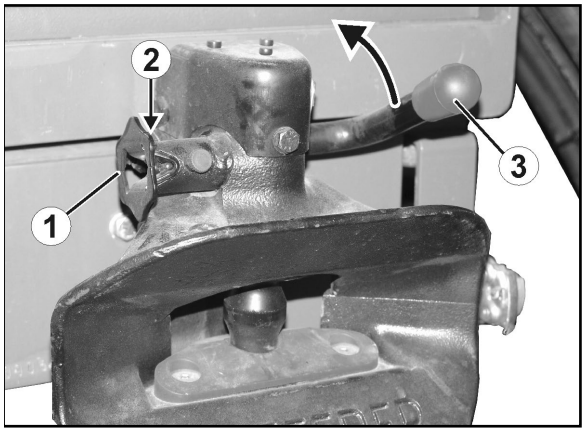
(1) Drawbar

(2) Lighting connection

(3) Brake connection



To unlock the towing device, pull on the knob (1) and turn until it engages in the upper notch (2). Then swivel the lever (3) up until the pin is unlocked.



The drawbar of the trailer must be long enough to prevent collisions with the boom when driving in curves.

WARNING

Risk of crushing when coupling the machine and standing between the machine and the trailer!

Instruct people to leave the danger area between the machine and the trailer before you approach the trailer.

Coupling the trailer via the automatic drawbar is a one-man operation.

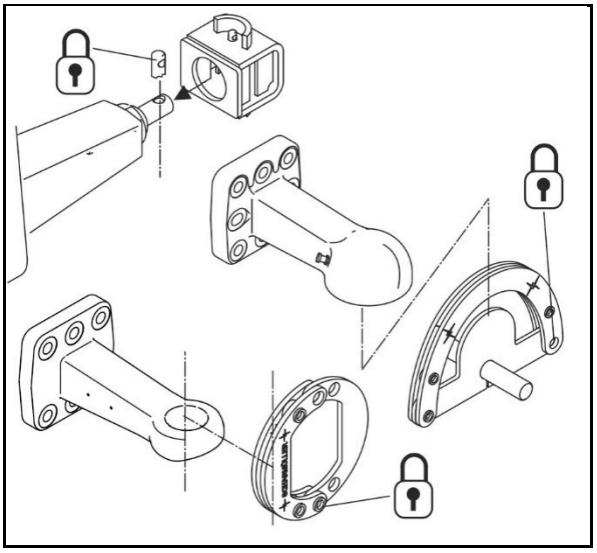
Helpers as guides are not necessary.

WARNING

When coupling and uncoupling trailers, observe the safety instructions in the section about coupling and uncoupling the implement, page 137.

5.21 Safety device against unauthorised use

Lockable device for the drawbar eye, ball bracket, or lower link crosspiece, prevents unauthorised use of the machine.

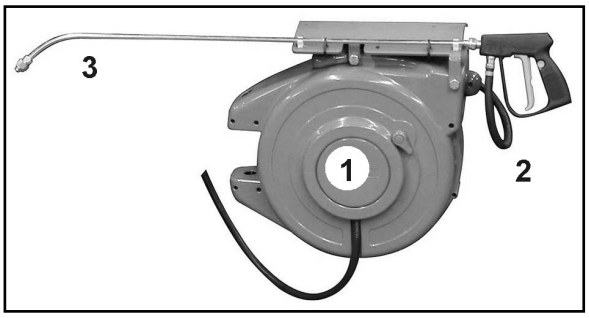


5.22 Exterior wash down kit (optional)

Exterior wash down kit for cleaning the field sprayer, includes

(1) Hose coiler,
(2) 66 ft / 20 m pressure hose,
(3) Spray gun

Operating pressure: 145 psi / 10 bar
Water output: 4,8 gpm / 18 l/min



WARNING

Danger from liquids escaping under pressure and contamination with spray liquid if the spray gun is activated accidentally!

Secure the spray gun against unintentional spraying using the locking mechanism (1)

- before each pause in spraying.
- before depositing the spray gun in its holder after cleaning work is complete.

5.23 Camera system

WARNING

Risk of injury or even death.

If the camera display alone is used for manoeuvring, persons or objects can be overlooked. The camera system is an aid. It does not replace the operator's awareness of the immediate surroundings.

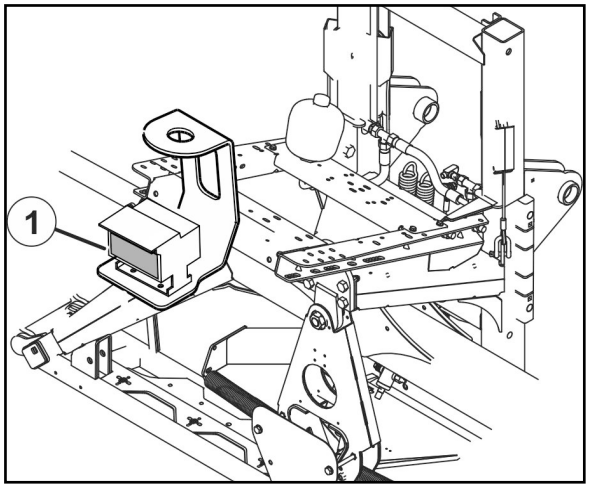
- **Before manoeuvring, ensure that there are no people or objects in the manoeuvring area by taking a direct look**

The implement can be equipped with a camera (1).

Features:

- Viewing angle of 135°
- Heater and lotus coating
- Infrared night-view technology
- Automatic backlight compensation

Super-L boom

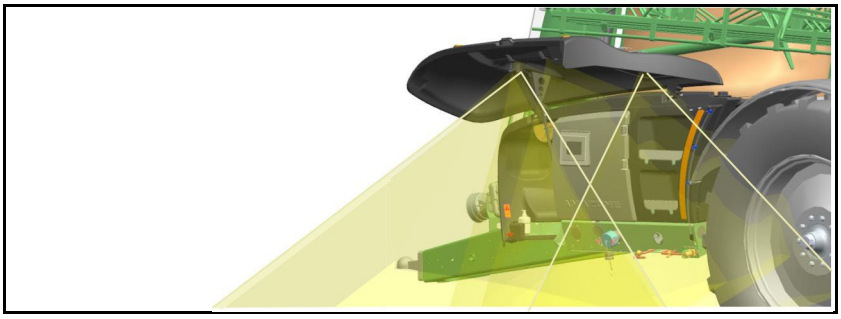


5.24 Work lights (optional)

2 work floodlights on the sprayer boom and 2 work floodlights on the platform.

LED individual nozzle illumination:

Lighting package for the control panel and storage compartment



2 variants:

- Separate power supply from the tractor is required, operation via the control box.
- Power supply and operation via ISOBUS.

5.25 Control terminal

ISOBUS control terminal in the tractor

The following are performed via the control terminal:

- input of implement-specific data.
- input of job-related data.
- control of the field sprayer to change the application rate used in spraying operation.
- the operation of all functions on the sprayer boom.
- the operation of special functions.
- the monitoring of the field sprayer during spraying operation.

The control terminal controls a job computer. Here, the job computer receives all necessary information and manages the area-based regulation of the application rate [l/ha] depending on the quantity (target quantity) entered and the current operational speed [km/h].

See operating manual for software ISOBUS.

AmaTron 4

AmaPad 2

5.26 TwinTerminal for Comfort Package on the control panel

The suction-side selector valve is electrically switched via the TwinTerminal.

Default view of the TwinTerminal:

-  Display of the spray liquid tank fill level and agitation level
-  Display of the flushing water tank fill level.

4 buttons are available for operation.

When switching on the implement, by default the suction side is in position:

 - Off, suction from spray liquid tank

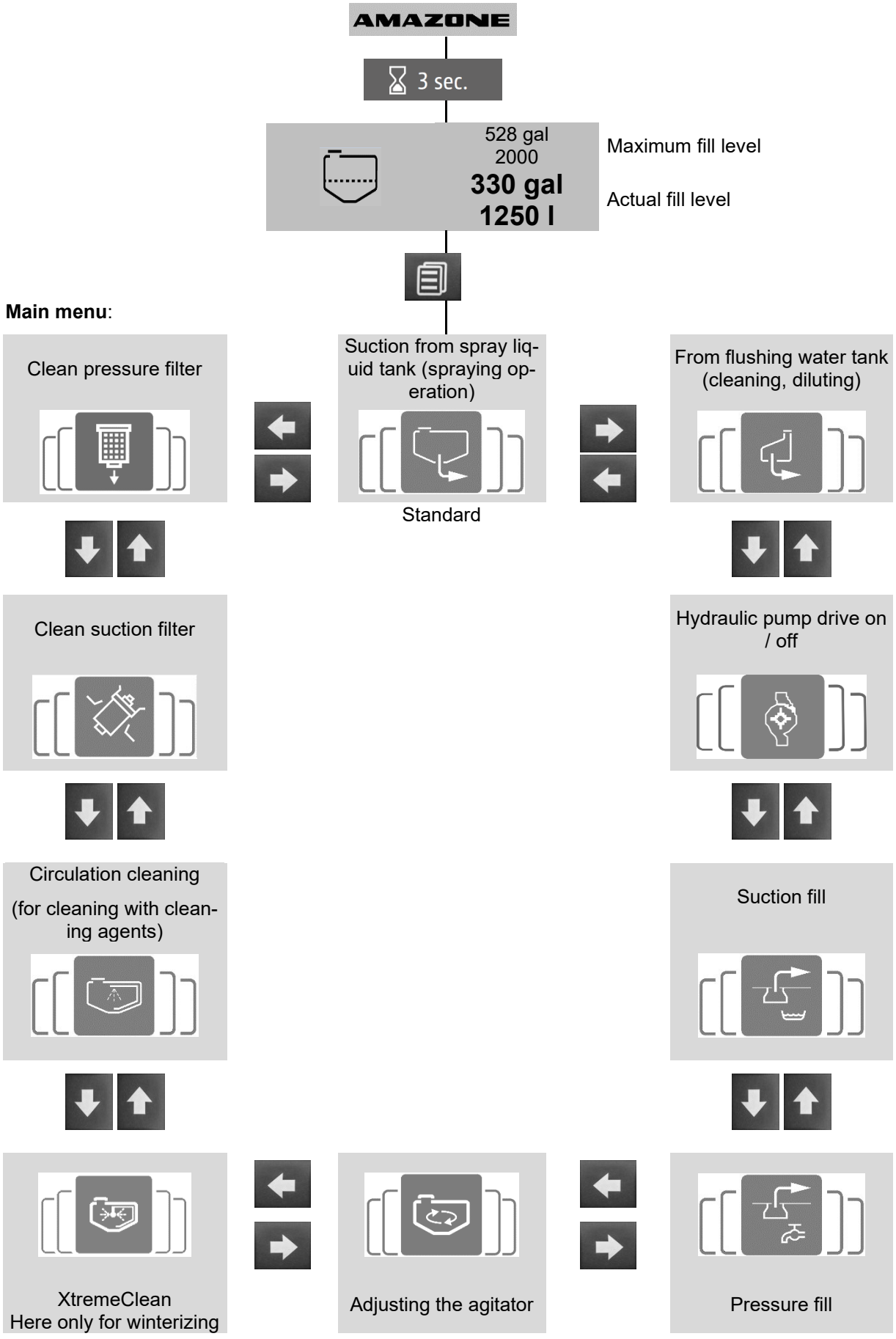
→ Spraying operation

The suction valve chest can be switched via the TwinTerminal:

This means that in addition to spraying operation, other functions can be selected via the TwinTerminal (depending on the implement and equipment):

- Filling via suction connection or pressure connection
- Suction from flushing water tank (cleaning and diluting)
- Adjusting the agitator
- Circulation cleaning
- XtremeClean
- Cleaning the pressure filter when the spray liquid tank is full.

TwinTerminal diagram



Buttons in the Main menu

 , Select functions in the Main menu


Start function

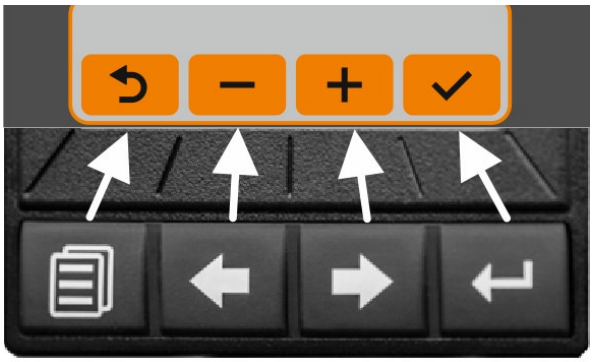

Go to the start screen

Buttons in the Setting menu

 , Increase / reduce values


Confirm entry


Back



5.1 AmaPilot+ multi-function stick

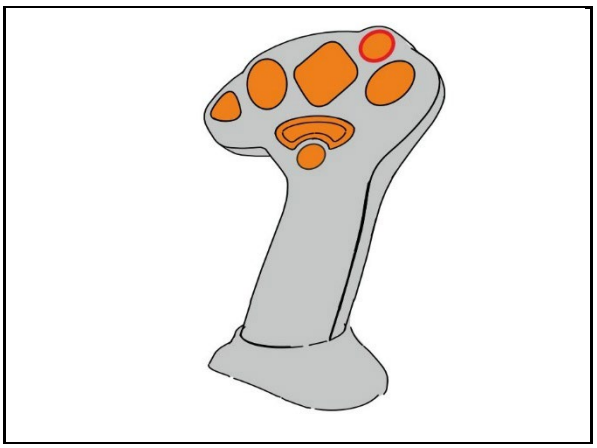
The implement functions can be executed via the AmaPilot+.

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 distributed over 3 levels and can be selected by pressing them with your thumb.

In addition to the default level, two other control levels can be selected.



5.2 Personal protective equipment Safety Kit

The Safety Kit is the personal protective equipment for handling crop protection products as a handy Safety Kit case from AMAZONE.

6 Layout and function of the sprayer boom

WARNING

Risk of injury for people due to impact with the sprayer boom when

- **the boom sections swivel to the sides when folding**
- **tilting, lifting or lowering**

Instruct people to leave the danger area of the machine before you operate the sprayer boom.

Proper condition of the sprayer boom as well as its suspension significantly affect the distribution accuracy of the spray liquid. When the spraying height of the sprayer boom to the crop is set correctly, complete overlap is achieved. Nozzles are attached to the boom at intervals of 50 cm (alternatively 25 cm).

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:

Profi-folding consists of the following functions:

- 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 (Profi-folding II only).
- Automatic boom ride.

Adjusting the spraying height

WARNING

Risk of crushing and impact for personnel who are caught or struck when lifting the sprayer boom via the height adjustment unit!

Instruct personnel to exit the danger area of the implement before lifting or lowering the sprayer boom via the height adjustment unit.

1. Instruct personnel to exit the danger area of the implement.
2. Set the spraying height on the control terminal as specified in the spray table (with Profi-folding).

Always align the sprayer boom parallel to the ground. This is the only way to achieve the specified spraying height on all nozzles.

Folding out and in

CAUTION

It is prohibited to fold and unfold the sprayer boom while driving.

DANGER

Always maintain an adequate distance from overhead cables when folding and unfolding the sprayer boom! Contact with overhead cables may lead to fatal injuries.

WARNING

Risk of crushing the entire body and impact due to personnel becoming trapped by laterally-swivelling machine parts.

These dangers can cause extremely serious and potentially fatal injuries.

Maintain an adequate safety distance from moving machine parts while the tractor engine is running.

Ensure that all personnel maintain an adequate safety distance from moving machine parts.

Instruct personnel to leave the swivel range of any moving machine parts before swivelling the parts.

WARNING

Danger for third parties from crushing, being drawn in and/or caught by the moving parts of the boom or impact if they stand in the swivel range of the boom while it is folding out or in.

- Instruct personnel to leave the swivel range of the boom before you fold the boom out or in.
- Release the control for folding the boom out and in immediately if someone enters the swivel range.

Vibration compensation

The locking mechanism for the vibration compensation is displayed on the control terminal.

Unlock vibration compensation:

Uniform lateral distribution can only be achieved with the swing compensation unlocked.

After completely unfolding the sprayer boom, keep activating the operating lever for an additional 5 seconds.

→ The vibration compensation is unlocked and the unfolded sprayer boom can oscillate freely relative to the boom carrier.

Lock the vibration compensation:

- **For road transport!**
- **When folding and unfolding the boom!**

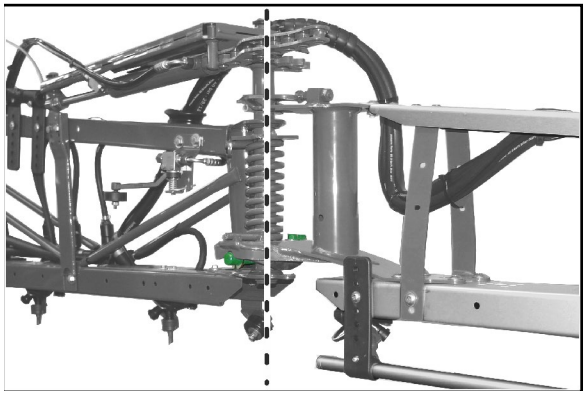
Folding via tractor control unit: The vibration compensation is automatically locked before folding the boom sections.

Outer boom locking

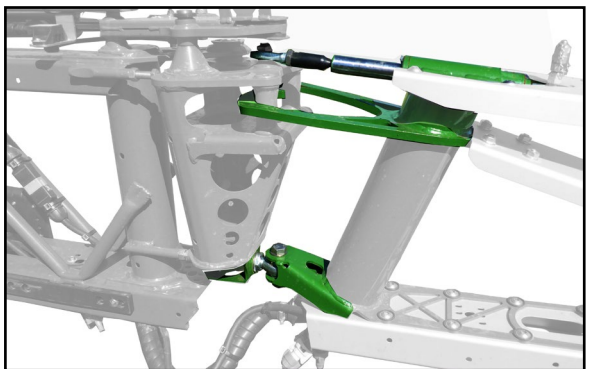
Outer boom

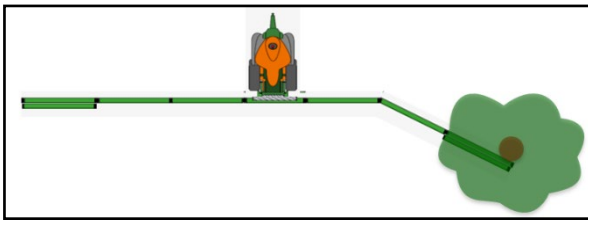
The outer boom locking mechanisms protect the boom from damage if the outer boom sections come into contact with solid obstructions. The locking mechanism enables the outer boom section to avoid collision by moving around the articulated axle in and against the direction of travel; it is then automatically returned to its working position.

Boom section locking with compression spring:



Boom section locking with hydraulic cylinder:





Centre boom section

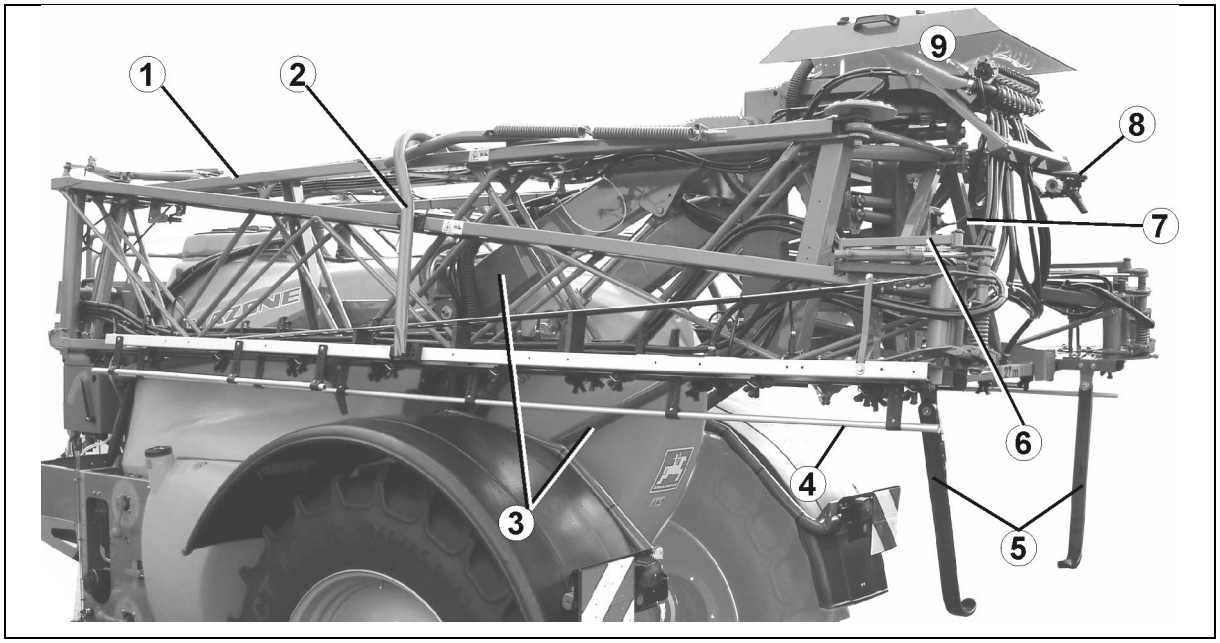
Flex-folding

The centre boom section locking mechanisms protect the boom from damage when the centre boom section hits solid obstacles. The locking mechanism enables deflection opposite to the direction of travel when driving forward.

To return into position, the sprayer boom must be completely unfolded again.

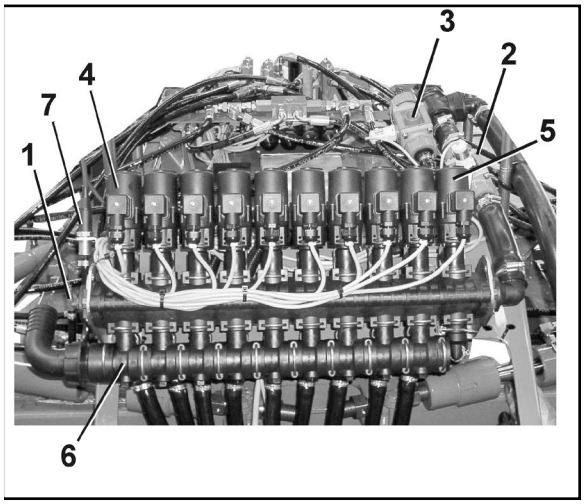
Before moving off again, check the boom for damage.

6.1 Super-L boom



(1) Sprayer boom with spray lines
(2) Transport safety bow
(3) Parallelogram frame for adjusting the height of the sprayer boom
(4) Nozzle protection tube
(5) Spacer
(6) Outer boom locking
(7) Vibration compensation
(8) Valve and switch tap for DUS system
(9) Boom equipment

Boom valve chest with part-width section control



(1) Pressure connection for the spray pressure gauge
(2) Flow meter for determining the application rate [l/ha]
(3) Return-flow meter for determining the quantity of spray liquid conveyed back to the spray liquid tank (control terminal only)
(4) Motor valves for switching the boom part-width sections on and off

(not for AmaSelect and AmaSwitch)

(5) Bypass valve
(6) Pressure relief
(7) Pressure sensor

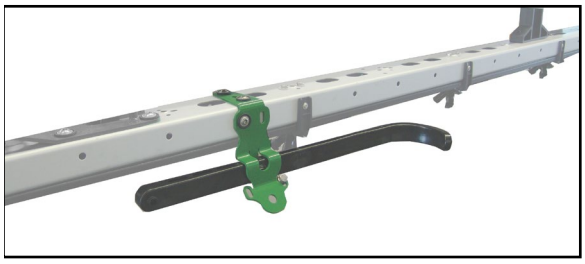
Spacer

The spacer prevents collisions of the boom with the ground.

When using certain nozzles, the spacers are within the spray cone.

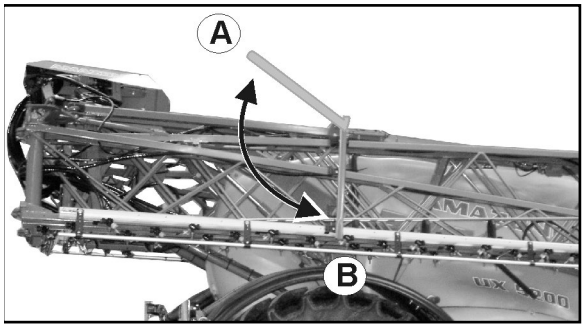
In this case, attach the spacers horizontally on the carrier.

Use thumb bolts.



Locking and unlocking the transport locking mechanism

The transport safety bow is used to lock the folded sprayer boom in transport position to prevent unintentional unfolding.



Unlocking the transport locking mechanism

Before unfolding the sprayer boom, swivel the transport safety bows upwards, thereby unlocking the sprayer boom (A).

Locking the transport locking mechanism

After folding the sprayer boom, swivel the transport safety bows downwards, thereby locking the sprayer boom (B).

Working with the sprayer boom unfolded on one side

It is permitted to work with the sprayer boom unfolded on one side

Profi-folding:

- only with the vibration compensation locked
- briefly for passing obstacles (trees, electricity pylons, etc.).

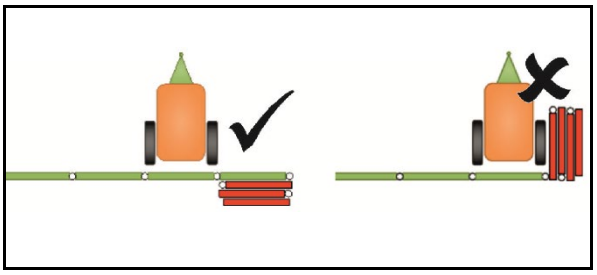
Flex-folding:

- Up to a forward speed of 4 mph / 6 km/h

The sprayer boom is completely unfolded!

1. Raise the sprayer boom to mid-height.
2. Fold the desired boom sections.

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



After folding, the boom section swivels forward into transport position!

Interrupt the folding procedure in due time for one-sided spraying!

3. Align the sprayer boom horizontally.
4. Set the spraying height of the sprayer boom such that the sprayer boom has a distance of at least 3,28 ft / 1 m from the ground surface.
5. Switch off the part-width sections of the folded boom sections.
6. During spraying operation, drive with a considerably reduced speed.

6.2 Reduction joint on the outer boom (optional)

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

Case 1:

Number of nozzles outer part width section	=	Number of nozzles on the foldable outer element

→ When spraying with a reduced working width, keep the outer part width sections switched off.

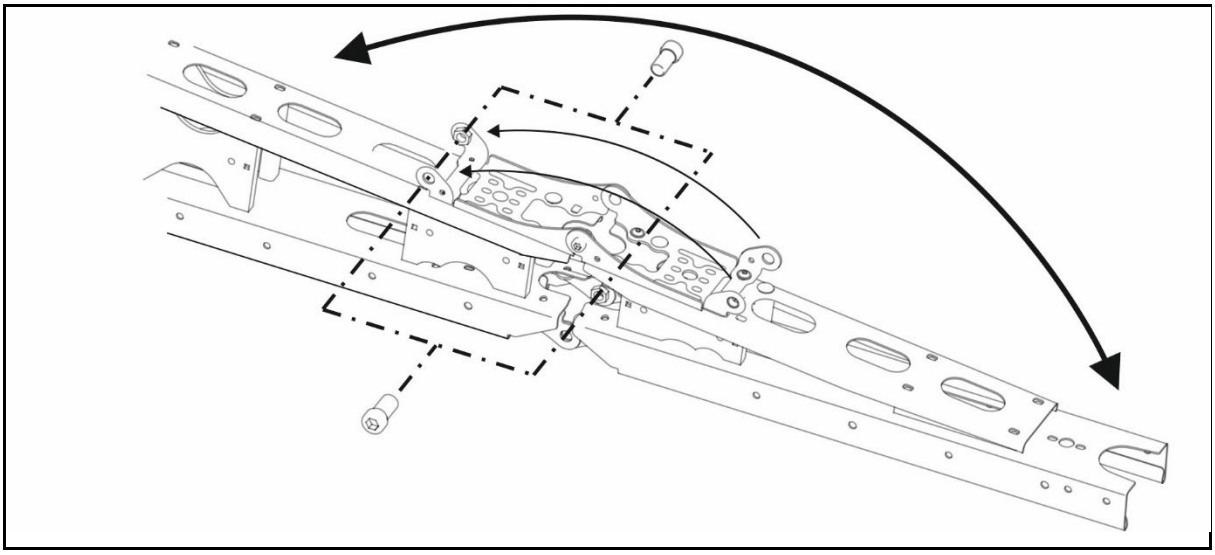
Case 2:

Number of nozzles outer part width section	≠	Number of nozzles on the foldable outer element

→ Close the outer nozzles manually (triple nozzle head).

→ Perform changes on the control terminal.

- Enter the changed working width.
- Enter the changed number of nozzles on the outer part width sections.



2 bolts lock the folded and unfolded outer element in its respective end positions.

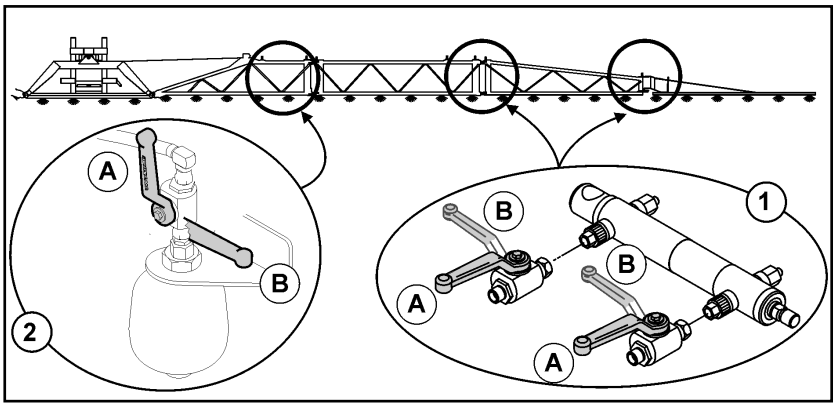
CAUTION
Before road transport, unfold the outer elements again so that the transport locking mechanism is active when the boom is folded.

6.3 Boom width reduction (option)

With the boom width reduction, one or two booms can remain folded in during operation depending on the version.

In addition, switch on the hydraulic accumulator (optional) as a collision protection.

The corresponding part-width sections have to be switched off on the control terminal.



(1) Boom width reduction

(2) Hydraulic accumulator (optional)

(A) Stop tap opened

(B) Stop tap closed

Working with reduced working width

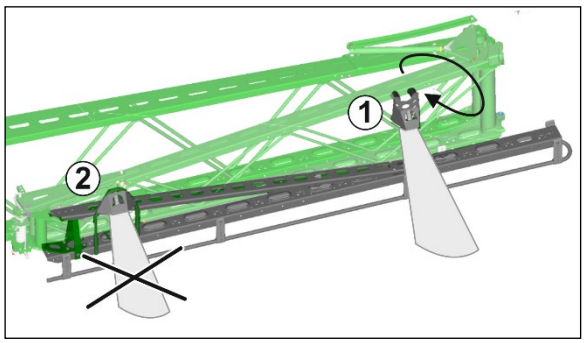
1. Reduce the boom width hydraulically.
2. Close the stop taps for the boom width reduction.
3. Open the stop tap for the boom damping.
4. Switch off the corresponding part-width sections on the control terminal.
5. Perform work with reduced working width.

Close the stop tap for the boom damping.

- For road transport
- For use with full working width

Sensors on the boom:

When working with reduced working width with automatic boom guidance,
a boom section might be interfering with the sensor.



In this case:

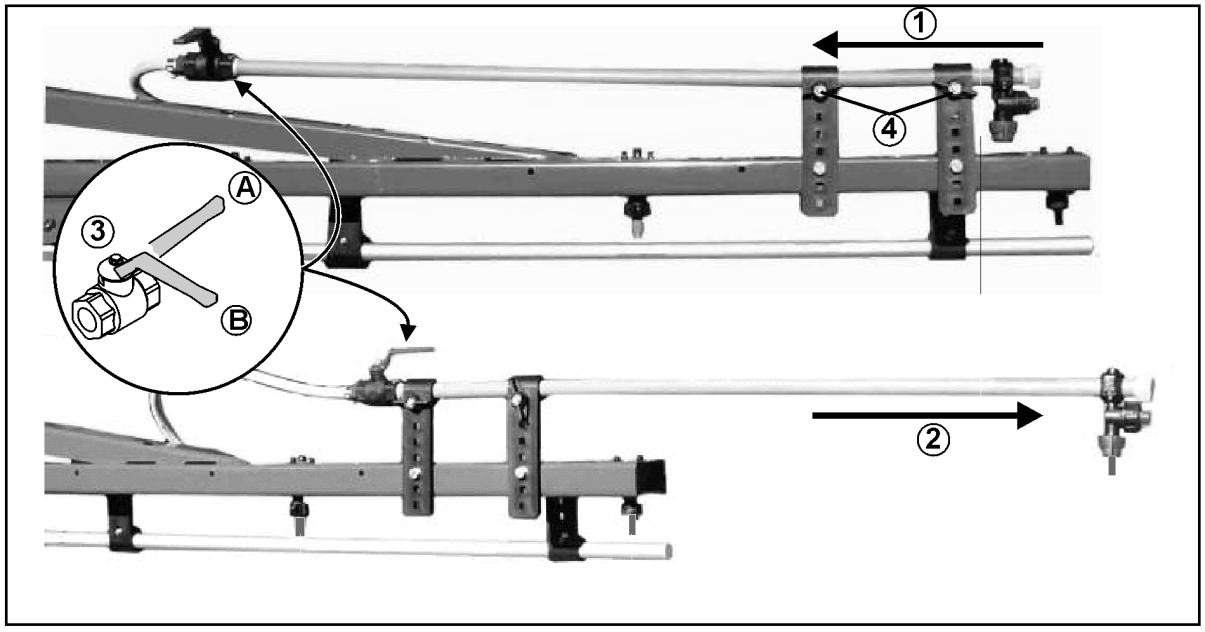
(1) Install the sensor rotated by 180°.

(2) DistanceControl plus: disconnect the sensor.

ContourControl: deactivate the sensor (ISO-BUS software).

6.4 Boom extension (option)

The boom extension increases the working width infinitely up to 1.20 metres.



(1) Boom extension in transport position

(2) Boom extension in working position

(3) Stop tap for the outer nozzle

(A) Stop tap opened

(B) Stop tap closed

(4) Wing bolts for securing the boom extension in the transport or working position

6.5 Hydraulic tilt adjustment (optional)

The sprayer boom can be aligned parallel to the ground or the target surface using the hydraulic tilt adjustment in event of unfavourable terrain conditions, e.g., with tracks that have different depths or driving in a furrow on one side.

Adjustment using control terminal

Refer to control terminal instruction manual.

6.6 DistanceControl (optional)

The sprayer boom regulating device DistanceControl automatically keeps the sprayer boom parallel at the desired distance from the target surface.

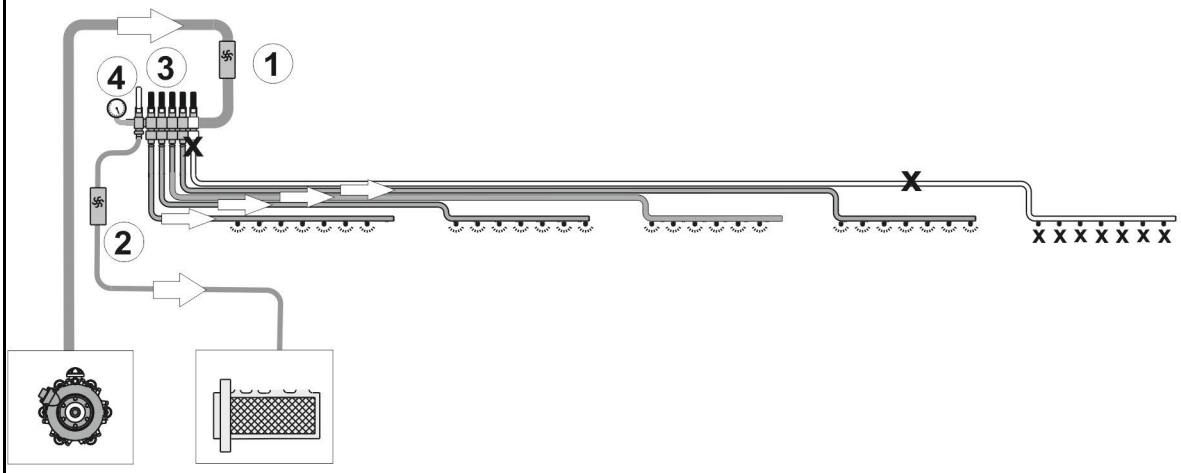
Ultrasonic sensors measure the distance to the ground or the crop.

When the sprayer boom is switched off at the headlands, the sprayer boom is automatically lifted by approx. 50 cm. When it is switched on, the sprayer boom is lowered back to the calibrated height.

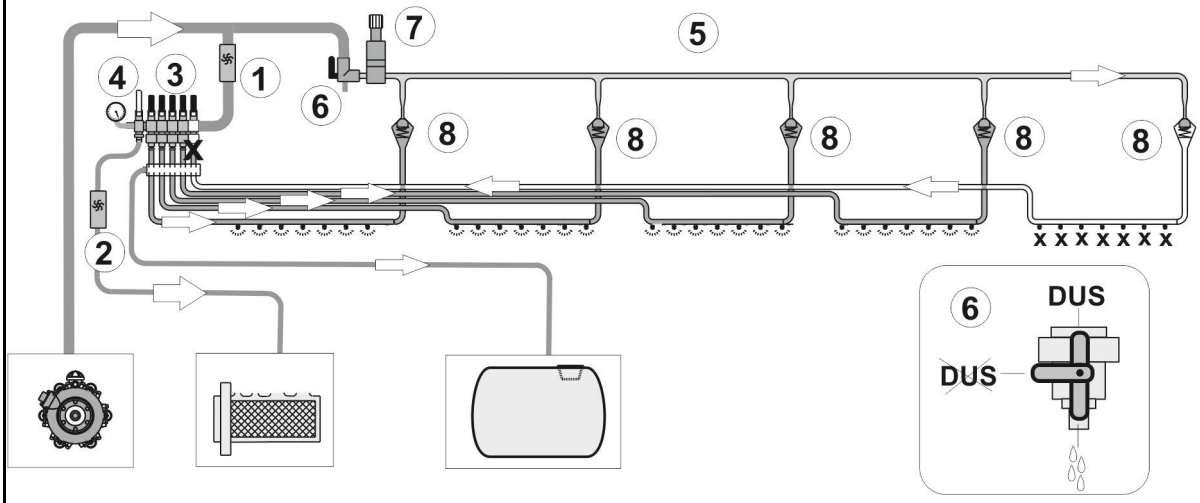
See operating manual for the ISOBUS software.

6.7 Spray lines

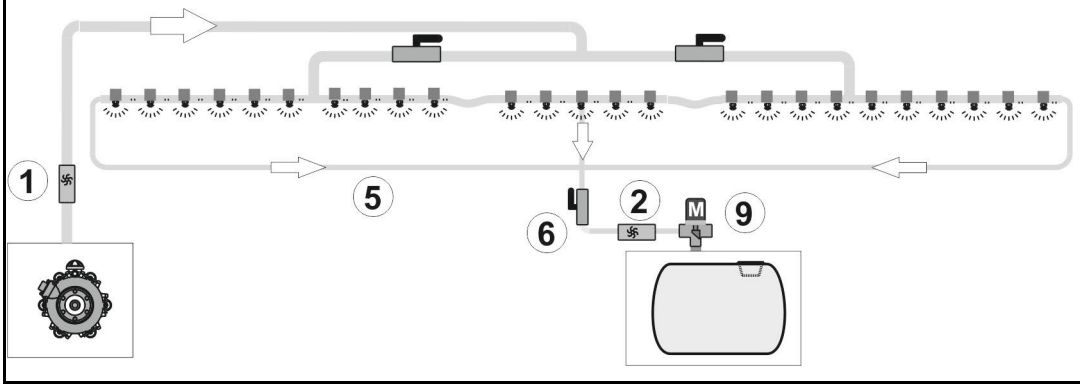
Spray lines with part-width section valves



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



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



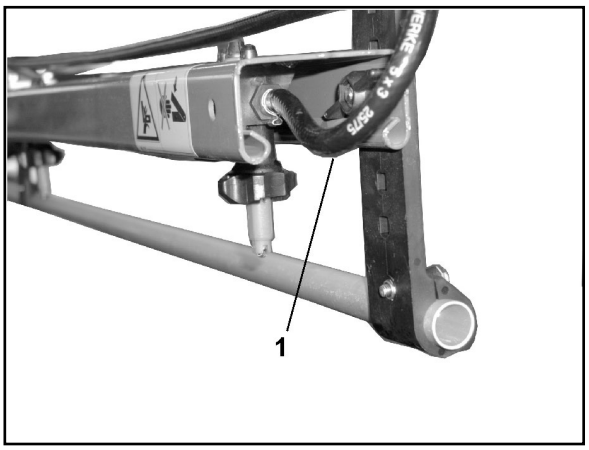
(1) Flow meter
(2) Flow meter
(3) Boom part width section valves
(4) Bypass valve for low application rates
(5) Pressure circulation line
(6) DUS stop tap
(7) Pressure control valve
(8) Check valve
(9) Pressure control valve

Pressure circulating system (DUS)

- For normal spraying operation, the pressure circulating system should always be switched on.
- When using drag hoses, the pressure circulating system should always be switched off.

The pressure circulating system

- enables the constant circulation of liquid in the spray line. To do so, a suction port hose (1) is assigned to each part-width section.
- can be operated using spray liquid or flushing water, as desired.
- reduces the undiluted residue for all spray lines to 2 l.



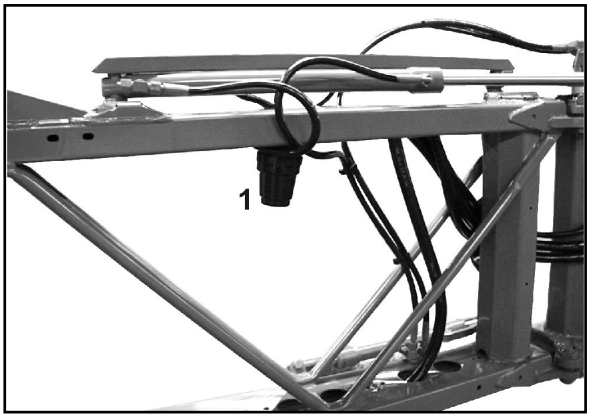
The constant circulation of liquid

- enables production of a uniform spray pattern right from the start, because spray liquid is available at every spray nozzle immediately after the sprayer boom is switched on, with no delay.
- prevents damage to the spray line.

Line filter for spray lines (optional)

The line filter (1) is

- installed in the spray lines in each part-width section (part-width section control).
- installed in the spray lines on the left and right (single nozzle control)
- an additional measure to prevent contamination of the spraying nozzles.



Overview of the filter inserts

- Filter insert with 50 mesh/inch (blue)
- Filter insert with 80 mesh/inch (grey)
- Filter insert with 100 mesh/inch (red)

6.8 Nozzles

(1) Nozzle body with bayonet connection

- o Spring element version with shutter
- o Spring element version, bolted

(2) Diaphragm. If the pressure in the spray line falls below approx. 0.5 bar, the spring element (3) presses the diaphragm onto the diaphragm seat (4) in the nozzle body. This ensures that when the sprayer boom is switched off, the nozzles are deactivated without subsequent dripping.

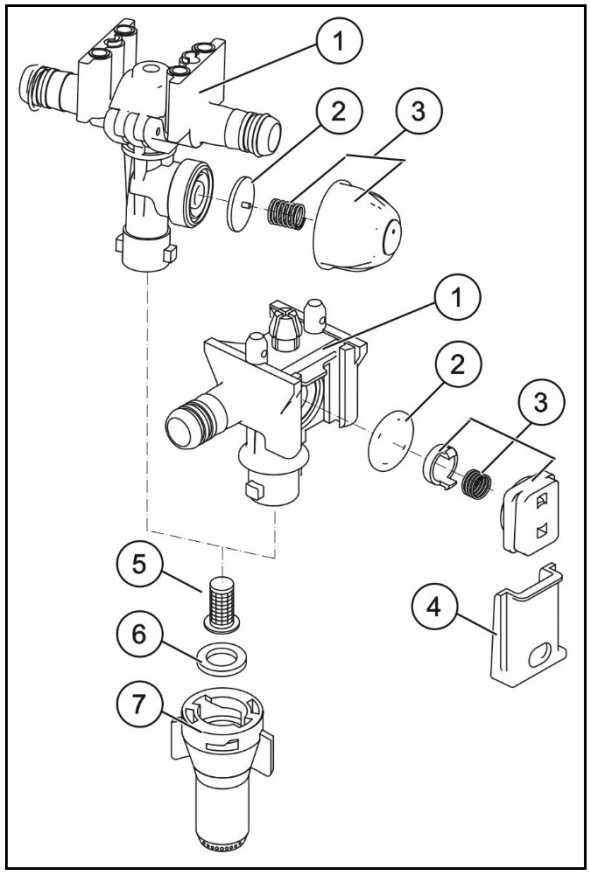
(3) Spring element.

(4) Shutter; holds the entire diaphragm valve in the nozzle body

(5) Nozzle filter; fitted as standard on machines with 50 mesh/inch, is inserted from below into the nozzle body.

(6) Rubber seal

(7) Nozzle with bayonet cap



6.8.1 Multiple nozzles

It is advantageous to use multiple nozzle heads when using different nozzle types.

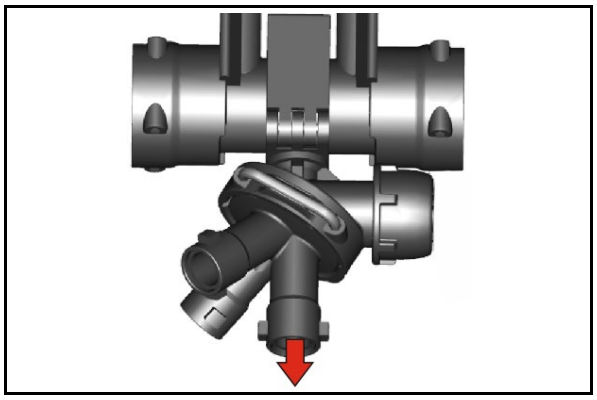
Turning the multiple nozzle head counterclockwise brings a different nozzle into play.

The multiple nozzle head is switched off in the intermediate positions. This provides the possibility of reducing the working width of the boom.

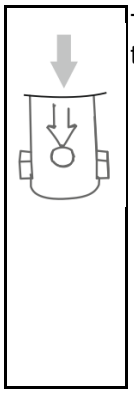
Flush the spray lines before twisting the multiple nozzle head to another nozzle type.

Triple nozzles (optional)

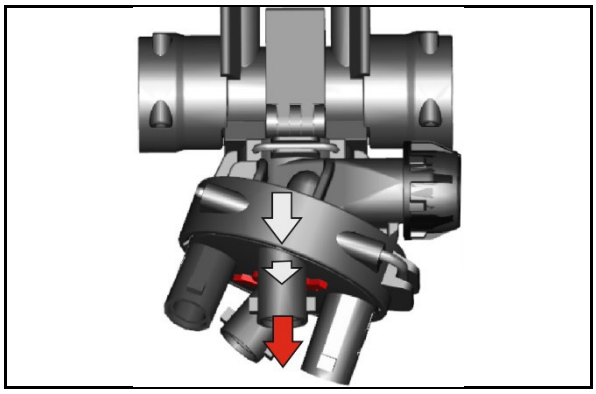
The vertically positioned nozzle is supplied.



Quadruple nozzles (optional)

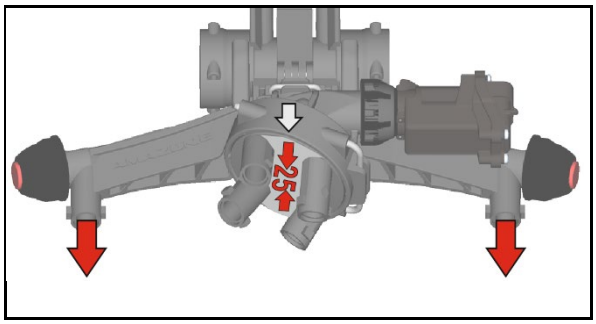


The arrow indicates the vertical nozzle that is being supplied.



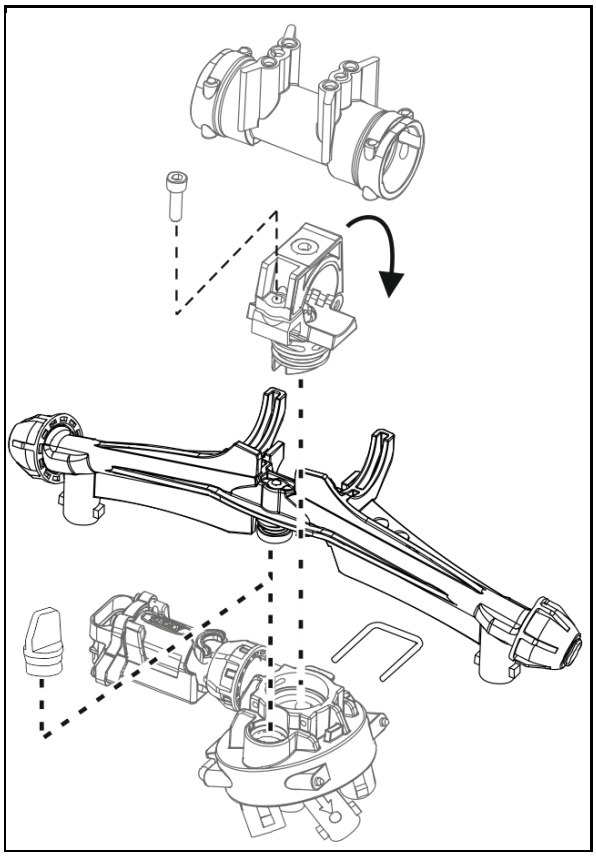
The quadruple nozzle body can be equipped with a 25-cm nozzle holder. This results in a nozzle spacing of 25 cm.

The arrow indicates the label 25 cm when the nozzle spacing is set at 25 cm.



Install the 25 cm nozzle holder.

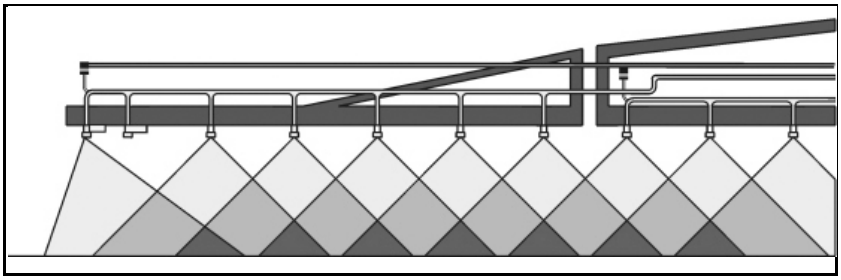
If the 25 cm nozzle holder is not used, close the supply with plugs.



6.8.2 Edge nozzles

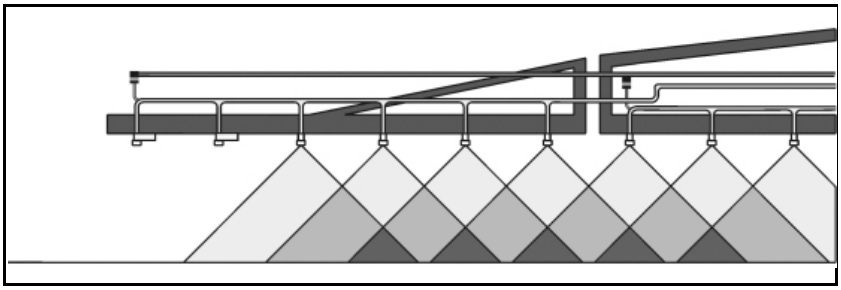
Boundary nozzles, electric or manual

With boundary nozzle switching, the last nozzle can be switched off and a border nozzle, 25 cm further out (right at the edge of the field), can be electrically switched on.



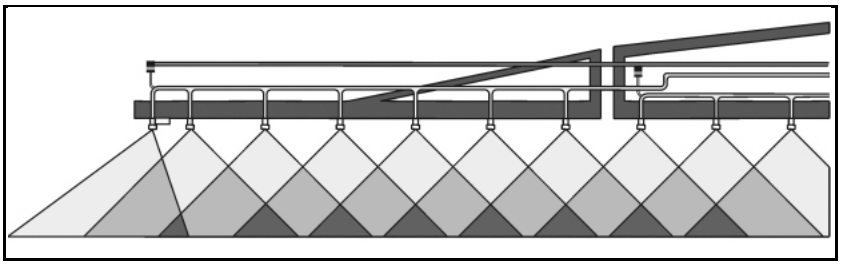
Electric end nozzle switching (optional)

Using end nozzle switching, up to three of the outer nozzles at the edge of the field close to a water source can be electrically switched off from the tractor).



Electric additional nozzle switching (optional)

With the additional nozzle switching, another exterior nozzle is cut in, increasing the working width by one metre.



6.9 Automatic single nozzle control (optional)

50 cm part width sections can be controlled separately by the electric single nozzle control. In combination with the automatic part width section control "Section Control", overlapping can be reduced to a minimum area.

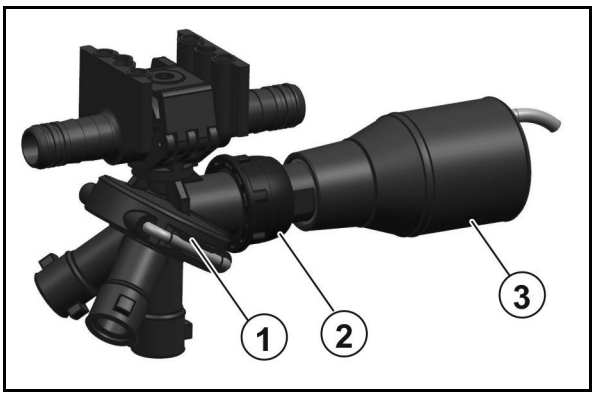
6.9.1 Single nozzle control AmaSwitch

Each nozzle can be switched on and off separately via Section Control.

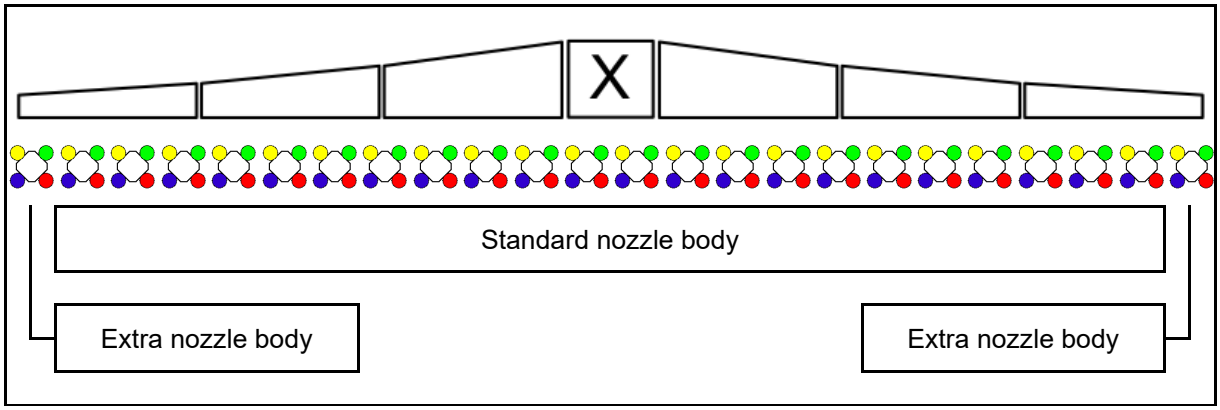
(1) Nozzle body

(2) Union nut with diaphragm seal

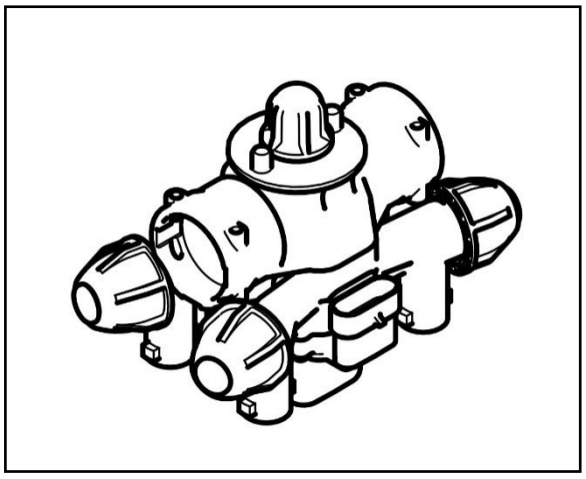
(3) Motor valve



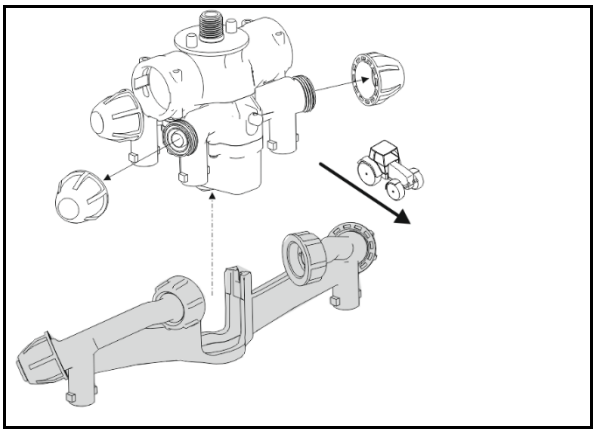
6.9.2 4-way AmaSelect single nozzle control



- The sprayer boom is fitted with 4-way nozzle bodies. Each of them is operated by an electric motor.
- The nozzles can be switched on or off as desired (depending on Section Control).
- Due to the 4-way nozzle bodies, several nozzles can be simultaneously active in a nozzle body.
- For boundary treatment, an extra nozzle body can be separately configured.
- LED single nozzle illumination integrated in the nozzle body.



- Nozzle spacing of 25 cm is possible (optional)
  During installation, please note that the two outlets pointing to the front on the implement side must be used for installation.

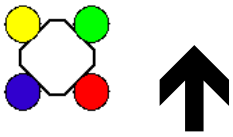


Manual nozzle selection:

The control terminal can be used to select the nozzle or the nozzle combination.

Automatic nozzle selection:

The nozzle or nozzle combination is automatically selected during spraying in accordance with the entered border conditions.



Symbol for nozzle housings - AmaSelect.

The arrow shows the direction of travel.

→ This is important for the assembly of the nozzles in the nozzle bodies!

6.10 Special optional equipment for liquid fertiliser

There are currently two main types of liquid fertiliser available:

- Ammonium nitrate / urea solution (AUS) with 28 kg N per 100 kg AUS.
- An NP solution 10-34-0 with 10 kg N and 34 kg P_2O_5 per 100 kg NP solution.

If the liquid fertiliser is sprayed using flat-fan nozzles, multiply the corresponding values from the spray table for the application rate (l/ha) by 0.88 for AUS and by 0.85 for NP solutions, as the application rates listed (in l/ha) only apply for water.

As a rule:

Use coarse-dropped application for liquid fertiliser to avoid chemical burns to the plants. Overly large drops roll off the leaf and drops which are too small cause a magnifying glass effect, which burns the leaves. Too much fertiliser may cause burns to appear on the leaves due to the salt concentration in the fertiliser.

As a rule, do not spray more liquid fertiliser than, for example, 40 kg N (see also "Conversion table for spraying liquid fertiliser"). Always discontinue nozzle-based UAN fertilisation at development stage EC-39, because chemical burns on ears have a particularly harmful effect

6.10.1 Three-ray nozzles (optional)

(Optional)

The use of three-ray nozzles for applying liquid fertilizer is beneficial if the liquid fertilizer needs to be taken up more by the roots of the plant than through the leaves.

Thanks to its three openings, the dosing aperture, which is integrated into the nozzle, ensures a coarse-droplet, almost depressurized distribution of the liquid fertilizer. This prevents an undesirable spray mist and formation of smaller drops. The coarse droplets produced by the three-ray nozzle hit the plants with minimal force and roll off the surface of the plants. **Although this prevents damage from burns to the greatest extent possible, avoid the use of three-ray nozzles for late top dressing and use drag hoses.**

For all 3-ray nozzles listed below, only use the black bayonet nuts.

Different three-ray nozzles and their implementation areas (at 5 mph / 8 km/h)

- Yellow, 5,3 – 8,5 gal/ac / 50 - 80 l AUS/ha
- Red, 8,5 – 13,5 gal/ac / 80 - 126 l AUS/ha
- Blue, 12,3 – 19 gal/ac / 115 - 180 l AUS/ha
- White, 16,5 – 7,6 gal/ac / 155 - 267 l AUS/ha

6.10.2 7-hole nozzles / FD nozzles (optional)

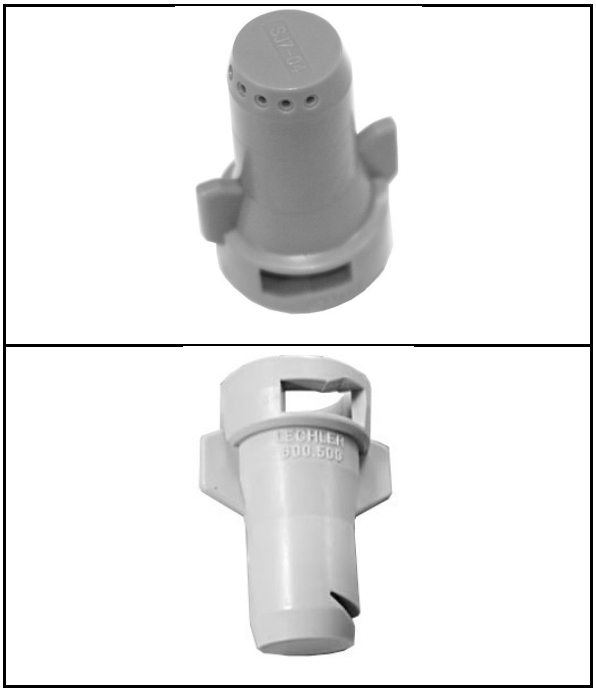
The same conditions apply for using 7-hole nozzles / FD nozzles as for the 3-ray nozzles. In contrast to the three-ray nozzle, in the case of the 7 hole nozzle / FD nozzles, the outlets are not oriented downwards, but instead point to the side. This allows very large drops to be produced on the plants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

The following 7-hole nozzles are available:

- SJ7-02-CE 19.5 – 32 gal / 74 – 120l UAN (at 5 mph /8 km/h)
- SJ7-03-CE 29 – 48 gal / 110 – 180 l AUS
- SJ7-04-CE 39 – 63 gal / 148 – 240 l AUS
- SJ7-05-CE 49 – 79 gal / 184 – 300 l AUS
- SJ7-06-CE 59 – 109 gal / 222 – 411 l AUS
- SJ7-08-CE 78 – 127 gal / 295 – 480 l AUS

The following FD nozzles are available:

- FD 04 40 – 63 gal / 150 - 240 l UAN/ha (at 8 km/h)
- FD 05 50 – 79 gal / 190 – 300 l AUS/ha
- FD 06 61 – 95 gal / 230 – 360 l AUS/ha
- FD 08 79 – 127 gal / 300 – 480 l AUS/ha
- FD 10 98 – 159 gal / 370 - 600 l AUS/ha



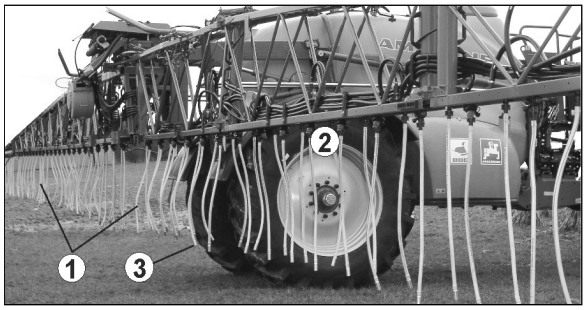
6.10.3 Drag hose equipment for Super-L boom (optional)

- with metering discs for late top dressing with liquid fertiliser

(1) Drag hoses at 10 in / 25 cm intervals, after fitting the 2nd spray line.

(2) Bayonet connection with dosing discs.

(3) Metal weights - stabilise the position of the hoses during operation.

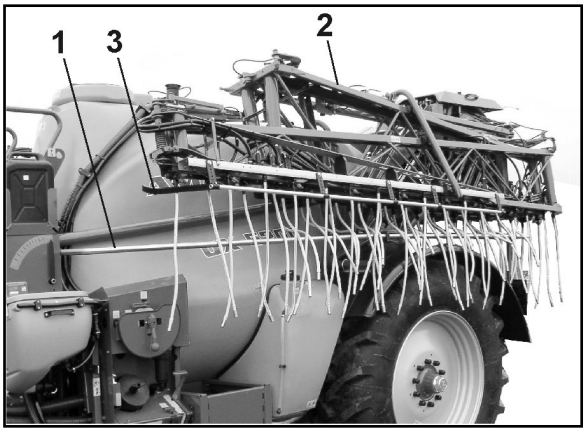


(1) Deflector hoop for transport position.

(2) Transport position elevated by lowering the transport hook

(3) Spacing runners

Dismount both spacing runners (3) when working with drag hoses!



(1) one setting tap for every boom part width section:

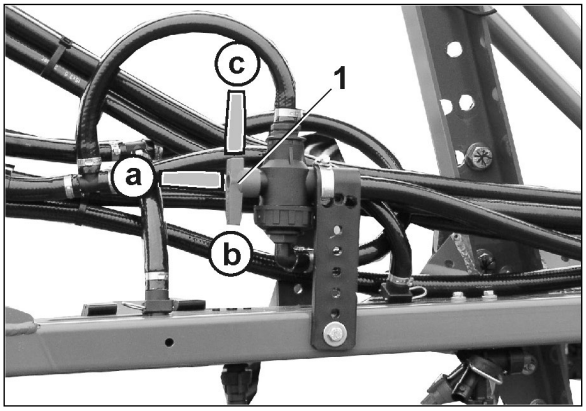
a Spraying via both spray lines with drag hoses

b Spraying via a standard spray line

c Spraying via the 2nd spray line only

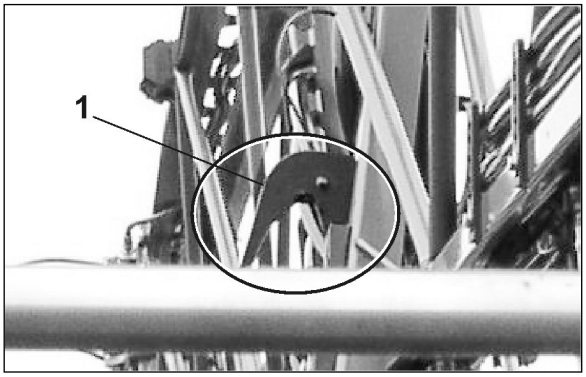
Remove drag hoses for normal spraying operation.

After removing the drag hoses, seal off the nozzle bodies with blanks



(1) Transport hooks

When working with drag hoses, the two transport hooks must be screwed on lower down. In transport position, the distance between the nozzle and the mudguard should be 8 in / 20 cm! For normal spraying operation, the two transport hooks should be screwed back on in the original position!



7 Start-up

This section contains information

- on initial operation of your implement
- on checking how you may couple/mount the implement to your tractor.

- Before operating the implement for the first time the operator must have read and understood the operating manual.
- Follow the instructions given in the section "Safety instructions for the operator" from page 27 onwards when
  - Coupling and uncoupling the implement
  - Implement transportation
  - Use of the implement
- Only couple and transport the implement to/with a tractor which is suitable for the task.
- The tractor and implement must meet the national road traffic regulations.
- The operator and the user shall be responsible for compliance with the statutory road traffic regulations.

WARNING

Risk of contusions, cutting, catching, drawing in and knocks in the area of hydraulically or electrically actuated components.

Do not block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:

- are continuous or
- are automatically locked or
- require a float position or pressure position due to their function

7.1 Antifreeze in the spray liquid tank

Depending on the season and marking on the implement, the implement is protected with a biodegradable antifreeze against damage due to freezing temperatures.

The antifreeze can be sprayed out with the spray liquid at first use or pumped out.

Antifreeze that was pumped out can be reused or disposed of properly.

7.2 Checking the suitability of the tractor

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

- Check the suitability of your tractor before you attach or hook up the implement.

  You may only connect the implement to tractors suitable for the purpose.

- Carry out a brake test to check whether the tractor achieves the required braking delay with the implement connected.

Requirements for the suitability of a tractor are, in particular:

- The permissible total weight
- The permissible axle loads
- The permissible drawbar load at the tractor coupling point
- The load capacity of the installed tyres
- The permissible trailer load must be sufficient

  You can find this data on the rating plate or in the vehicle documentation and in the tractor operating manual.

The front axle of the tractor must always be subjected to at least 20 % of the empty weight of the tractor.

The tractor must achieve the brake delay specified by the tractor manufacturer, even with the implement connected.

7.2.1 Calculating the actual values for the total tractor weight, tractor axle loads and load capacities, as well as the minimum ballast

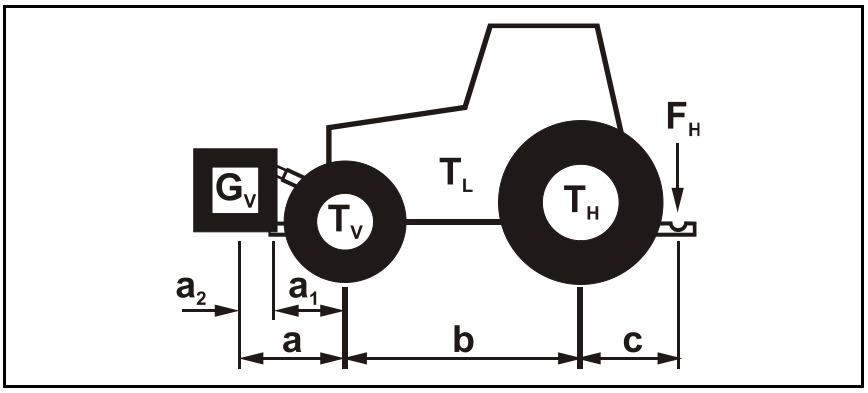
The permissible total tractor weight, specified in the vehicle documentation, must be greater than the sum of the

- tractor empty weight
- ballast weight and
- total weight of the attached implement or drawbar load of the hitched implement.

This notice applies only to Germany:

If, having tried all possible alternatives, it is not possible to comply with the axle loads and/or the permissible total weight, then a survey by an officially recognised motor traffic expert can, with the approval of the tractor manufacturer, be used as a basis for the responsible authority to issue an exceptional approval according to § 70 of the German Regulations Authorising the Use of Vehicles for Road Traffic and the required approval according to § 29, paragraph 3 of the German Road Traffic Regulations.

7.2.1.1 Data required for calculation



T_L	lb [kg]	Base (empty) tractor weight	See tractor operator's manual or vehicle documentation
T_V	lb [kg]	Front axle load of the base tractor	
T_H	lb [kg]	Rear axle load of the base tractor	
G_V	lb [kg]	Front weight (if available)	See front weight in technical data, or weigh
F_H	lb [kg]	Maximum drawbar load	See technical data of implement
a	ft [m]	Distance between the center of gravity of the front implement mounting or the front weight and the center of the front axle (total a_1 + a_2)	See technical data of tractor and front implement mounting or front weight or measure
a_1	ft [m]	Distance from the center of the front axle to the center of the lower link connection	See tractor operator's manual or measure
a_2	ft [m]	Distance between the center of the lower link connection point and the center of gravity of the front implement mount or front weight (center of gravity distance)	See technical data of front implement mounting or front weight or measurement
b	ft [m]	Tractor wheel base	See tractor operator's manual or vehicle documents or measure
c	ft [m]	Distance between the center of the rear axle and the center of the lower link connection	See tractor operator's manual or vehicle documents or measure

7.2.1.2 Calculation of the required minimum ballasting at the front $G_{V\ min}$ of the tractor for assurance of the steering capability

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

Enter the numeric value for the calculated minimum ballast $G_{V\ min}$, required on the front side of the tractor, in the table (section 7.1.1.7).

7.2.1.3 Calculation of the actual front axle load of the tractor $T_{V\ tat}$

$$T_{V\ tat} = \frac{G_V \bullet (a + b) + T_V \bullet b - F_H \bullet c}{b}$$

Enter the numeric value for the calculated actual front axle load and the approved tractor front axle load specified in the tractor operating manual in the table (section 7.1.1.7).

7.2.1.4 Calculation of the actual total weight of the combined tractor and implement

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

Enter the numeric value for the calculated actual total weight and the approved total tractor weight specified in the tractor operating manual in the table (section 7.1.1.7).

7.2.1.5 Calculation of the actual rear axle load of the tractor $T_{H\ tat}$

$$T_{H\ tat} = G_{tat} - T_{V\ tat}$$

Enter the numeric value for the calculated actual rear axle load and the approved tractor rear axle load specified in the tractor operating manual in the table (section 7.1.1.7).

7.2.1.6 Tyre load capacity

Enter the double value (two tyres) of the approved load capacity (see, for example, tyre manufacturer's documentation) in the table (section 7.1.1.7).

7.2.1.7 Table

	Actual value according to calculation		Approved value according to tractor operator's manual		Double approved load capacity (two tires)
Minimum ballast front / rear	/	lb [kg]	--		--
Total weight		lb [kg]	≤ lb [kg]		--
Front axle load		lb [kg]	≤ lb [kg]	≤ ln [kg]	
Rear axle load		lb [kg]	≤ lb [kg]	≤ lb [kg]	

- You can find the approved values for the total tractor weight, axle loads and load capacities in the tractor registration papers.
- The actual calculated values must be less than or equal to (≤) the permissible values!

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and insufficient tractor steering and brake power.

It is forbidden to couple the implement to the tractor used as the basis for calculation, if

- one of the actual, calculated values is greater than the approved value.
- there is no front weight (if required) attached to the tractor for the minimum front ballast ($G_{V\,min}$).

- You must use a front weight that is equal to at least the required minimum front ballast ($G_{V\,min}$)!

7.2.2 Requirements for tractor operation with attached implements

WARNING

Risk of breakage during operation of components through unapproved combinations of connecting equipment!

- Ensure that
  - the connection device on the tractor has a sufficient permissible drawbar load for the actual existing drawbar load.
  - the axle loads and weights of the tractor altered by the drawbar load are within the approved limits. If necessary, weigh them.
  - the static actual rear axle load of the tractor does not exceed the permissible rear axle load.
  - the permissible total weight of the tractor is complied with.
  - the approved load capacities of the tractor tyres are not exceeded.

7.2.2.1 Combination options of coupling devices

The table shows the permitted combination options of coupling devices for the tractor and implement.

Coupling device				
Tractor		**AMAZONE implement**		
Upper hitch				
Pin coupling, form A, B, C A not automatically B automatic smooth pin C automatic curved pin	(ISO 6489-2)	Drawbar eye	Socket ⌀ 1,57 in / 40 mm	(ISO 5692-2)
		Drawbar eye	⌀ 1,57 in / 40 mm	(ISO 8755)
		Drawbar eye	⌀ 1,97 in / 50 mm, only compatible with form A	(ISO 1102)
Upper / lower hitch				
Ball head coupling Ø 80 mm	(ISO 24347)	Ball coupling	∅ 3,15 in / 80 mm	(ISO 24347)
Lower hitch				
Towing hooks / hitch hooks	(ISO 6489-19)	Drawbar eye	Centre bore ∅ 1,97 in / 50 mm Eyelet ∅ 1,18 in / 30 mm	(ISO 5692-1)
		Swivel drawbar eye	compatible only with form Y, hole ⌀ 1,97 in / 50 mm	(ISO 5692-3)
		Drawbar eye	Centre bore ∅ 1,97 in / 50 mm Eyelet ∅ 1,18-1,6 in / 30 - 41 mm	(ISO 20019)
Drawbar - Category 2	(ISO 6489-3)	Drawbar eye	Centre bore ∅ 1,97 in / 50 mm Eyelet ∅ 1,18 in / 30 mm	(ISO 5692-1)
			Socket ⌀ 1,57 in / 40 mm	(ISO 5692-2)
			⌀ 1,57 in / 40 mm	(ISO 8755)
			⌀ 1,97 in / 50 mm	(ISO 1102)
Drawbar	(ISO 6489-3)	Drawbar eye		(ISO 21244)
Drawbar / Piton-fix	(ISO 6489-4)	Drawbar eye	Centre bore ∅ 1,97 in / 50 mm Eyelet ∅ 1,18 in 30 mm	(ISO 5692-1)
		Swivel drawbar eye	compatible only with form Y, hole ⌀ 1,97 in / 50 mm	(ISO 5692-3)
Yoke that cannot be rotated	(ISO 6489-5)	Swivel drawbar eye		(ISO 5692-3)
Lower link hitch	(ISO 730)	Lower link traverse		(ISO 730)

7.2.2.2 Compare the permissible D_C value with actual D_C value

WARNING

Danger from breaking the coupling devices between the tractor and the implement when the tractor is not used for its intended purpose!

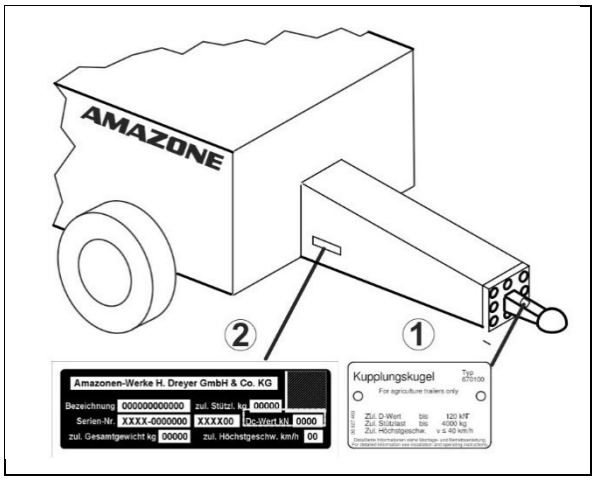
1. Calculate the actual D_C value of your combination, comprising tractor and implement.
2. Compare the actual D_C value with the following permissible D_C values:

- Coupling device of the implement
- Drawbar of the implement
- Coupling device of the tractor

The actual D_C value calculated for the combination must be less than or equal (≤) to the D_C values specified.

The permissible D_C values of the implement can be found on the rating plate of the coupling device (1) and the drawbar (2).

The permissible D_C value of the tractor coupling device can be found directly on the coupling device / in the operating manual of your tractor.

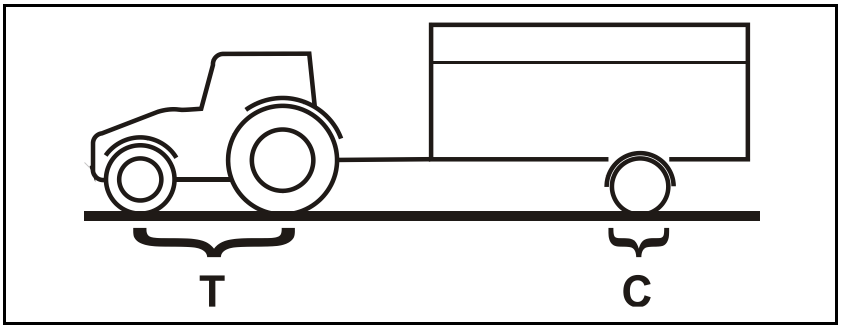


actually calculated D_C value for the combination		**specified D_C value**
kN	≤	Coupling device on the tractor: kN
kN	≤	Coupling device of the implement: kN
kN	≤	Drawbar of the implement: kN

Calculate the actual D_C value for the combination to be coupled

The actual D_C value of a combination to be coupled is calculated as follows:

$$D_C = g \times \frac{T \times C}{T + C}$$



T: permissible total weight of your tractor in [t] (See tractor operating manual or vehicle documentation)

C: axle load of the implement [t] loaded with the permissible mass without drawbar load (working load).

g: Gravity (9.81 m/s²)

7.3 Adjusting the length of the PTO shaft to the tractor

WARNING

Danger due to

- **damaged and/or destroyed, flying parts for the operator/third persons may occur if the universal joint shaft is up-ended or pulls apart while the implement coupled to the tractor is being raised/lowered because the length of the universal joint shaft has not been adjusted properly.**
- **being caught and drawn in if the universal joint shaft is installed incorrectly or if unauthorised structural changes are made.**

Have the length of the universal joint shaft checked by a specialist workshop in all implement situations and, if necessary, adjusted before coupling the universal joint shaft to your tractor for the first time.

When adjusting the universal joint shaft, it is mandatory to observe the operating manual supplied by the universal joint shaft manufacturer.

This adjustment of the PTO shaft applies only for the current tractor type. You may have to readjust the universal joint shaft if you couple the implement to different tractor.

WARNING

Danger of being caught and drawn in if the PTO shaft is installed incorrectly or if unauthorised structural changes are made.

Only a specialist workshop may make structural changes to the universal joint shaft. In doing so, the operating manual from the universal joint shaft manufacturer must be observed.

Adjusting the length of the universal joint shaft is permitted with consideration of the minimum profile overlap.

Structural changes to the universal joint shaft that are not described in the operating manual from the universal joint shaft manufacturer are not permitted.

WARNING

Risk of crushing between the rear of the tractor and the machine when raising and lowering the machine to determine the shortest and longest operating position of the PTO shaft.

Only actuate the operator controls for the tractor's three-point linkage

- from the intended workstation.
- if you are outside of the danger area between the tractor and the machine.

WARNING

Risk of crushing from unintentional:

- **rolling of the tractor and the connected machine.**
- **lowering of the raised machine.**

Secure the tractor and machine from unintentionally starting or rolling and secure the raised machine against unintentional lowering before entering the danger zone between the tractor and raised machine in order to adjust the PTO shaft.

The PTO shaft is at its shortest when it is horizontal. The PTO shaft is at its longest when the machine is fully lifted.

1. Couple the tractor to the machine (do not connect the PTO shaft).
2. Apply the tractor's parking brake.
3. Determine the clearance height of the machine with the shortest and longest operating position for the PTO shaft.
   3.1 To do so, raise and lower the machine via the tractor's three-point hydraulic system.
   While doing so, actuate the manual controls for the tractor's three-point hydraulic system on the rear of the tractor, from the provided workstation.
4. Secure the machine, lifted in the measured clearance height, against unintentional lowering (for example, by supporting it or hooking it to a crane).
5. Secure the tractor from unintentional starting before entering the danger area between the tractor and machine.
6. When measuring the length and shortening the PTO shaft, read and follow the operating manual from the PTO shaft manufacturer.
7. Put the shortened halves of the PTO shaft back together.
8. Grease the universal joint shaft of the tractor and the gearbox input shaft before connecting the PTO shaft.
   The tractor symbol on the protective tube of the PTO shaft identifies the tractor-side connection of the PTO shaft.

7.4 Securing the tractor / implement against unintentional start-up and rolling away

WARNING

Risk of crushing, shearing, cutting, being caught and/or drawn in, or impact when making interventions in the implement, through

- **unintentional lowering of the unsecured implement when it is raised cia the three-point hydraulic system of the tractor.**
- **unintentional falling of raised, unsecured machine parts.**
- **unintentional start-up and rolling of the tractor-implement combination.**
- Secure the tractor and the implement against unintentional start-up and rolling before any intervention in the machine.
- It is forbidden to make any intervention in the machine, such as installation, adjustment, troubleshooting, cleaning, maintenance and repairs
  - while the implement is being driven.
  - as long as the tractor engine is running with a connected universal joint shaft / hydraulic system.
  - If the ignition key is inserted in the tractor and the tractor engine can be started unintentionally with the PTO shaft / hydraulic system connected
  - if the tractor and implement are not each secured with their parking brakes and / or wheel chocks against accidentally rolling away.
  - If moving parts are not blocked against unintentional movement

  When carrying out such work, there is a high risk of contact with unsecured components.

1. Lower any raised, unsecured implement/raised, unsecured implement parts.

→ This prevents parts from being lowered unintentionally.

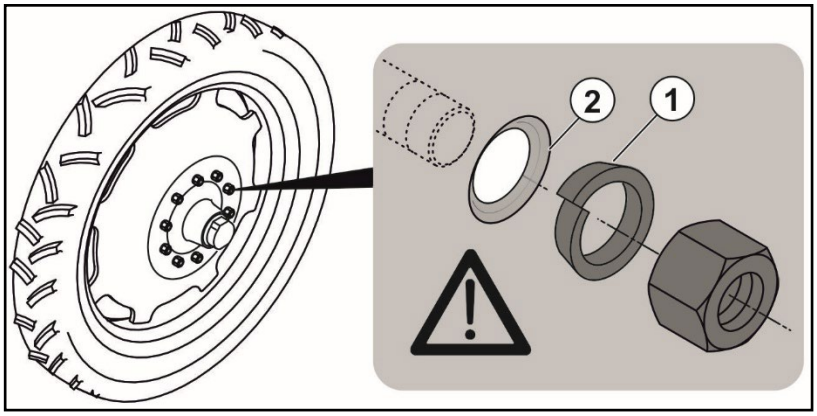
2. Shut down the tractor engine.
3. Remove the ignition key.
4. Apply the tractor parking brake.
5. Secure the implement against accidental rolling with the parking brake (if present) and wheel chocks.

7.5 Installing the wheels

To assemble the wheels, use:

(1) conical rings in front of the wheel nuts.

(2) only rims with a fitting countersink for the conical ring.



If the implement is equipped with emergency wheels, the running wheels must be installed before initial operation.

WARNING

The wheel rims that fit on the tyres must have a rim that has been fully welded all the way round!

A extension for the hydraulic jack and ladder must be installed when tyres with a diameter greater than 1860 mm are used.

1. Lift the implement slightly using a lifting crane.

DANGER

Use the marked attachment points for the slings.

See also "Loading" section, page 38.

2. Loosen the wheel nuts of the emergency wheels.
3. Remove the emergency wheels.

CAUTION

Be careful when removing the emergency wheels and putting on the running wheels!

Required tightening torque for wheel nuts: 376 ft-lb / 510 Nm.

4. Put the running wheels onto the stud bolts.
5. Tighten the wheel nuts.
6. Lower the implement and remove the slings.
7. Retighten the wheel nuts after 10 operating hours.

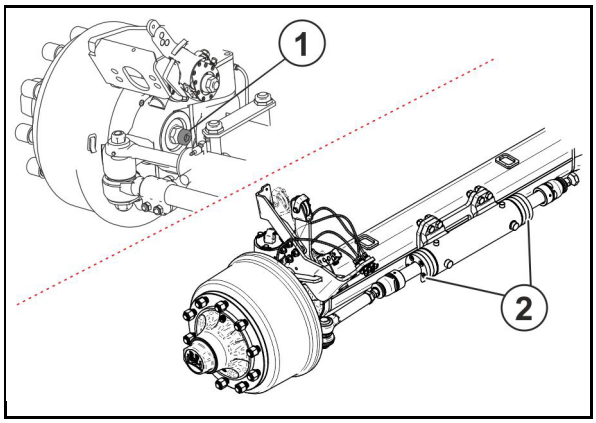
Steering axle

The steering angle of the steering axle must be limited depending on the wheels.

Otherwise, the wheel can collide with the implement.

(1) Adjust using the stop screw and lock nut.

(2) Make adjustments using the spacers.



7.6 Initial operation of service brake system

Perform a braking test for the trailed sprayer in an empty and loaded state to test the braking behaviour of the tractor and coupled trailed sprayer.

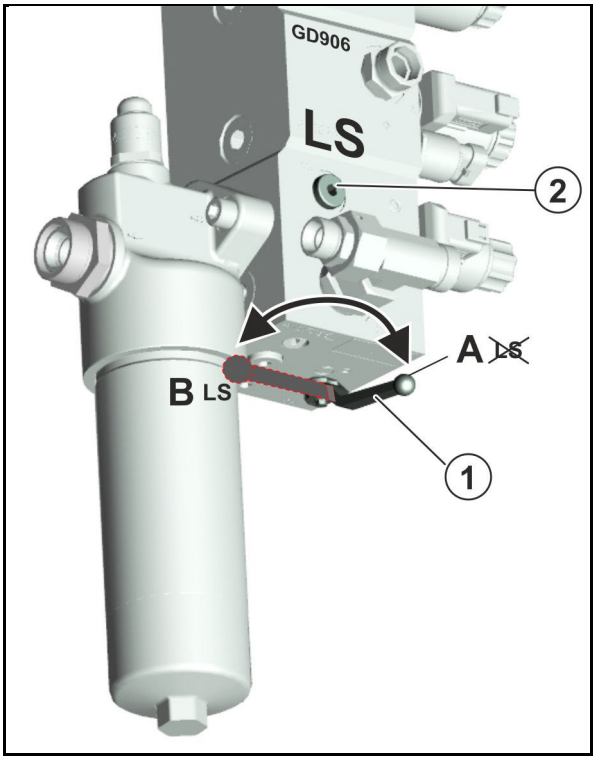
We recommend that you have a specialist workshop coordinate the brakes on the tractor and trailed sprayer in order to attain optimum braking and minimum wear to brake linings (see "Maintenance" section, page 209).

7.7 Adjusting the hydraulic system

The hydraulic block is located at the front right on the implement behind the cover plate.

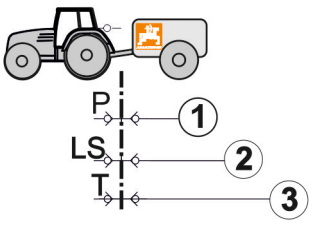
- Be sure to match the hydraulic systems of the tractor and the implement.
- The implement hydraulic system is adjusted using the system setting screw on the hydraulic block of the implement.
- Elevated hydraulic oil temperatures are the result of incorrect adjustment of the system setting screw, caused by persistent strain on the pressure relief valve of the tractor hydraulic system.
- Adjustments may only be made in a pressureless state!
- If there are hydraulic malfunctions between the tractor and the implement during start-up, please contact your service partner.

(1) Setting tap can be set to Position A and B
(2) LS connection for the load sensing control line



Implement-side connections:

(1) P – feed line, pressure line, plug standard width 20
(2) LS – control line, plug standard width 10
(3) T - return line, socket standard width 20



(1) Open-Center hydraulic system with constant flow pump (gear pump) or setting pump.

→ Select setting A wählen.

Setting pump: Set the maximum required oil quantity on the tractor control unit. If the oil quantity is insufficient, correct functioning of the implement cannot be ensured.

(2) Load-Sensing hydraulic system (pressure- and flow-regulated setting pump) with direct load sensing pump connection and LS setting pump.

→ Select setting B wählen.

(3) Load-Sensing hydraulic system with constant flow pump (gear pump).

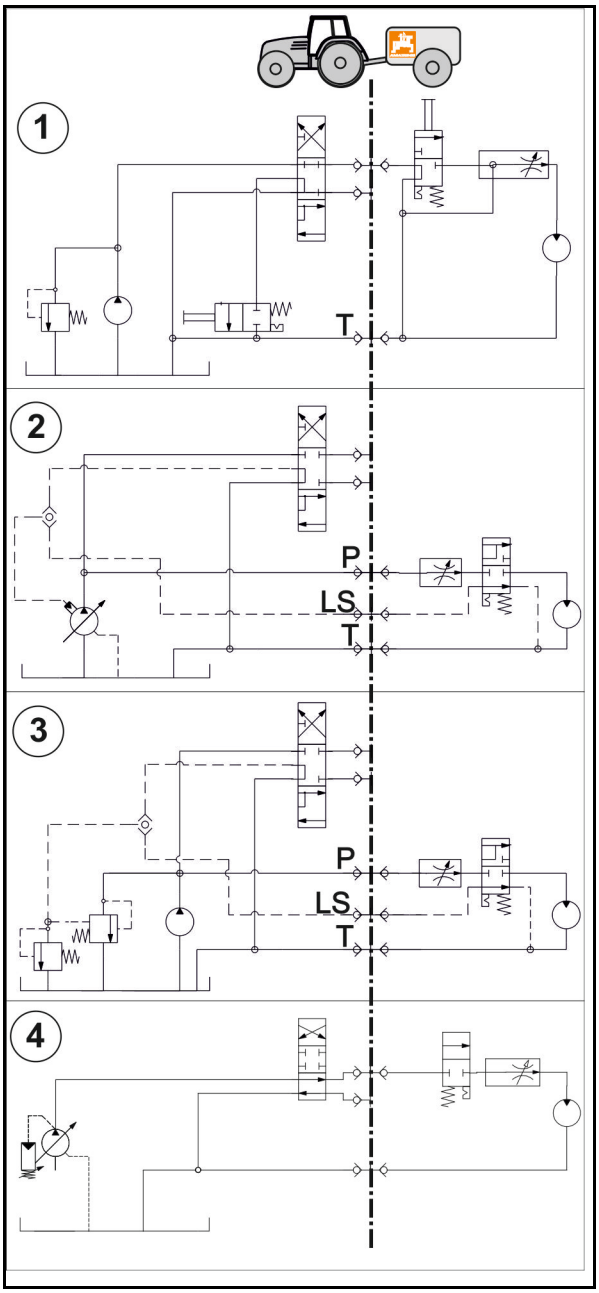
→ Select setting B wählen.

.

(4) Closed-Center hydraulic system with pressure-regulated setting pump.

→ Select setting B wählen.

Risk of overheating of the hydraulic system: the Closed-Center hydraulic system is less suitable for the operation of hydraulic motors.

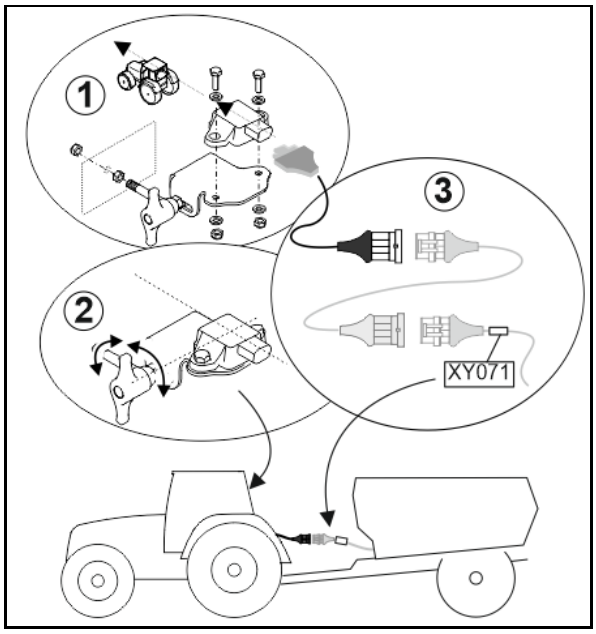


7.8 Installing the sensor for the steering axle

1 To install the sensor in the cab or external area, use a rigid and vibration-free mechanical connection of the sensor to the basic frame or a bearing element in the cabin.

2. Mount the sensor horizontally.
3. Connect the sensor to the implement's wiring harness.

- Protect the sensor against dirt deposits.
- The sensor must not be painted.
- Do not use a power wrench for the installation.
- Maintain a minimum distance of 20 cm from mobile radio devices.



8 Coupling and uncoupling the implement

When coupling and uncoupling machines, follow the instructions given in the section "Safety instructions for the operator" page 27.

WARNING

Risk of contusions from unintentional starting and rolling of the tractor and implement when coupling or uncoupling the implement!

Secure the tractor and implement against unintentional start-up and rolling away before entering the danger area between the tractor and implement to couple or uncouple the implement, see page 131 for more information.

8.1 Coupling the implement

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

You may only connect the implement to tractors suitable for the purpose. See section "Checking tractor suitability", page 121.

WARNING

Risk of contusions when coupling the implement and standing between the tractor and the implement!

Instruct people to leave the danger area between the tractor and the implement before you approach the implement.

Any helpers may only act as guides standing next to the tractor and the implement, and may only move between the vehicles when both are at a standstill.

WARNING

Risk of crushing, catching, drawing in and impacts when the implement unexpectedly releases from the tractor!

- Use the intended equipment to connect the tractor and the implement in the proper way.

WARNING

Risk of energy supply failure between the tractor and the implement through damaged power lines!

During coupling, check the course of the power lines. The supply lines

- must give slightly without tension, bending or rubbing on all movements of the connected implement.
- must not chafe against other parts.

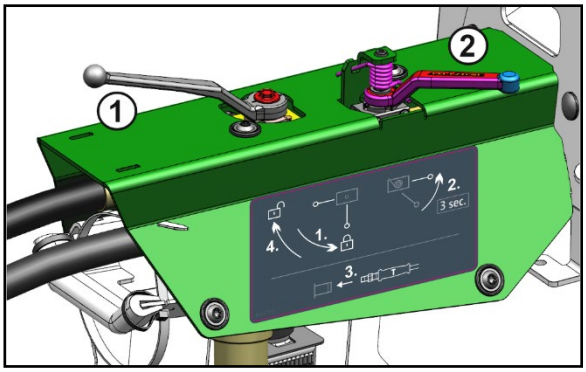
1. Instruct people to leave the danger area between the tractor and the implement before moving the tractor towards the implement.

First, couple the supply lines before coupling the implement to the tractor.

2. Move the tractor towards the implement such that there is a free space (approx. 9.84 in / 25 cm) between tractor and implement.
3. Prevent the tractor from unintentional starting and rolling.
4. Check whether the PTO shaft of the tractor is switched off.
5. Couple universal joint shaft.

Couple the hydraulic hose lines in the specified sequence.

6. Close stop tap (1).
7. To depressurize the oil return T, open stop tap (2) for 3 seconds.
8. Couple oil return T.
9. Open stop tap (1).
10. Couple pressure line P and control line LS.
11. Couple other supply lines.



12. Move the tractor in reverse towards the implement such that the connecting device can be coupled.
13. Couple the connecting device.
14. Lift the jack into transport position.
15. Remove wheel chocks, release parking brake.

When taking a corner with the implement hooked up for the first time, please make sure that no attachment on the tractor collide with the implement.

8.2 Uncoupling the implement

WARNING

Danger of being crushed, cut, caught, drawn in or struck through insufficient stability and possible tilting of the uncoupled implement!

Park the empty implement on a level parking surface with solid ground.

Parking a partially filled implement will damage the jack.

Only park the implement when it is empty.

When uncoupling the implement, there must always be enough free space in front of the implement that the tractor can be aligned with the implement again during recoupling.

1. Place the empty implement on a level parking surface with solid ground.
2. Uncouple the implement from the tractor.
   - 2.1 Secure the implement against unintentionally rolling away. See page 131.
   - 2.1 Lower the jack into parking position.
   - 2.2 **Un**couple the connection device.
   - 2.3 Drive the tractor approx. 25 cm forwards.
   - → This will allow more room between tractor and implement and give better access for uncoupling the universal joint shaft and supply lines.
   - 2.4 Secure the tractor and implement against unintentional start-up and rolling.
   - 2.5 Uncouple the universal joint shaft.
   - 2.6 Place the universal joint shaft in the holder.
   - 2.7 Uncouple the supply lines and protect them against soiling with protective caps.
   - 2.8 Fasten the supply lines in their respective parking sockets.
   - 2.9 Hydraulic brake: Release the ripcord for the parking brake from the tractor.

8.2.1 Manoeuvring the uncoupled implement

DANGER

You must be particularly careful when manoeuvring with the service brake system released, since only the manoeuvring vehicle is now braking the trailed sprayer.

The implement must be connected to the manoeuvring vehicle before you actuate the release valve on the trailer brake valve.

The brakes on the manoeuvring vehicle must be applied.

The service brake system cannot be released using the release valve if the air pressure in the air reservoir drops below 3 bar (e.g. if the release valve has been actuated several times or if there are leaks in the brake system).

Release the service brake as follows:

- Fill the air reservoir.
- Completely vent the brake system using the drain valve on the air reservoir.

1. Connect the implement to the manoeuvring vehicle.
2. Apply the brakes on the manoeuvring vehicle.
3. Remove the wheel chocks and release the parking brake.
4. Only **pneumatic brake system**:

   4.1 Press in the actuator button on the release valve as far as it will go (see page 70).

→ This releases the service brake system so that the implement can be manoeuvred.

   4.2 When manoeuvring is finishes, pull out the actuator button on the release valve as far as it will go.

→ The pressure from the air reservoir brakes the trailed sprayer again.

5. Actuate the brakes on the manoeuvring vehicle again once you have finished manoeuvring the implement.
6. Apply the parking brake again and secure the implement against rolling away with the wheel chocks.
7. Uncouple the implement from the manoeuvring vehicle.

9 Road transport

- During transportation, follow the instructions given in the section "Safety instructions for the operator", page 29.
- Before moving off, check:
  - the correct connection of the supply lines.
  - the lighting system for damage, proper operation and cleanliness,
  - the braking and hydraulic systems for obvious defects.
  - that the parking brake is completely released.
  - the function of the brake system.

WARNING

Risk of contusions, cutting, catching, drawing in and knocks when making interventions in the implement through unintentional implement movements.

- On folding implements, check that the transport locks are locked correctly.
- Secure the implement against unintentional movements before starting transportation.

WARNING

Risk of crushing, cutting, being caught and/or drawn in, or impact from tipping and insufficient stability.

- Drive in such a way that you always have full control over the tractor with the attached machine.

  In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected or coupled implement.

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

These risks pose serious injuries or death.

Comply with the maximum load of the connected implement and the approved axle and drawbar loads of the tractor. If necessary, drive only with a partially filled hopper.

WARNING

Risk of falling when riding on the implement, contrary to instructions.

It is forbidden to ride on the implement and/or climb the implement while it is running.

Instruct people to leave the loading site before approaching the implement.

CAUTION

- During transportation, follow the instructions given in the section "Safety instructions for the operator", page 29.
- It is forbidden to transport the implement with AutoTrail switched on.

  Put the steering axle into the transport position!
- It is forbidden to transport the implement when the tractor control unit is locked. During road transport, always set the tractor control unit on the tractor to neutral position.
- Move the sprayer boom to the transport position and secure mechanically.

→ If a working width reduction of the outer elements is mounted, unfold it for transporting purposes.

- Use the transport locking mechanism to secure the swivelled-up induction bowl in transport position against unintentional swivelling down.
- Use the transport locking mechanism to lock the raised ladder against unintentional folding down.
- If a boom extension (option) is mounted, move it into the transport position
- Switch the work lights off during transport to avoid blinding other motorists.

10 Use of the implement

When using the implement, observe the information in the following sections:

- "Warning symbols and other labels on the machine" starting on page 19 and
- "Safety information for the user", starting on page 27 ff.

Observing this information is important for your safety.

Observe the separate operating manual for the control terminal and the implement control software.

WARNING

Risk of injury due to accidental movement of the sprayer boom in automatic mode when entering the radiation area of the ultrasound sensor.

 Lock the sprayer boom

- Before leaving the tractor.
- If unauthorised persons are standing in the area of the sprayer boom.

DANGER

Fatal injury due to electric shock if the sprayer boom comes into contact with overhead power lines.

If poles, hedges or other objects on the field are in the detection area of the sensor for automatic boom guidance, the sprayer boom can unintentionally swing upward and hit overhead power lines.

Switch the automatic boom guidance off in these areas.

WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

Comply with the maximum load of the connected implement and the approved axle and drawbar loads of the tractor. If necessary, drive only with a partially filled hopper.

WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and tipping of the tractor and/or the connected implement.

Drive in such a way that you always have full control over the tractor with the mounted or trailed implement.

In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected or coupled implement.

WARNING

Danger of crushing, shearing, cutting, being caught or drawn in, winding and knocks through:

- **unintentional lowering of raised, unsecured implement parts.**
- **unintentional start-up and rolling of the tractor-implement combination.**

Secure the tractor and the machine against unintentional start-up and rolling before eliminating faults on the machine. See page 131.

Wait for the implement to stop, before entering the implement danger area.

WARNING

There can be danger for the operator / third persons caused by flying damaged parts due to unauthorised high drive speeds of the tractor PTO shaft!

Observe the permissible implement drive speed before switching on the tractor PTO shaft.

WARNING

Danger of being entangled and drawn in and danger from foreign objects being caught and thrown in the danger area of the driven PTO shaft!

- Whenever the machine is used, first check to ensure that the safety devices and guards of the PTO shaft are fully intact and functional.

  Have damaged safety and protective devices for the universal joint shaft immediately replaced by a specialist workshop.
- Check that the universal joint shaft guard is secured against rotation by the supporting chain.
- Maintain a sufficient safety clearance between you and the driven universal joint shaft.
- Direct people out of the danger area of the driven universal joint shaft.
- Shut down the tractor engine immediately in case of danger.

WARNING

Risk of accidental contact with crop protection agents / spray liquid!

- Wear personal protective equipment,
  - o when preparing the spray liquid.
  - o when cleaning / replacing the spraying nozzles during spraying operation.
  - o for all cleaning work carried out on the field sprayer after spraying operation.
- When wearing the required protective clothing, always observe the manufacturer's instructions, the product information, the instructions for use, the safety datasheet or the operating manual for the crop protection agent to be used. You must use e.g.:
  - o Chemical-resistant gloves
  - o Chemical-resistant overalls
  - o Water-resistant footwear
  - o Face mask
  - o Breathing protection
  - o Safety glasses
  - o Skin protection agents, etc.

WARNING

Health risks due to accidental contact with crop protection agents or spray liquid!

- Put on protective gloves before
  - o using crop protection agent,
  - o carrying out work on a contaminated field sprayer or
  - o cleaning the field sprayer.
- Wash the protective gloves with clear fresh water from the hand wash tank,
  - o immediately after contact with crop protection agent.
  - o before removing the gloves.

10.1 Preparing for spraying operation

- The field sprayer must be operating properly in order to guarantee correct application of the crop protection agent. Have the field sprayer tested regularly on a test rig. Rectify any deficiencies immediately.
- Observe the correct filter equipment.
- Clean the field sprayer thoroughly before applying a different crop protection agent.
- Flush the nozzle line before
  - each time changing a nozzle.
  - before rotating the multiple nozzle head to another nozzle.

  See the section on "Cleaning", page 196
- Fill the flushing water tank and the hand wash tank.

Ensure that you always carry enough clear fresh water when operating the field sprayer. Check and fill the fresh water tank when you fill the spray liquid tank.

10.2 Preparing the spray liquid

Prepare the spray liquid with the TwinTerminal on the control panel.

WARNING

Risks due to accidental contact with crop protection agents and / or spray liquid!

- Always flush the crop protection agent into the spray liquid tank through the induction bowl.
- Swivel the induction bowl into the filling position before you fill the crop protection agent into the induction bowl.
- Observe the safety regulations on personal protective equipment in the instructions for use of the crop protection agent when handling crop protection agents and preparing the spray liquid.
- Do not prepare the spray liquid in the vicinity of wells or surface water.
- Avoid leaks and contamination with crop protection agent and/or spray liquid through appropriate conduct and wearing appropriate physical protection equipment.
- To avert risks to third parties, do not leave the prepared spray liquid, unused crop protection agent or used crop protection agent canisters and the uncleaned field sprayer unattended.
- Protect contaminated crop protection agent canisters and the contaminated field sprayer from precipitation.
- During and after preparation of the spray liquid, ensure sufficient cleanliness to keep risks as low as possible (e.g. thoroughly wash used gloves before removing them and properly dispose of the washing water and cleaning fluid).

- The prescribed water and agent rates can be found in the directions for use of the crop protection agent.
- Please carefully read the directions for use of the agent and observe the specified precautions!

WARNING

Danger for persons / animals due to accidental contact with spray liquid when filling the spray liquid tank!

- Wear personal protective equipment when working with crop protection agents / draining spray liquid from the spray liquid tank. The required personal protective equipment depends on the information provided by the manufacturer, the product information, the instructions for use, the safety data sheet or the instruction manual for the crop protection agent to be used.
- Never leave the field sprayer unattended when filling it.
  - Never fill the spray liquid tank beyond the nominal volume.
  - Never exceed the permissible payload for the field sprayer when filling the spray liquid tank. Always pay attention to the respective specific weight of the liquid to be filled.
  - When filling, continuously watch the fill level indicator to prevent overfilling the spray liquid tank.
  - When filling the spray liquid tank on a paved surface, make sure that no spray liquid gets into the waste water system.
- Before filling, check the field sprayer for damage, such as leaky containers and hoses and make sure all the control elements are in the correct position.

While filling, pay attention to the permissible load capacity of your field sprayer. Always take the differing specific weights [kg/l] for the individual liquids into account while filling your field sprayer.

Specific weights of different liquids

Liquid	Water		Urea		UAN		NP solution	
Density	0,03 lb/in^3	1 kg	0,04 lb/in^3	1.11 kg	0,05 lb/in^3	1.28 kg	0,05 lb/in^3	1.38 kg

TwinTerminal:

Operations on the control panel are performed through the TwinTerminal.

ISOBUS control terminal:

Operations on the field are performed through the control terminal in the tractor.

- As it is difficult to dispose of residues in an environmentally-friendly manner, carefully calculate the required filling quantity or refill quantity to avoid leaving any residue at the end of the spraying operation.
  - To calculate the required refill quantity for the last filling of the spray liquid tank, use the "Filling table for remaining spray area". To do this, subtract the technical, undiluted residue in the sprayer boom from the calculated refill quantity!

    Refer to the section "Filling table for remaining areas".

Implementation

1. Determine the required water and agent application rate by consulting the directions for use of the crop protection agent.
2. Calculate the filling quantity or refill quantity for the area to be treated.
3. Fill the machine and blend in the agent.
4. Agitate the spray liquid before commencing spraying operations in accordance with the instructions of the spraying agent manufacturer.

Fill the machine preferably using a suction hose and blend in the agent while filling.

The induction area is thereby flushed with water constantly.

- During the filling process, start blending in the agent once the tank filling level has reached more than 20%.
- When using more than one agent:
  - Clean the canister immediately after each induction of an agent.
  - Rinse the induction bowl after each time an agent is flushed in.

- While filling, foam may not be allowed to escape from the spray liquid tank.

  The addition of a froth-inhibiting agent also prevents the spray liquid tank from frothing over.

The agitators normally remain switched on from the initial filling to the end of the spraying operation. On this account, the instructions of the agent manufacturer are decisive.

- With the agitator running, add the water-soluble plastic bag directly into the spray liquid tank.
- Before spraying, fully dissolve the urea by circulating the liquid. When dissolving large quantities of urea, the temperature of the spray liquid drops more sharply; the urea consequently dissolves more slowly. The warmer the water, the faster and more completely the urea can dissolve.

- Carefully wash the empty agent canisters, render them unusable, collect and dispose of them in a proper manner. Do not reuse them for other purposes.
- If only spray liquid is available for washing the agent tanks, first use this to carry out preliminary cleaning. Then wash them thoroughly when clear fresh water is available, e.g. before preparing the next load for the spray liquid tank or when diluting the residue from the last load.
- Carefully wash out the empty agent canisters (e.g. using canister flushing) and add the flushing water to the spray liquid!

High degrees of water hardness above 15° dH (German degrees of hardness) can lead to lime deposits, which may impede the functioning of the implement and must be removed at regular intervals. See Maintenance section

10.2.1 Calculating the filling and re-fill quantity

To calculate the required re-fill quantity for final filling of the spray liquid tank use the "Filling table for remaining spray area", page 51.

Example 1:

The following are given:

Tank nominal volume	264 gal / 1000 l
Residue in the tank	0 gal / 0 l
Water consumption	43 gal/ac / 400 l/ha
Agent required per ha	
Agent A	3,3 gal / 1.5 kg
Agent B	0,26 gal / 1.0 l

Question:

How many litres of water, how many kg of Agent A and how many litres of Agent B must be used to treat a surface of 2.5 ha in area?

Answer:

Water:	**43 gal/ac**		**6,1 ac**		**264 gal**
	400 l/ha	x	2.5 ha	=	1000 l
Agent A	**1,3 lb/ac**		**6,1 ac**		**8,27 lb**
	1.5 kg/ha	x	2.5 ha	=	3.75 kg
Agent B	**0,1 gal/ac**		**6,1 ac**		**0,7 gal**
	1.0 l/ha	x	2.5 ha	=	2.5 l

Example 2:

The following are given:

Tank nominal volume	264 gal / 1000 l
Residue in the tank	53 gal / 200 l
Water consumption	53 gal/ac / 500 l/ha
Recommended concentration	0.15 %

Question 1:

How many gal / litres or lb/ kg of agent are needed to fill the tank?

Question 2:

How large is the area to be treated in ha if a residue of 5,3 gal / 20 l remains in the tank after spraying?

Formula and answer to Question 1:

$$\frac{\text{Refill amount of water gal [l] x Concentration [\%]}}{100} = \text{Addition of agent gal or lb [l or kg]}$$

$$\frac{\text{(264– 53)[gal] x 0,15 [\%]}}{\text{(1000 – 200) [l] x 0.15 [\%]}} \quad \begin{matrix} \\ = \\ \\ \end{matrix} \quad \begin{matrix} \text{0,32 gal or lb} \\ \\ \text{1.2 [l or kg]} \end{matrix}$$
$$100$$

Formula and answer to Question 2:

$$\frac{\text{Quantity of liquid available gal [l] – Residue gal [l]}}{\text{Water consumption gal/ac [l/ha]}} = \text{Area to be treated [ac][ha]}$$

$$\frac{\text{264 gal / 1000 l (tank nominal volume) – 5 gal / 20 l (resi-due)}}{\text{53 gal/ac / 500 [l/ha] Water consumption}} \quad = \quad \begin{matrix} \text{4,9 ac} \\ \text{5,96 [ha]} \end{matrix}$$

10.2.2 Filling table for remaining spray area

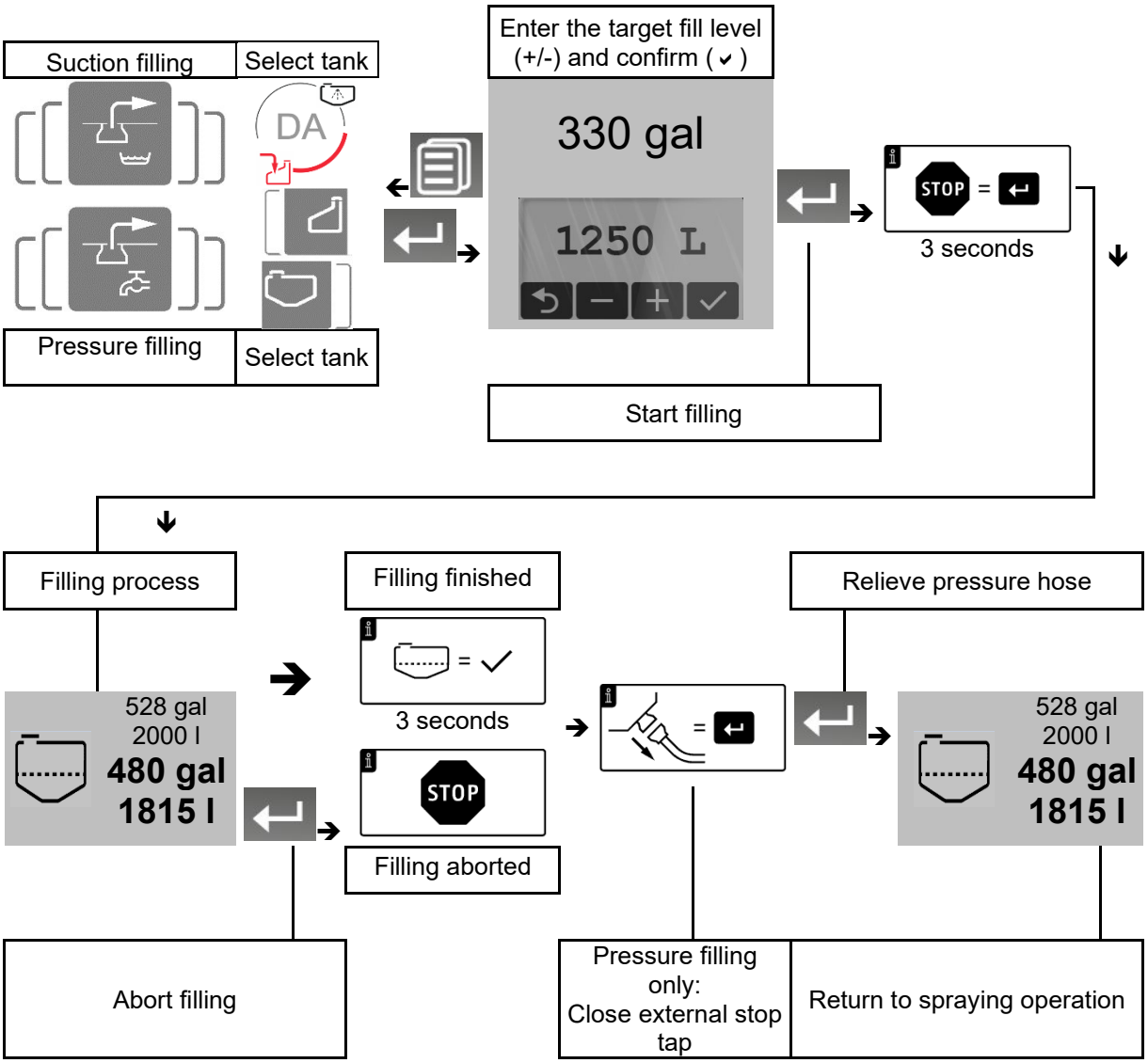
To calculate the required refill quantity for the last filling of the spray liquid tank use the "Filling table for remaining spray area".

The specified re-fill quantities apply for a application rate of 100 l/ha. For other application rates, the re-fill quantity increases by a multiple.

Travel dis-tance	Working width [**ft**]													
	15	16	18	20	21	24	27	28	30	32	33	36	39	40
[**ft**]	**Refill quantity [gal]**													
33	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
66	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
98	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**
131	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**4**	**4**	**4**
164	**3**	**3**	**3**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**5**	**5**	**5**
197	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**5**	**5**	**6**	**6**	**6**
230	**3**	**3**	**3**	**4**	**4**	**4**	**5**	**5**	**5**	**6**	**6**	**7**	**7**	**7**
262	**3**	**3**	**3**	**4**	**4**	**5**	**5**	**5**	**6**	**7**	**7**	**8**	**8**	**8**
295	**4**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**	**8**	**9**	**10**
328	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**	**9**	**10**	**10**	**11**
656	**8**	**8**	**10**	**11**	**11**	**13**	**13**	**15**	**16**	**17**	**17**	**19**	**20**	**21**
984	**12**	**13**	**14**	**16**	**17**	**19**	**21**	**22**	**24**	**25**	**26**	**29**	**30**	**32**
1312	**16**	**17**	**19**	**21**	**22**	**25**	**29**	**30**	**32**	**34**	**35**	**38**	**40**	**42**
1640	**20**	**21**	**24**	**26**	**28**	**32**	**36**	**37**	**40**	**42**	**44**	**48**	**50**	**53**

Travel distance [m]	Working width [m]													
	15	16	18	20	21	24	27	28	30	32	33	36	39	40
	Refill quantity [l]													
10	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**4**	**4**	**4**
20	**3**	**3**	**4**	**4**	**4**	**5**	**5**	**6**	**6**	**6**	**7**	**7**	**8**	**8**
30	**5**	**5**	**5**	**6**	**6**	**7**	**8**	**8**	**9**	**10**	**10**	**11**	**11**	**12**
40	**6**	**7**	**7**	**8**	**8**	**10**	**11**	**11**	**12**	**13**	**13**	**14**	**15**	**16**
50	**8**	**8**	**9**	**10**	**11**	**12**	**14**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
60	**9**	**10**	**11**	**12**	**13**	**14**	**16**	**17**	**18**	**19**	**20**	**22**	**23**	**24**
70	**11**	**11**	**13**	**14**	**15**	**17**	**19**	**20**	**21**	**22**	**23**	**25**	**27**	**28**
80	**12**	**13**	**14**	**16**	**17**	**19**	**22**	**22**	**24**	**26**	**26**	**29**	**30**	**32**
90	**14**	**15**	**16**	**18**	**19**	**22**	**24**	**25**	**27**	**29**	**30**	**32**	**34**	**36**
100	**15**	**16**	**18**	**20**	**21**	**24**	**27**	**28**	**30**	**32**	**33**	**36**	**38**	**40**
200	**30**	**32**	**36**	**40**	**42**	**48**	**54**	**56**	**60**	**64**	**66**	**72**	**74**	**80**
300	**45**	**48**	**54**	**60**	**63**	**72**	**81**	**84**	**90**	**96**	**99**	**108**	**114**	**120**
400	**60**	**64**	**72**	**80**	**84**	**96**	**108**	**112**	**120**	**128**	**132**	**144**	**152**	**160**
500	**75**	**80**	**90**	**100**	**105**	**120**	**135**	**140**	**150**	**160**	**165**	**180**	**190**	**200**

10.2.3 TwinTerminal filling diagram



Perform the action via the TwinTerminal.

- Fill the spray liquid tank with water
- While filling the tank, flush in the agents through the induction bowl.
- If it is not possible to flush in the agents before the target fill level is reached, interrupt the filling procedure.

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

Preferably perform the filling from a suitable container and not from an open water access point.

Follow regulations closely when filling the spray liquid tank from an open water access point using a suction hose.

To prevent pump damage during suction filling:

Ensure a continuous minimum diameter of the suction hoses / taps of 3 inches.

WARNING

Contamination of the flushing water tank with spray agent when filling through the suction hose with the spraying pump.

You must observe the following safety measures:

- Before filling the flushing water tank with the spraying pump, the spray liquid tank must be filled with at least 500 l of water (cleaning the valve chest).
- Before filling the flushing water tank with the spraying pump, clean the implement thoroughly.
- The flushing water tank must be filled before filling of the spray liquid tank is finished. Otherwise, the flushing water tank will be contaminated.
- When filling the flushing water tank with the agitator switched on, the spray liquid tank will still be filled via the agitator

Procedure:

- Spray liquid tank partial filling 500 l
- Flushing water filling up to the target fill level (max. up to the nominal volume)
- Fill the rest of the spray liquid tank up to the target fill level and simultaneously
- Flush in the agents

WARNING

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

- Clean the implement thoroughly beforehand.
- Suction filling is forbidden if contamination of the flushing water tank with critical agents is to be expected.
- It is better to fill the flushing water tank through the pressure connection.

WARNING

Forbidden contamination of the flushing water tank with crop protection agents or spray liquid!

Only fill the flushing water tank with clear fresh water, and never with crop protection product or spray liquid.

WARNING

Damage to the suction valve chest caused by pressure filling via the suction connection!

The suction connection is not suitable for pressure filling. This also applies for filling from a higher-elevation source.

1. Couple the suction hose with the suction connection and the water point.
2. Pressure valve chest **DA** in position .
3. TwinTerminal:
   (see TwinTerminal diagram)

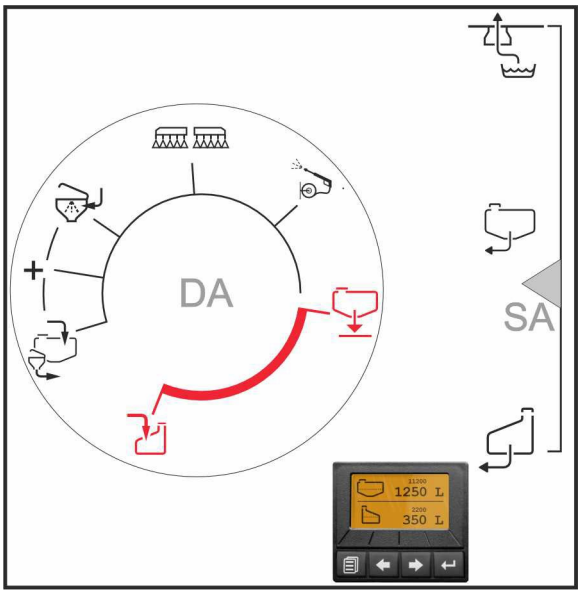
   4.1 Drive the pump (at least 400 rpm)

   3.2 Select suction filling .

   3.3 Enter the target fill level and confirm.

   → Suction valve chest **SA** moves into position .

→ The spray liquid tank must first be filled with at least 132 gal / 500 l to clean the valve chest)



4. Pressure valve chest **DA** in position .

→ Filling of the flushing water tank starts.

WARNING
Contamination of the flushing water tank with spray liquid!

Filling of the flushing water tank may never be interrupted using the Twin-Terminal . Spray liquid is pumped into the flushing water tank.

5. Control terminal:  Switch off the agitator.

→ Otherwise, the spray liquid tank will continue to be filled via the agitator.

As soon as the flushing water tank is full (observe the fill level):

6. Pressure valve chest **DA**: Select position  .

→ Continue filling the spray liquid tank.

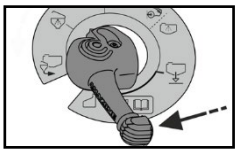
7. Control terminal: Switch the agitator back on.

8. While filling, flush in the agents through the induction bowl.

To increase the filling capacity:

Switch tap **IJ** in position  .

9. Interrupt the filling process if flushing is not possible before the nominal fill level is reached.

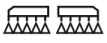


→ Lock the pressure valve chest.

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

10. Uncouple the hose from the filling connection.

The hose is still filled with water.

11. Pressure valve chest **DA** in position  .

WARNING
Contamination of the flushing water tank with spray liquid!

Filling of the flushing water tank must be finished before filling of the spray liquid tank is terminated by the automatic fill stop.

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

- The spray liquid tank and flushing water tank can be filled simultaneously.
- It is better to fill the flushing water tank through the pressure connection to prevent contamination of the flushing water tank with spray agent residues.

CAUTION

- Maximum permitted water pressure: 8 bar
- At a filling capacity greater than 1000 l/min, keep the lid of the spray liquid tank open during the filling procedure.

Otherwise, the spray liquid tank can be damaged.

CAUTION

Risk of contaminating the pressure connection with spray liquid or liquid fertilizer

Do not fill with any pre-mixed spray liquid or liquid fertilizer via the pressure connection.

Only use the pressure connection for water

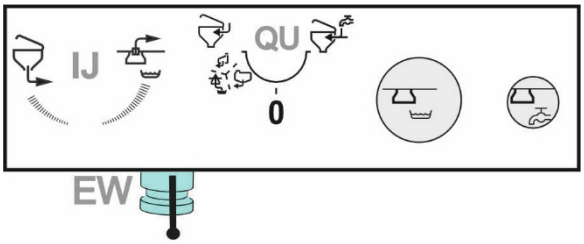
1. Couple the pressure hose with the pressure connection and the hydrant.
2. Select pressure filling  (see TwinTerminal diagram).
3. Filling the spray liquid tank
   - 3.1 Select the spray liquid tank.
   - 3.1 Enter the nominal fill level and confirm.

→ The spray liquid tank will be filled up to the target fill level.

4. Filling the flushing water tank
   - 4.1 Select the flushing water tank.
   - 4.2 Enter the target fill level and confirm.

→ The spray liquid tank will be filled up to the target fill level.

5. While filling, flush in the agents through the induction bowl.
6. After the filling process, close the supply-side stop tap, relieve the pressure hose, and uncouple the hose from the filling connection.



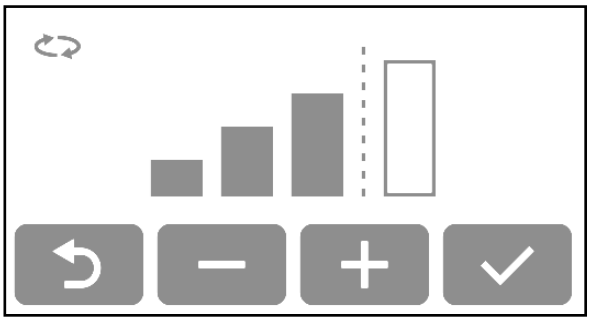
The hose is still filled with water.

10.2.6 Adjusting the agitator

Adjust the agitator before induction.

1. TwinTerminal: Select the agitator  (see TwinTerminal diagram).
2. Select the desired agitation level and confirm.

→  The agitation level will be displayed on the TwinTerminal.



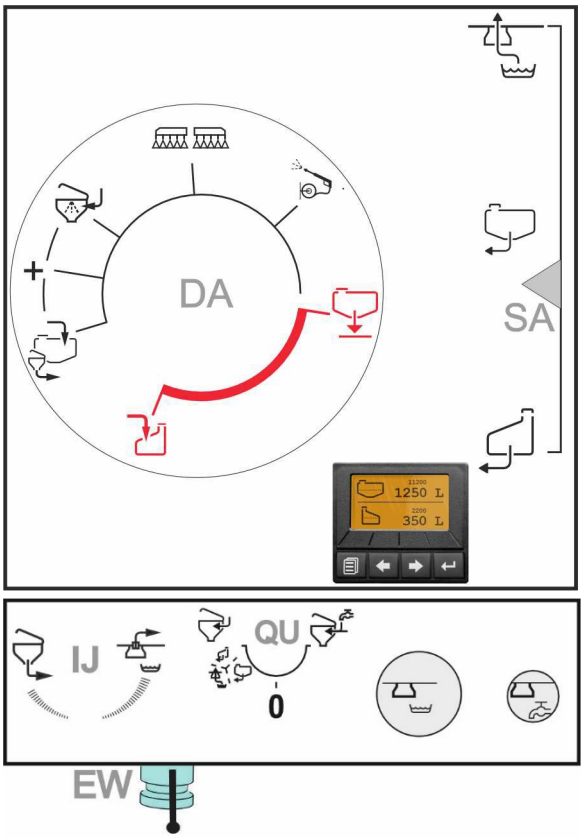
10.2.7 Flushing agents via the induction bowl

DANGER

Risk of injury due to contact with spray agents and spray liquid.

Wear personal protective equipment.

During the filling process, flush the agents into the spray liquid tank through the induction bowl.



During the suction filling:

- Pressure valve chest **DA** in position + .
- Switch tap **QU** in position .

During the pressure filling:

- Suction valve chest **SA** in position .
- Pressure valve chest **DA** in position .
- Switch tap **QU** in position . (overfilling of the spray liquid tank possible via the induction bowl. Also for fill stop and switch tap FS at **0**).

After filling:

1. Pressure valve chest **DA** in position .
2. TwinTerminal: Select .
3. Switch tap **QU** in position .

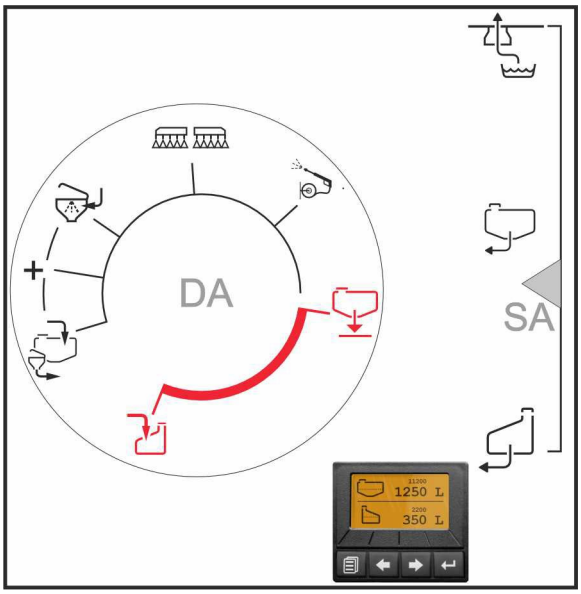
Flush in the agents during the filling procedure.

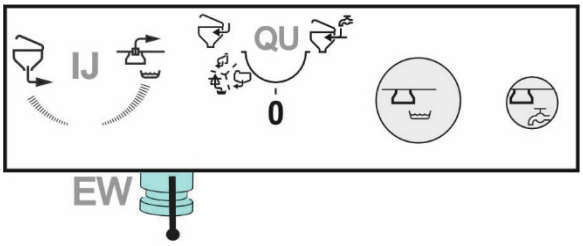
1. Drive the pump (at least 400 rpm).
2. Lower the induction bowl.
3. Open the induction bowl cover.
4. Sieve in the induction bowl:
   - o Use for liquid agents.
   - o Do not use for powder agents.
5. Switch tap **EB** in position  for liquid agents.

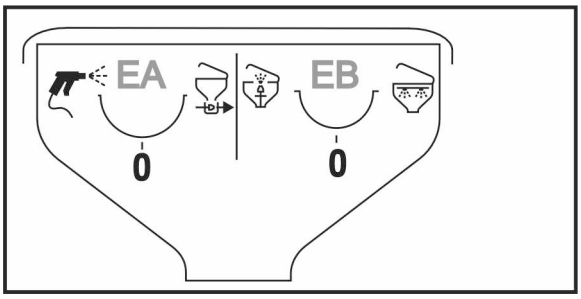
   Switch tap **EA** in position  for powder-form agents.
6. Pressure valve chest **DA** in position  +  .
7. Injector switch tap **IJ** in position  (adjustable suction intensity)
8. Pour the quantity of agent calculated and measured for filling the tank into the induction bowl.

→ The contents of the induction bowl will be drawn out.

9. Close the cover of the induction bowl.
10. Close switch tap **EA** / **EB**.







To increase user protection, for example when handling powder agents, first pour the agent into the induction bowl (maximum 60 l), close the cover and only then apply suction.

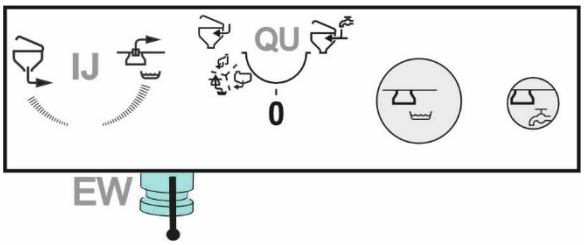
Use clear, fresh water for flushing the canisters and cleaning the induction bowl.

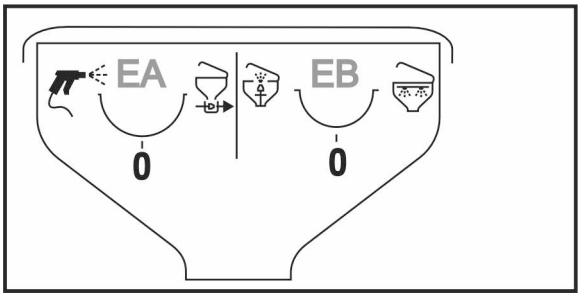
Drawn water is automatically used during suction filling.

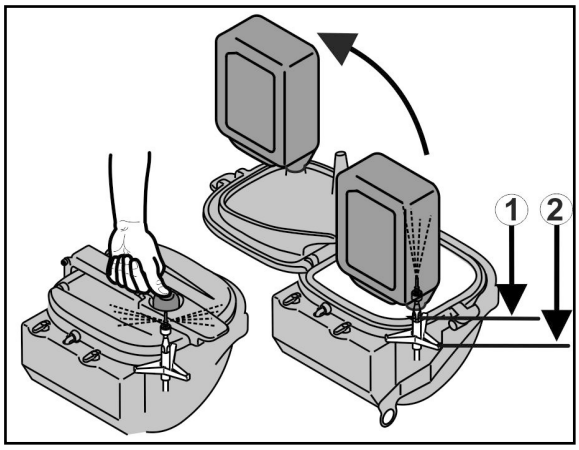
Otherwise, use flushing water.

→ TwinTerminal:  Select (Flushing water suction), see TwinTerminal diagram.

→ Suction valve chest **SA** moves into position  .







Flush the canister:

1. Switch tap **EB** in position  .
2. Wash the canister or other containers using the canister flushing equipment. First position 1, then position 2.
3. Press the canister down for at least 30 secs.

→ The canister is rinsed with water.

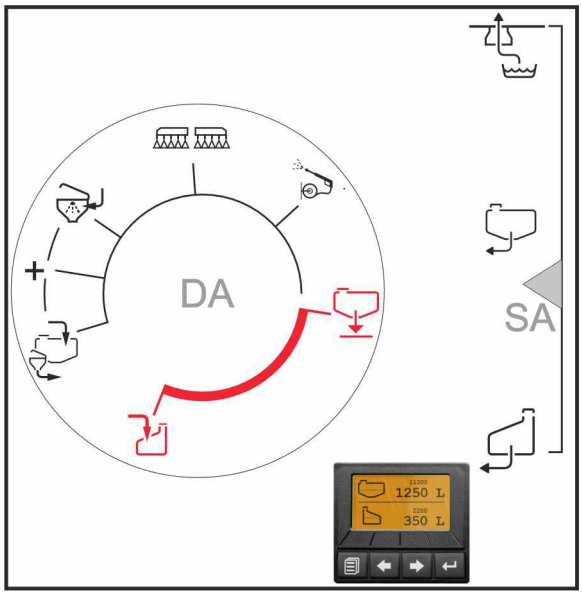
Pressure valve chest **DA** in position  to increase the capacity of the canister rinsing.

Cleaning the induction bowl:

4. Switch tap **EA** in position  .
5. Clean the surrounding area with the spray pistol.
6. Close switch tap **EA**.
7. Close the cover of the induction bowl.
8. Start the internal cleaning for the induction bowl using the button.
9. Close switch tap **EA**.
10. Switch off the injector switch tap **IJ** for suction from the induction bowl (0%).
11. Lift the induction bowl.
12. TwinTerminal:  Select (Spray liquid suction).

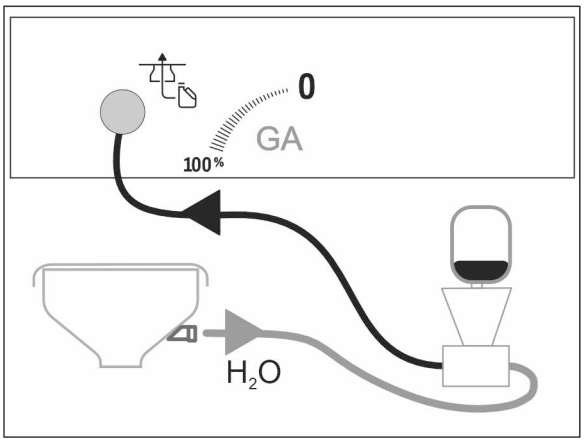
10.2.8 Spray agent suction from containers (closed transfer system)

1. Run the pump.
2. Couple the spray agent container with a drip-free plug coupling.
3. Couple the flushing connection.
4. TwinTerminal:  select (Spray liquid suction).
   Alternative: suction during the suction filling.
5. Pressure valve chest **DA** in position  .
6. Start suction using switch tap **GA**, adjust the intensity (0-100%).
7. Stop the suction using switch tap **GA** when the desired quantity has been drawn from the container.



Cleaning contaminated components:

1. TwinTerminal:  select (Flushing water suction).
2. Start suction using switch tap GA, adjust the intensity (0-100%).
3. Pressure valve chest DA in position  .
4. Pressure valve chest **DA** in position  to stop the cleaning.
5. Switch tap **GA** in position 0.



10.3 Spraying operation

Special instructions for spraying operation

- Test the field sprayer by metering
  - o before the start of the season.
  - o in the case of deviations between the actual indicated spray pressure and the spray pressure prescribed in the spray table.
- Before starting spraying, determine the exact application rate required, referring to the instructions of the crop protection agent manufacturer.

→ Before you start spraying, enter the required application rate (target rate) on control terminal.

- During spraying operation, precisely adhere to the required application rate [l/ha]
  - o in order to achieve the best possible results from your crop protection measure.
  - o to avoid unnecessary pollution of the environment.
- Select the required nozzle type from the spray table before spraying starts, taking account of
  - o the intended forward speed,
  - o the required application rate and
  - o the required atomisation characteristic (fine, medium or coarse-dropped) of the crop protection agent used for the crop protection measure.

  Refer to the section "Spray tables for flat-fan, anti-drift, injector and airmix nozzles", on page 244.
- Select the required nozzle size from the spray table before spraying starts, taking account of
  - o the intended forward speed,
  - o the required application rate and
  - o the target spray pressure.

  Refer to the section "Spray tables for flat-fan, anti-drift, injector and airmix nozzles", on page 244.
- Select a low forward speed and a low spray pressure to prevent drift losses!

  Refer to the section "Spray tables for flat-fan, anti-drift, injector and airmix nozzles", on page 244.
- At wind speeds of 3 m/s, take additional drift reduction measures (refer to the section "Measures for drift reduction")!

- Do not perform treatments if the average wind speed is higher than 5 m/s (leaves and thin twigs move).
- Only switch the sprayer boom on and off while driving to avoid the application of excessive doses.
- Avoid the application of excessive doses through overlapping caused by imprecise connection of the next bout from one spray path to the next and/or when cornering on the headlands with the sprayer boom switched on!
- When increasing the forward speed, make sure that the maximum permissible pump drive speed of 540 rpm is not exceeded!
- During spraying operation, constantly check actual spray liquid consumption with reference to the area treated.
- Calibrate the flow meter if there are any differences between the actual and displayed application rate.
- Calibrate the distance sensor (pulses per 100 m) if there are any differences between the actual and displayed travelled distance.
- If spraying operation is interrupted due to bad weather, be sure to clean the suction filter, the pump, the valve chest and the spray lines.

- The spray pressure and nozzle size influence drop size and the volume of liquid sprayed. The higher the spray pressure, the smaller the droplet diameter of the spray liquid. The smaller droplets are subject to increased, undesirable drifting.
- If the spray pressure is increased, the application rate also increases.
- If the spray pressure is decreased, the application rate also decreases.
- If the forward speed is increased while the nozzle size and spray pressure remain constant, the application rate decreases.
- If the forward speed is decreased while the nozzle size and spray pressure remain constant, the application rate increases.
- The forward speed and pump drive speed can be freely selected within a wide range thanks to the automatic area-related rate regulation.

- The pump delivery capacity is dependent on the pump drive speed. Select the pump speed (between 400 and 540 rpm) such that the flow rate to the sprayer boom and for the agitator is always sufficient. In doing so, be sure to consider that at higher forward speeds and higher application rates, more spray liquid must be conveyed.
- The agitator normally remains switched on from filling to the end of spraying operation. On this account, the instructions of the agent manufacturer are decisive.
- The spray liquid tank is empty when the spraying pressure suddenly drops considerably.
- Residual quantities in the spray liquid tank can still be properly applied up to a pressure drop of 25%.
- If the spray pressure drops off while conditions remain otherwise unaltered, the suction or pressure filter are blocked.

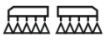
Special instructions for boom load

The permitted boom load may not be exceeded, as it can cause damage to the boom.

For low-stress driving, please observe the following instructions:

- Reduce the forward speed significantly before the headlands and drive in the curve at a constant speed.
- Drive tight curves at slow speeds (below 4 mph / 6 km/h).
- Avoid jerky steering or changes in directions when steering (e.g. track correction).
- Do not fold the boom while driving.
- Always put the individual boom elements in the completely folded end position (folded or unfolded). Do not drive with a partially folded boom.
- Avoid rapid and abrupt changes in direction.

10.3.1 Applying the spray liquid

1. Prepare and stir the spray liquid correctly in accordance with the instructions from the crop protection product manufacturer.
2. Pressure valve chest **DA** in position  .
3. Check: Suction valve chest **SA** in position  .
4. Switch on the control terminal and check the settings.

→ Operate the field sprayer through the Work menu.

5. Unfold the sprayer boom.
6. Switch on the boom guidance:

-  DistanceControl
-  ContourControl

Or actuate the boom manually:

-  Boom height,  tilt adjustment

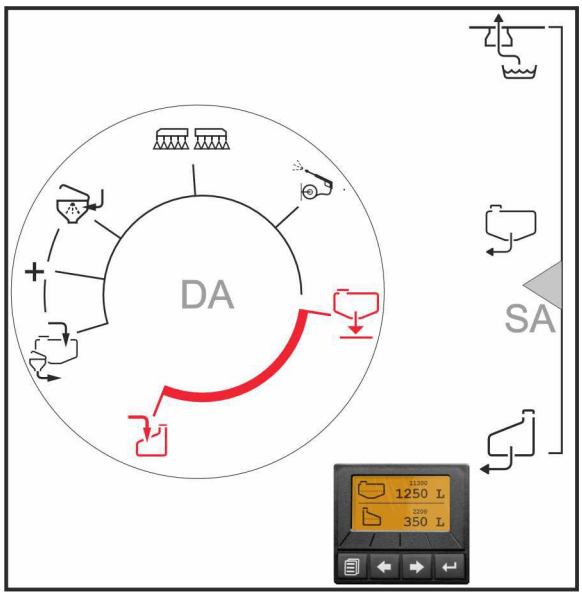
7. Drive the pump at the pump operating speed.

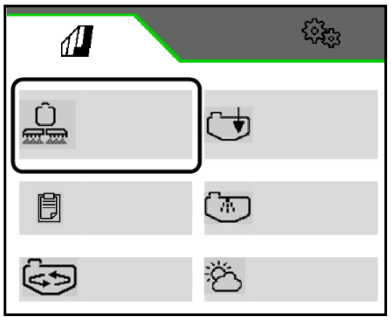
At low application rates, the pump speed can be reduced to save energy.

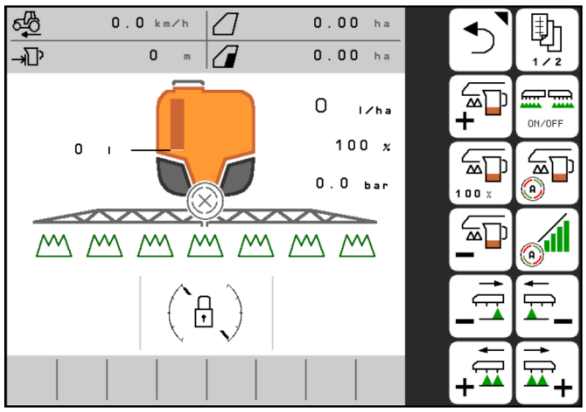
When using the HighFlow application rate increase, drive the pump at 540 rpm.

8. 

Switch on spraying operation through the control terminal.







Driving to the field with the agitator switched on

1. Switch on the pump drive.
2. Twin Terminal:  To prevent deposits: start circulation cleaning.

10.3.2 Drift reduction measures

- Reschedule treatment for the early morning or the evening hours (there is generally less wind).
- Choose larger nozzles and a higher water application rate.
- Reduce the spray pressure.
- Precisely maintain the working height of the boom, because the risk of drifting rises very sharply as the distance between the nozzles increases.
- Reduce forward speed (to less than 8 km/h).
- Use so-called anti-drift (AD) nozzles or injector (ID) nozzles (nozzles which produce a high proportion of coarse drops).
- Observe the distance requirements of the respective crop protection agent

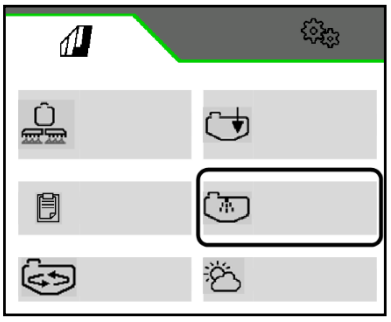
10.3.3 Diluting the spray liquid with flushing water

1. Run the pump.

Control terminal, Cleaning menu:

2.  Dilute the spray liquid with flushing water.
3.  End dilution.

Observe the display for the required quantity of flushing water.



The spray agent can be diluted for 2 reasons:

- To get rid of excess residual quantities.

  Excess residual quantities in the spray liquid tank are initially diluted with 10 times the quantity of flushing water to then spray them out on the field that has already been treated.
- Increasing the spray liquid volume to treat a remaining area.

The spray line is flushed on machines with nozzle control. When restarting the spraying, two to five minutes will elapse until concentrated spray liquid can be applied.

10.3.4 Residual amounts

There are three types of residue:

- Excess residue remaining in the spray liquid tank when the spraying operation is finished.

→ This excessive residue is discharged diluted or pumped-out and disposed of.

- Technical residue that remains in the spray liquid tank, the suction valve chest and the spray line when the spray pressure drops by 25%.

  The suction chest is composed of the suction filter, pump and pressure controller sub-assemblies. Observe the values for the technical residues given on page 109.

→ This technical residue is discharged diluted onto the field while cleaning the field sprayer.

- Final residue that remains in the spray liquid tank, the suction valve chest and the spray line after being cleaned and air is discharged from the nozzles.

→ This final diluted residue is drained off after cleaning.

Disposing of the residues

- Make sure that the residue in the spray line continues to be sprayed in an undiluted concentration. Always spray this residue on an untreated area. The distance needed to use up this undiluted residue can be found in the section "Technical Data - spray lines", page 109. The residue contained in the spray line is dependent on the sprayer boom working width.
- To spray out the spray liquid tank until it is empty, switch off the agitator when the residue in the spray liquid tank is only 5% of the nominal volume. When the agitator is switched on, the technical residue is higher than the specified values.
- Measures intended for the user's protection apply when emptying residues. Observe the instructions of the crop protection product manufacturer and wear suitable personal protective equipment.

Formula for calculating the required distance in [m] for spraying out the undiluted residue in the spray line:

$$\text{Required distance [m]} = \frac{\text{Undilutable residue [l] x 10,000 [m2/ha]}}{\text{Application rate [l/ha] x working width [m]}}$$

10.3.5 Diluting the excess residue in the spray liquid tank and spraying out the diluted residue remaining at the end of spraying operations

1. Switch off sprayers on the control terminal.
2. Drive the pump with pump operating speed.
3. Dilute the residual quantity with 10 times the amount of flushing water.
4. Switch of the agitators.
5. Switch on sprayers on the control terminal.

→ If possible, first spray out the undiluted spray liquid from the spray line on an untreated remaining area.

→ Spray out the diluted residual quantity on the treated area.

→ Keep flushing the diluted residues until air escapes from the nozzles.

6. Switch off sprayers on the control terminal.
7. Cleaning the field sprayer.

When spreading residue, observe the maximum permissible application quantity of the agent on areas already treated.

10.3.6 Emptying the spray liquid tank using the pump

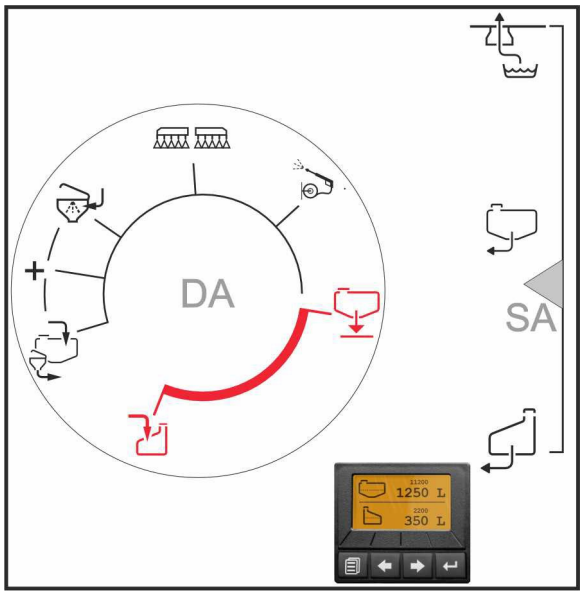
1. Couple a suitable emptying hose from the external tank to the implement-side emptying connection.
2. TwinTerminal:  select (Spray liquid suction).
3. Pressure valve chest **DA** in position  .
4. Run the pump.

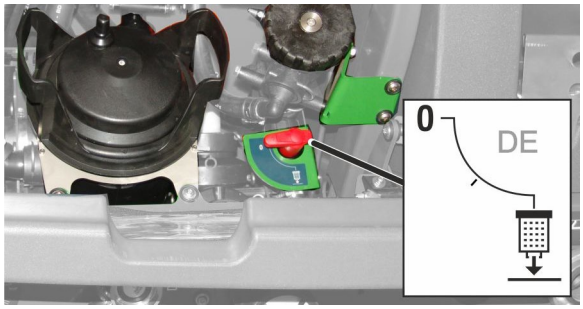
→ Emptying procedure starts.

5. After emptying, pressure valve chest **DA** in position  .
6. Interrupt the pump drive.
7. Uncouple the hose.

The hose is still filled with spray liquid.

The stop tap DE (drain pressure filter) must be in Position 0.





11 Cleaning the implement after operation

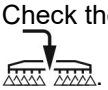
- Keep the exposure time as short as possible, for example by daily cleaning of the utensils after the spraying operation is completed. Do not leave the spray liquid in the spray liquid tank for an unnecessarily long period, e.g. overnight.

  The service life and reliability of the field sprayer mainly depend on how long the materials of the field sprayer are exposed to the crop protection agent.
- Clean the field sprayer thoroughly before applying a different crop protection agent.
- Carry out the cleaning process on the field where you last carried out the treatment.
- Carry out the cleaning procedure using water from the flushing water tank.
- You can carry out the cleaning process in the courtyard if you have a collecting facility installed (e.g. a Biobed).

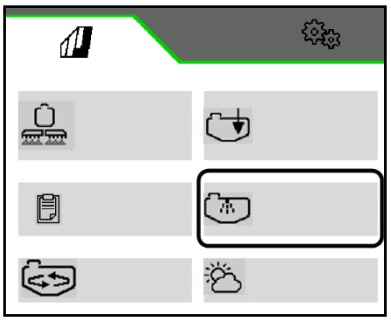
  Observe all national regulations involved.
- When spreading residual quantities on treated areas, observe the maximum permissible application rate for the agents.

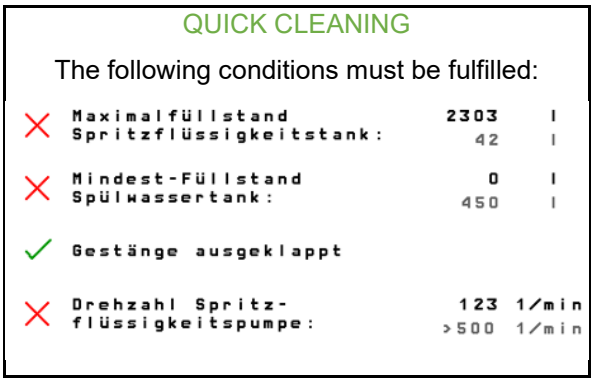
- Perform a quick cleaning daily.
- Perform an intensive cleaning:
  - before a critical agent change,
  - before taking out of operation for a longer period.
- Perform the cleaning on the field while driving, since cleaning water is applied intermittently.
- The fill level of the flushing water tank must be sufficient.
- Prerequisite: tank fill level < 1 % (tank as empty as possible).

11.1 Quick cleaning of the empty field sprayer

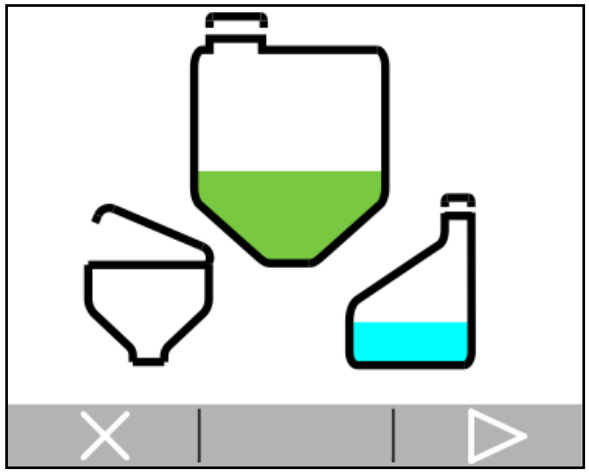
1. Run the pump.
2. Check the pressure valve chest: Position  .

Control terminal, Cleaning menu:





3. The conditions must be fulfilled. Compare the setpoints and actual values.
4. **>** Start the quick cleaning.
5. Enter the desired quantity of flushing water for cleaning (minimum 200 litres, maximum 580 litres)



→ Main and secondary agitator are flushed, tank internal cleaning switched on.

Implements with DUS: the spray line is cleaned.

6. **>** Confirm and start driving at the same time.

→ Cleaning water is sprayed out.

Spraying is switched on and off several times.

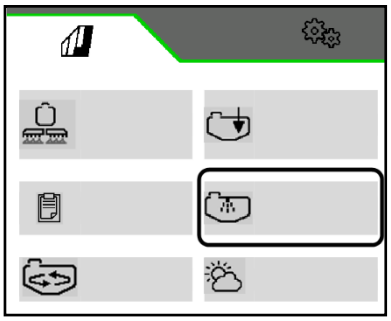
AmaSelect: The nozzle body is completely flushed.

7. **>** Residue will be drained.
   x Do not drain residue (residue will be drained and collected later).
8. Clean the suction filter and pressure filter, see section on cleaning the suction filter / pressure filter.

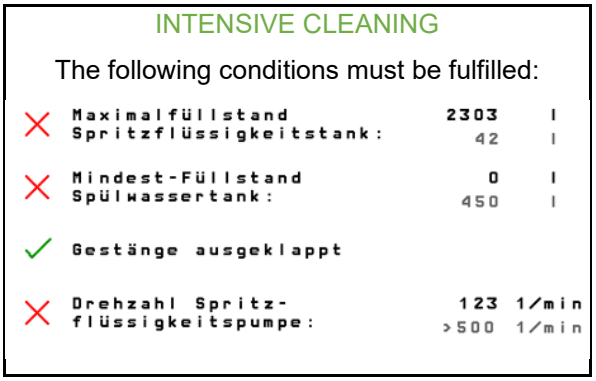
11.2 Intensive cleaning of the empty field sprayer

1. Run the pump.

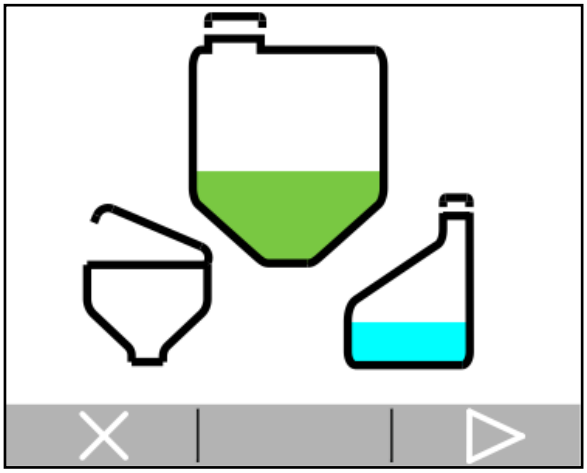
Control terminal, Cleaning menu:



2. The conditions must be fulfilled. Compare the setpoints and actual values.



3. **>** Start the intensive cleaning.
4. Enter the desired quantity of flushing water for cleaning (minimum 400 litres, maximum 580 litres)



→ Main and secondary agitator are flushed, tank internal cleaning switched on.

Implements with DUS: the spray line is cleaned.

5. **>** Confirm and start driving at the same time

→ Cleaning water is sprayed out.

Spraying is switched on and off several times.

AmaSelect: The nozzle body is completely flushed.

6. **>** Residue will be drained.
x Do not drain residue (residue will be drained and collected later).

During the intensive cleaning:

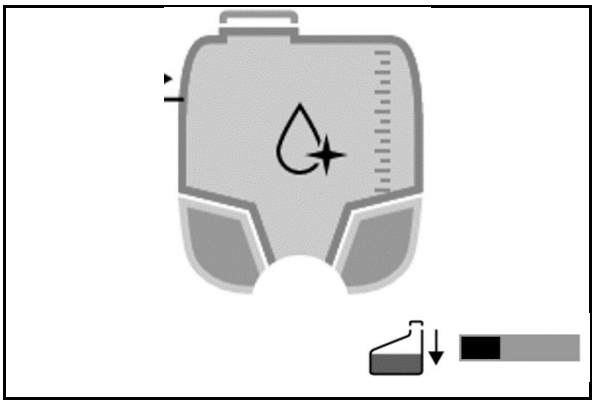
- Spraying out the cleaning water three times while driving on the field.
- Draining the residue two times.

The intensive cleaning procedure takes up to 15 minutes.

7. Drain the final residual quantity.
8. Clean the suction filter and pressure filter.
9. If necessary, clean the nozzle filter and line filter in the boom.

→ The completed cleaning is shown on the control terminal.

→ The cleaning progress is shown graphically during the cleaning procedure.



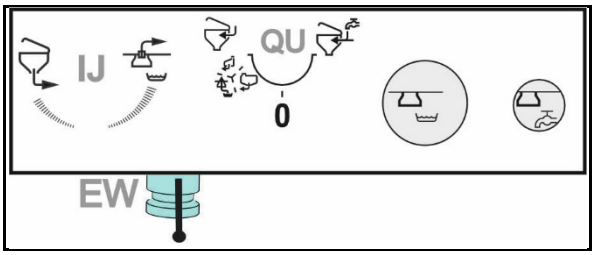
11.3 Draining the final residues

- On the field: Spread the final residues over the field.
- At the farm:
  - Place a suitable collecting container under the drain opening of the suction chest and the drain hose for the pressure filter and collect the final residues.
  - Dispose of the collected spray liquid residual quantity in accordance with the corresponding legal guidelines.
  - Collect the spray liquid residual quantities in suitable tanks.

1. Place a suitable collecting container under the outlet opening on the suction side.
2. TwinTerminal:  select (Spray liquid suction).
3. Open the stop tap **EW** under the implement.

→ Drain the residual quantity.

4. Close the stop tap again.



11.4 Performing chemical cleaning

- Chemical cleaning is recommended before critical agent changes and before the implement is decommissioned for a longer period of time.
- Perform the chemical cleaning after the intensive cleaning.

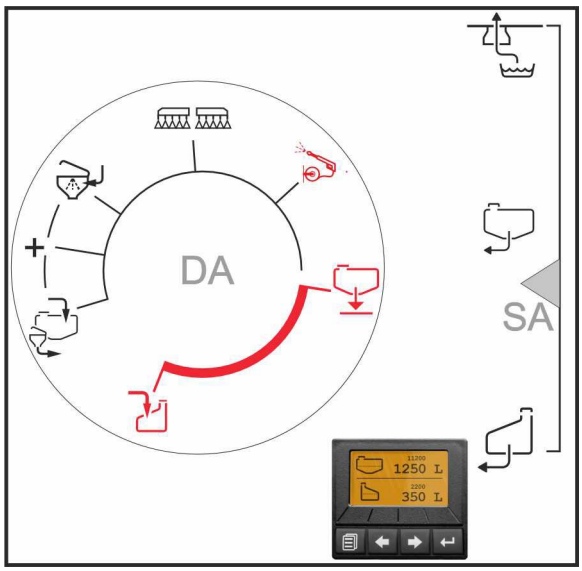
1. Clean the implement.
2. Fill the spray liquid tank with 26,5 gal /100 l of water and add the cleaning agent according to the instructions provided by the manufacturer.

To flush in the cleaning agent, the spray liquid tank must be filled with at least 53 gal / 200 l of water.

3. Run the pump.
4. TwinTerminal: 

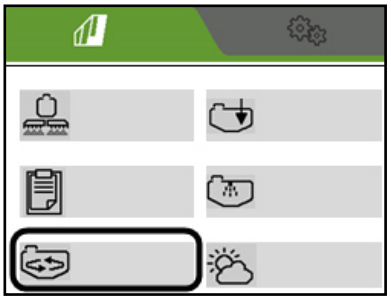
    Switch on the circulation cleaning (at least 10 minutes, observe the instructions from the cleaning agent manufacturer).
5. TwinTerminal: Select agitator  and operate at maximum intensity for one minute.

    stop the circulation cleaning.



During the cleaning procedure, switch on the agitator for a maximum of one minute..

6. Spray out the mixture on the previously treated field.



List of available cleaning agents

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

11.5 Cleaning the suction filter and pressure filter

- Clean the suction filter on a daily basis after cleaning the field sprayer.
- Replace defective filters.
- Grease the O-rings.
  Make sure that the O-ring seals are correctly fitted.
- Ensure that there are no leaks after installation
- HighFlow: Also clean the separate HighFlow pressure filter

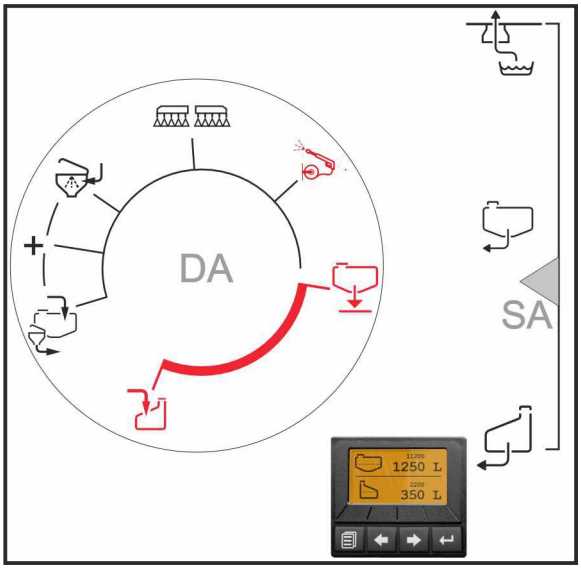
Cleaning the suction filter when tank is full

1. Enter a target quantity that is increased by at least 200 liters.
2. Pressure valve chest **DA** in position  .
3. TwinTerminal: Select  Suction filter.
4. Fit the sealing cap on the suction coupling and confirm on the TwinTerminal.
5. Drive the pumps and confirm on the Twin-Terminal.
6. Vent the suction filter via the vent valve (20 seconds) and confirm on the TwinTerminal.

→ The filter cup is suctioned empty.

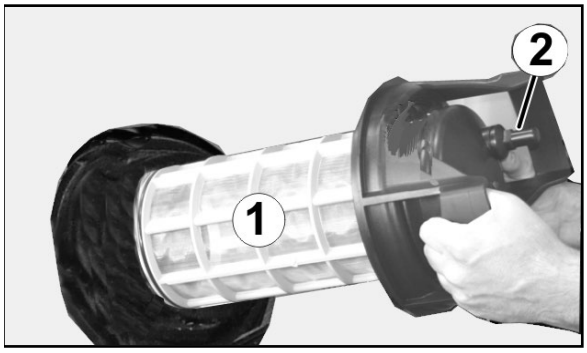
7. Take out suction filter, clean it and remount it; then confirm on the Twin Terminal.
8. Interrupt pump drive.

Injector is contaminated with spray liquid.



(1) Suction filter

(2) Venting valve

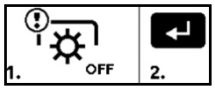


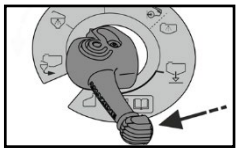
Cleaning the pressure filter when the spray liquid tank is full

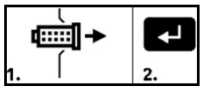
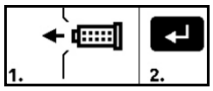
WARNING
Unwanted emptying of the spray liquid tank via quick emptying!

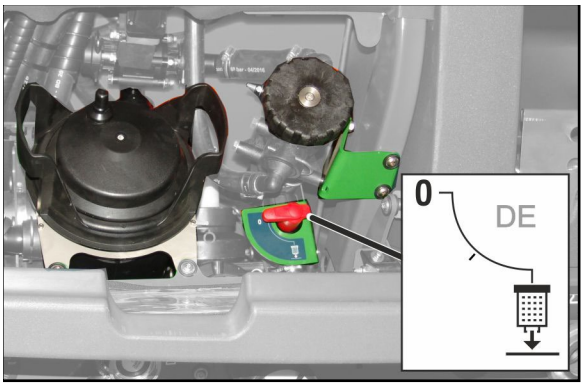
Never run the pump.

HighFlow: Do not clean the separate HighFlow pressure filter when the spray liquid tank is full.

1. TwinTerminal: Select the pressure filter  .
2.  Switch off the pump and confirm.
3. Pressure valve chest **DA**: block the liquid circulation.



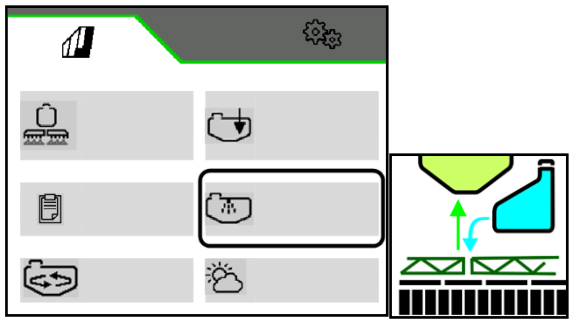
4. Place a collecting bucket under the outlet.
5. Drain the filter using the stop tap **DE**.
6. Undo the union nut.
7.  Remove the pressure filter, confirm.
8.  Reinstall the cleaned pressure filter, confirm.



11.6 Flushing the sprayer boom when the spray liquid tank is full

(work interruption)

1. Control terminal: Flush the boom while driving on the field.
   - ✔ Mark the application of spray liquid.



> Start flushing the boom.

X Stop flushing the boom.

2. TwinTerminal: Clean the suction filter, see section on cleaning the suction filter.
3. Interrupt the pump drive.

The spray liquid tank and agitators are not cleaned!

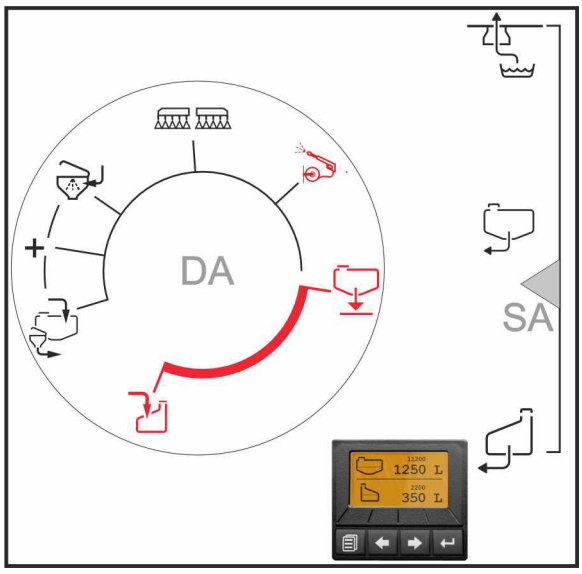
Continuing the spraying operation

1. Run the pump.
2. Control terminal:  switch on maximum agitation for at least 5 minutes.

11.7 External cleaning

1. Unfold and lower the boom.
2. Run the pumps.
3. TwinTerminal:  (suction from flushing water tank).
4. If internal cleaning was not previously performed:

   Switch tap **DA** in position  for 30 seconds until flushing water is available.
5. Pressure valve chest **DA** in Position  .
6. Clean the field sprayer and the sprayer boom with the spray gun.
7. Afterwards, put the control elements back to their initial position.



12 DoubleTrail

DANGER

Danger of accident!

Switch on the road steering mode for road travel!

Angle sensor – trailer hitch coupling

DANGER

Risk of injury due to steering axles, when the angle sensor linkage is uncoupled and moved while the voltage and hydraulic supply is still plugged in and the tractor is running!

Always disconnect the power supply first, before uncoupling the angle sensor.

DANGER

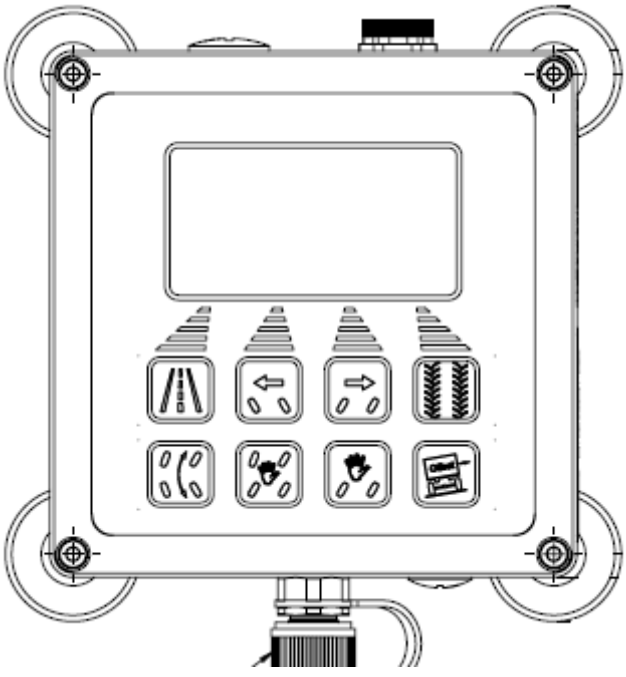
Risk of injury when working in the area of the trailer coupling. Do not put any load on the angle sensor linkage.

Before driving off, ensure that the linkage is not irregularly bent. Bent linkage causes impermissible straight-ahead travel and wrong steering angles.

DANGER

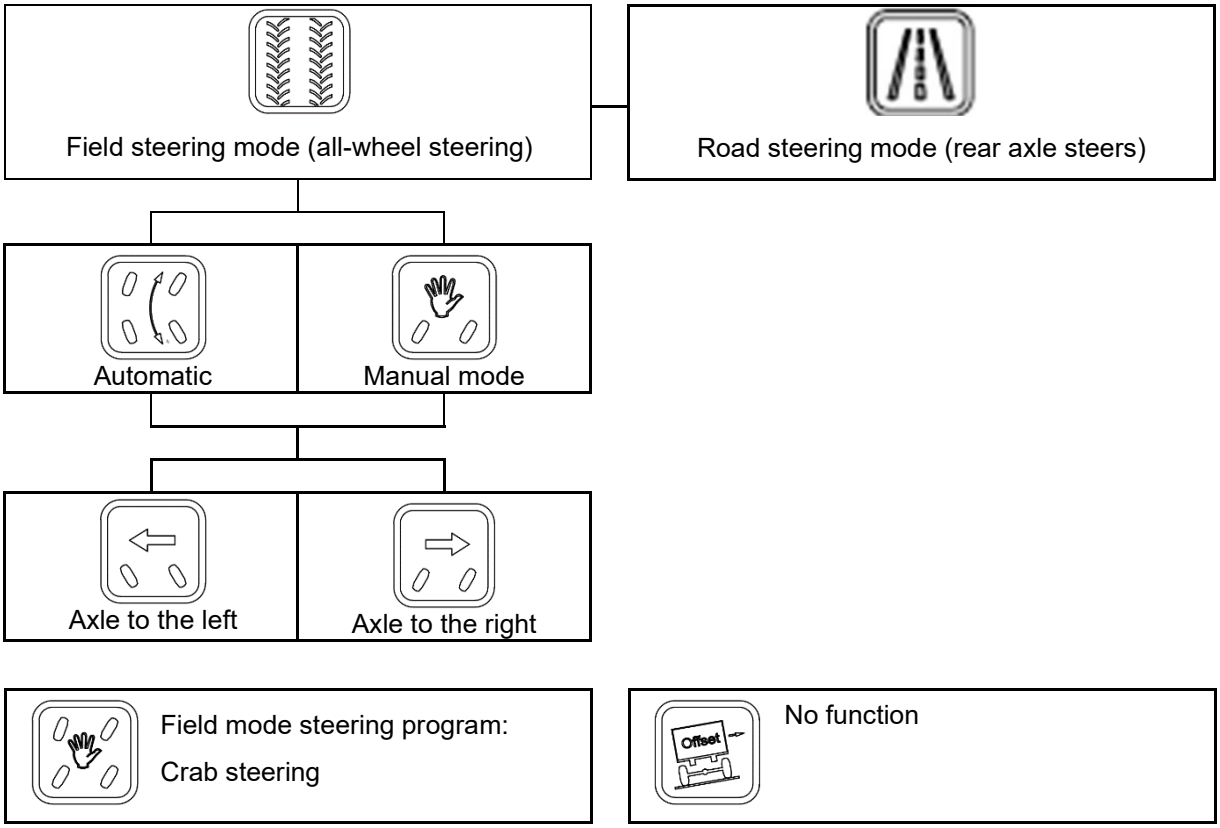
Before driving off, ensure that the angle sensor and also the voltage and hydraulic supply are properly connected! Observe the steering system fault signals within the first few meters traveled.

12.1 The control terminal



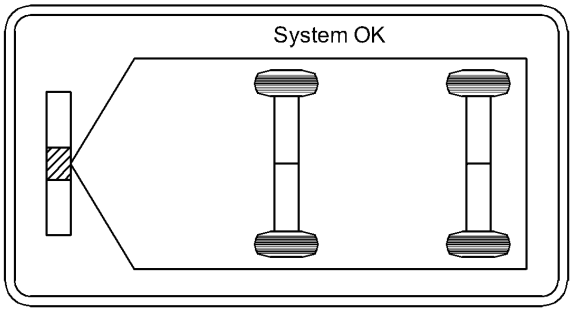
Buttons

The selected steering program is indicated by the corresponding button lighting up.

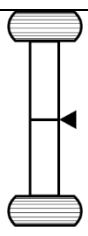
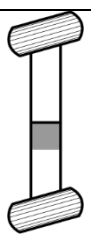


Graphic display

The actual steering value of each steered axle is shown by symbols in the graphic display.



Error messages are shown as error codes. In addition, the buzzer is sounded briefly at each new fault and when starting up in fault condition.

		
Axle locked	Axle steered	Axle steered maximum

12.2 Road mode

- After switching on the steering system, the steering system is always in road mode.
- If the steering system is in field steering mode, pressing the  button will change it over to road steering mode.
- Starting from a forward speed greater than 20 km/h, the steering system switches to road mode automatically.

In road mode, the front axle is operated as a rigid axle and the rear axle is steered in the opposite direction depending on the articulation angle between the implement and the towing vehicle.

12.3 Field mode

WARNING

Risk of accident when driving on the road in field mode.

With its steering program, field mode is not permitted for public road traffic! This operating mode is only for use on the field for precise tracking or maneuvering on the farmyard.

12.3.1 Switching field mode on and off

1. Press and release the Field mode  button.

→ The button's LED flashes.

2. Activate the button for the desired steering program:
   - o  for all-wheel steering on the field
   - o  manual steering for maneuvering

→ To indicate the selection possibilities, the LEDs of the buttons of the selectable steering programs are flashing.

→ If after a brief wait time, no steering program is selected, then the operating sequence will be switched off automatically.
The LED of the field mode button goes out. Field mode has not been activated.

Activated field mode is indicated when the LED of the field mode button shows steady light.

The steering button flashes in the following situations:

- The axles are not yet correct for the selected steering program.
- At least one axle has reached its end stop and cannot be moved any further.

  The driver must bear in mind that the steering behavior may change from this point on, and that the steering behavior may be greatly distorted.
- The vehicle speed has exceeded the warning threshold for field mode.

  The vehicle is moving close to the maximum vehicle speed permitted in field mode.

Field mode can be switched on only when the following conditions are met:

- The implement is at standstill.
- The speed signals are fault-free.
- A severe fault is not present.
- The operating sequence has been carried out correctly.

The field mode is switched off by:

- Activating the road button.
- Automatic switch off when the permissible forward speed is exceeded.
- The steering system is switched on and off.

Changing between the steering programs

Within field mode, up to a slow forward speed, it is possible to switch back and forth between steering programs.

When switching over while the implement is in motion, the axle system is synchronized automatically.

12.3.2 Steering program – track following steering system

1. Activate the Field button 
2. Activate the track following steering button  .

→ This steering program is used to drive a geometry, where the implement follows the tractor in the same track to the extent possible.

The additional buttons  and  can be used to provide an offset to the target axle angle. Thus, the track following steering system can counteract the drift on slopes.

Press the  button again, to reset the offset.

12.3.3 Steering program – manual operation

1. Activate the Field button 

2. Activate the manual mode button  .

3. Press the  /  button to manually reach the desired steering angle

→ This steering program is used primarily for maneuvering on the farmyard.

In this regard, the direction of the arrow corresponds to the steering direction of the tractor in the direction of travel.

For the driver, this function appears as direct control of the steered axles as he has specified.

WARNING

Risk of accident due to simultaneous and counter-acting dependency of articulation angle and manual offset on the steering angle.

Use the offset only with the utmost caution.

12.4 Axle synchronization

When the operating condition of the steering system is changed, the situation can occur that the steered axles are not in the geometrically correct position. The initial steering of the axles to reach the correct position is referred to as axle synchronization.

Examples of changes in operating conditions:

- Switching the steering system on and off
- Changing the steering program

A lower forward speed is required to carry out the synchronization of the axles.

12.5 Tests and faults

12.5.1 Switch-on test

After the steering system has been switched on, the steering system performs a test of the lights and buzzers. All lights and buzzers will be briefly activated twice.

The hydraulic valves will be checked.

- The implement must be at standstill for the switch-on test.
- Pay attention to this switch-on test. It enables you identify faults in the steering system and rectify them.

12.5.2 Fault light and error buzzer

System incidents are indicated by a fault lamp. Once incidents have occurred, they generally remain permanently, regardless of whether the reason for the incident still exists. If the vehicle is moving when the incident occurs, the fault buzzer will also be sounded. The fault buzzer is also sounded when driving off, if a fault is present, provided a complete failure of the steering computer has not occurred.

If the cause of the incident has been eliminated and/or is no longer present, the displays can be reset by switching the steering computer off and on.

12.5.3 Fault memory

The faults triggered are permanently saved in the EEPROM of the steering computer. This storage space can hold 32 incidents. Each incident is saved there with a fault code.

13 Faults

WARNING

Danger of crushing, shearing, cutting, being caught or drawn in, winding and knocks through:

- **unintentional falling of the implement raised using the tractor's three-point hydraulic system.**
- **unintentional lowering of raised, unsecured implement parts.**
- **unintentional start-up and rolling of the tractor-implement combination.**

Secure the tractor and the machine against unintentional start-up and rolling before eliminating faults on the machine. See page 131.

Wait for the implement to stop, before entering the implement danger area.

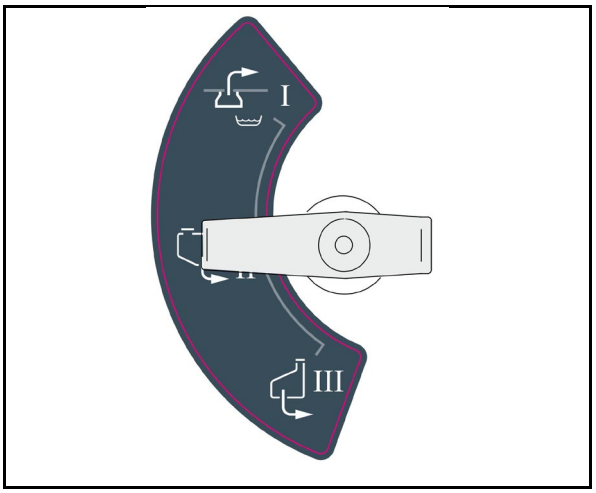
Malfunction	Cause	Remedy
Spray liquid emerges	Leak in the liquid circuit	Close shutter slide under the spray liquid tank, see page 189
Boom too low in transport position	Boom has lowered	Lift boom and bring it into transport position, see 190.
Liquid does not emerge from the nozzles.	The nozzles are clogged.	Eliminate the blockage, see page 191.
Spraying nozzles drip	The spraying nozzles are contaminated or damaged.	Eliminate the drip, see page **191**.
AmaSelect: Nozzles do not close completely	Limescale in the nozzle body	Eliminate limescale in the system, refer to the Maintenance section
There is no suction from the pump	Blockage on the suction side (suction filter, filter insert, suction hose).	Remove the blockage.
	Pump is sucking in air.	Check the hose connection of the suction hose (optional) on the suction port for leak tightness.
The pump does not have any power	Suction filter and filter insert dirty.	Clean suction filter and filter insert.
	The valves are jammed or damaged.	Change the valves.
	The pump draws air, can be seen by air bubbles in the spray liquid tank.	Check the hose connections on the suction hose for leak tightness.
The spray cone vibrates	Irregular delivery flow from the pump.	Check, and if necessary replace, the suction and pressure-side valves (see on page 229).
Oil/spray liquid mixture in the oil filler neck or clearly visible oil consumption	Pump diaphragm defective.	Change all six piston diaphragms (see 230).
The required application rate entered is not achieved	High forward speed; low pump drive speed;	Reduce the operational speed and increase the pump drive speed until the fault message disappears and the audible alarm signal stops
There has been a deviation from the permissible spray pressure range for the nozzle fitted to the sprayer boom	Deviation from the prescribed operational speed, which has an effect on the spray pressure	Alter your operational speed to return to the prescribed operational speed range set for spraying operation
In some cases, 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 it now contains no or too little cleaning water.	Reduce the forward speed and/or the target application rate to ensure controlled spraying out during the cleaning procedure.

Malfunction	Cause	Remedy
Failure of the sprayer boom Flex-folding	Wiring harness is defective	Fold the boom manually, see page 223, contact a specialist workshop.
In some cases, liquid does not come out of the nozzles at spray out during the cleaning procedure.	At previous spray out, the spray liquid tank has been emptied to such an extent that there is either no cleaning water or insufficient cleaning water in the tank.	Reduce drive speed and/or target application rate to ensure controlled spray out for the cleaning process.
Calcification in the system	The nozzle body does not open or close. Calcification in the spray liquid tank and suction filter	To eliminate calcification, use special acidifiers (e.g. PH FIX 5 from Sudau Agro), see page 192.

13.1 Emergency actuation of the suction tap in case of motor failure

In case of suction top motor failure, the suction tap can be switched manually.

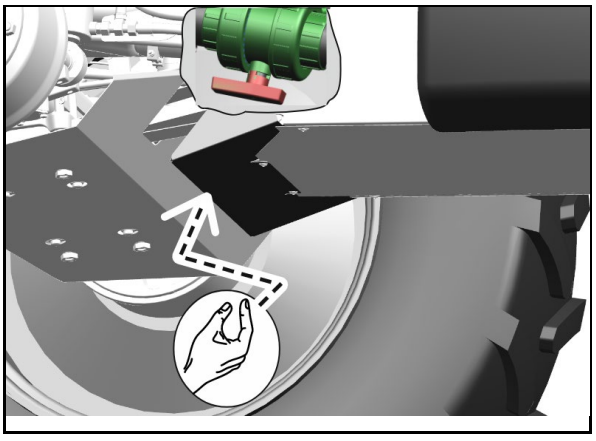
Before doing so, release the motor from the actuation lever.



13.2 Spray liquid emerges

Close the stop tap of the spray liquid tank.

The stop tap is on the right side of the implement underneath the spray liquid tank.



13.3 Boom too low in transport position

If the boom continues to lower from transport position, the boom suspension is not active.

F15222	Boom too low in transport position

1. Stop tractor and implement.
2.  Lift boom.
3.  Lower boom into transport position.

13.4 Eliminate the blockages in the nozzles and nozzle filters

WARNING

Hazards due to accidental contact with spray liquid!

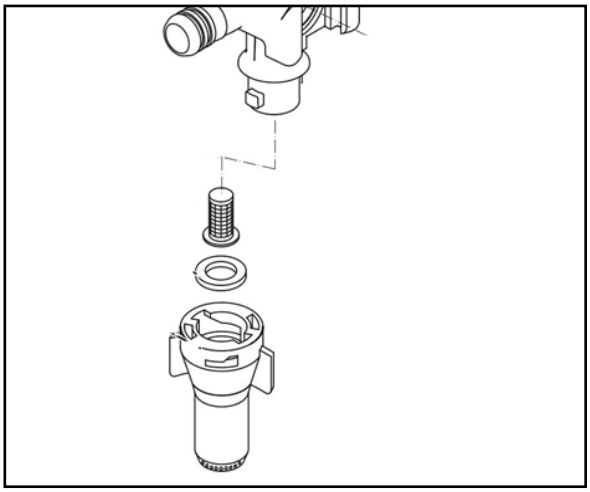
First, flush the nozzles with flushing water.

- Wear personal protective equipment for tasks on the sprayer boom.

1.  Switch off spraying.
2. Flush the boom and spray out the flushing water.
3. Stop the implement.
4.  Lift the boom to a nozzle height of 1.50 meters.
5.  Secure boom guidance.
6. Switch off the engine.
7. Secure the implement.
8. Put on personal protective equipment.
9. Unscrew the bayonet nut with nozzle.
10. Take out the rubber seal and nozzle filter.
11. Use a replacement nozzle and replacement filter,

    or

    Clean the nozzle and filter with compressed air.
12. Mount the replacement nozzle and replacement filter with a bayonet nut and rubber seal.



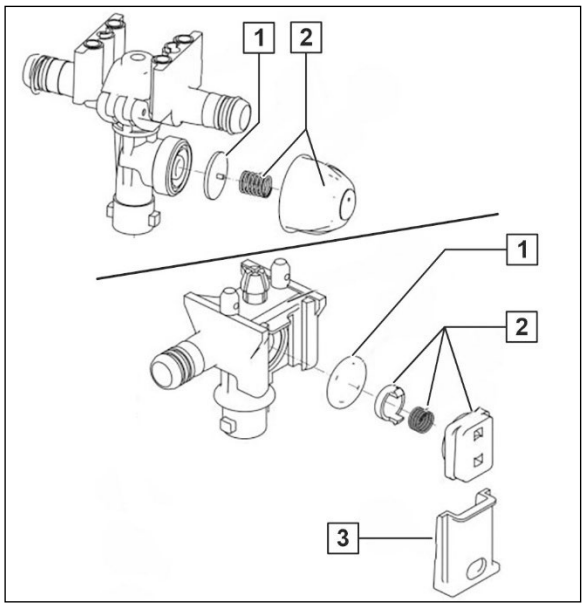
13.5 Eliminating nozzle drip

WARNING

Hazards due to accidental contact with spray liquid.

- Flush the nozzles with flushing water before performing tasks on the nozzle bodies.

1. Dismount the spring element (2).
2. Remove the diaphragm (1).
3. Clean the diaphragm seat.
4. Check the diaphragm for cracks.
5. Mount diaphragm and spring element.
6. Slide on the nozzle shutter (3) with moderate thumb force.



13.6 Eliminating limescale in the system

Indications that there may be lime deposits:

- The nozzle body does not open or close.
- Error messages on the control terminal
- Limescale deposits in the tank and suction filter

DANGER
Health risk due to contact with acidification agents.

Observe the instructions for use on the packaging!

1. Completely clean the empty sprayer.
2. Fill 20 to 50 litres of flushing water into the spray liquid tank.
3. Start the spraying pump.
4. Pour the acidification agent (3 l) into the spray liquid tank through the inspection hatch.

→ Target pH-value for descaling: 2 - 3

5. Allow the mixture to circulate in the spray line for 10-15 minutes.
6. Interrupt the pump drive.
7. **AmaSelect**:  Without pump drive, use the manual nozzle selection to switch through all nozzle positions several times.
8. Start the spraying pump.
9. Allow the mixture to circulate in the spray line for a few more minutes.
10. Dilute the mixture with water until the target pH-value of 6 - 7 has been reached.

→ The diluted mixture is harmless and can be used to prepare the spray liquid.

Basic information about water hardness and pH-value

Especially for treatments with trace elements and fertiliser additions, attention must be paid to the water hardness and the pH-value to ensure clean surfaces and smooth functioning of all valves.

At a water hardness greater than 15° dH (German water hardness), we recommend the use of polyphosphate-based hardness stabilisers. When complying with the manufacturer specifications, the products are safe for health and the environment.

Product example: Folmar P30 from Aquakorin.

Particularly with crop protection product mixtures with trace elements such as boron, which increase the pH-value, the pH-value of the ready-to-use spray liquid should be kept below </= 7.

Product example:

- Citric acid
- Acidifying agents, such as:
  - pH-Fix from Sudau
  - Spray Plus from Belchim Crop Protection
  - X-Change from De Sangosse

Commercial sprayer cleaning agents are strongly alkaline and therefore neutralise crop protection product residues such as sulphonylurea in the sprayer. In case of limescale in the implement, however, they increase the pH-value and are therefore counterproductive for descaling.

14 Cleaning, maintenance and repairs

WARNING

Danger of crushing, shearing, cutting, being caught or drawn in, winding and knocks through:

- **unintentional falling of the implement raised using the tractor's three-point hydraulic system.**
- **unintentional lowering of raised, unsecured implement parts.**
- **unintentional start-up and rolling of the tractor-implement combination.**

Secure the tractor and implement against unintentional starting and unintentional rolling away before you perform any cleaning, servicing or maintenance work on the implement. See page 131.

WARNING

Risk of crushing, shearing, cutting, being caught and/or drawn in, or impact through unprotected danger points.

- Mount protective equipment, which you removed when cleaning, maintaining and repairing the implement.
- Replace defective protective equipment with new equipment.

DANGER

- **When carrying out maintenance and repair, observe the safety instructions, particularly "Field sprayer operation" section, on page 35.**
- **You may only carry out maintenance or repair work under moving machine parts that are in a raised position if such parts are secured with suitable, positive-fit locking devices against accidental lowering.**

Before each start-up

1. Check the hoses/tubes and connecting pieces for visible defects/leaky connections.
2. Repair any areas of chafing on hoses and tubes.
3. Replace any worn or damaged hose and tubes immediately.
4. Fix leaky connections immediately.

- Regular and proper maintenance will keep your trailed sprayer in good condition for a long time, and will prevent early signs of wear. Regular and proper maintenance is a requirement of our warranty conditions.
- Use only genuine AMAZONE spare parts (see "Spare and wear parts and aids" section, page 18).
- Use only genuine AMAZONE replacement hoses, and hose clamps made of V2A for assembly.
- Specialist knowledge is the requirement for carrying out testing and maintenance operations. This specialist knowledge is not given here in this operating manual.
- Observe environmental protection measures when carrying out cleaning and maintenance work.
- Observe legal requirements when disposing of lubricants, e.g. oils and grease. Also affected by these legal requirements are parts that come into contact with these lubricants.
- Do not exceed a greasing pressure of 400 bar when greasing with high pressure grease guns.
- The following are prohibited
  - drilling the running gear.
  - drilling through pre-existing holes on the transport frame.
  - welding on load-bearing components.
- Protective measures are necessary, such as covering lines or removing lines in particularly critical locations
  - during welding, drilling and grinding work.
  - when working with cutting discs near plastic lines and electric lines.
- Clean the field sprayer thoroughly with water before carrying out repair work.
- Always carry out repair work on the field sprayer with the pump switched off.
- Repair work can only be performed inside the spray liquid tank when it has been thoroughly cleaned! Do not climb into the spray liquid tank!
- Always disconnect the implement cable as well as the power supply from the on-board computer when performing any maintenance and repair work. This applies particularly to welding work on the implement.

14.1 Cleaning

- Pay particular attention to the brake, air and hydraulic hose lines
- Never treat hose lines with petrol, benzene, petroleum or mineral oils. This applies for
  - Brake, air, and hydraulic hoses
  - Spray liquid, seed, fertiliser, and water hoses
- After cleaning, grease the field sprayer, in particular after cleaning with a high pressure cleaner/steam jet or liposoluble agents.
- Observe the legal regulations for handing and disposing of cleaning agents.

Cleaning with a high pressure cleaner/steam jet

- Always observe the following points when using a pressure washer/steam jet for cleaning:
  - Do not clean any electrical components.
  - Do not clean any chrome-plated components.
  - Never aim the cleaning jet of the cleaning nozzle of the high pressure cleaner/steam jet directly at lubrication points, bearings, rating plates, warning signs, and stickers.
  - Always maintain a minimum nozzle distance of 300 mm between the high pressure or steam jet cleaning nozzle and the implement.
  - The set pressure of the high-pressure cleaner/steam jet must not exceed 120 bar.
  - Comply with safety regulations when working with pressure washers.

14.2 Winter storage and long periods out of operation

For winter storage, the remaining water / spray liquid is diluted in the entire liquid circuit with a sufficient amount of antifreeze to prevent frost damage.

100 l of antifreeze are required.

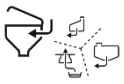
AMAZONE recommends wintering with a propylene glycol-based antifreeze (e.g. Glysofor L).

Liquid fertiliser is not suitable as frost protection and can damage the implement.

1. Clean the implement and empty it completely.
2. Drain the flushing water tank through the hose connection at the bottom of the tank, and reinstall correctly later on.
3. Start the spraying pump.

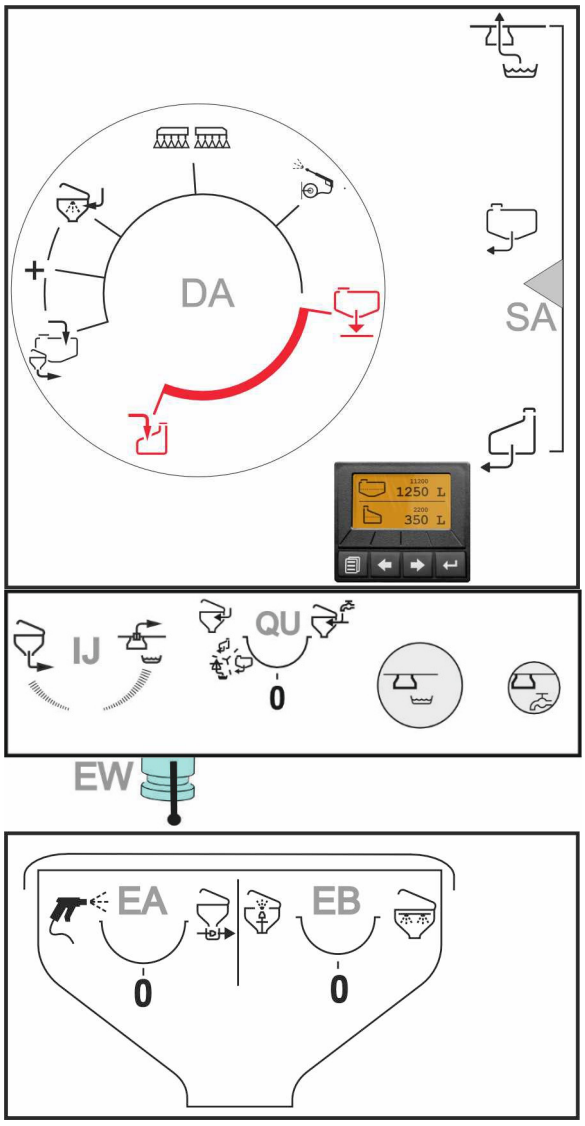
Drawing antifreeze into the flushing water tank:

Alternative: fill in the antifreeze directly through the tank opening of the flushing water tank

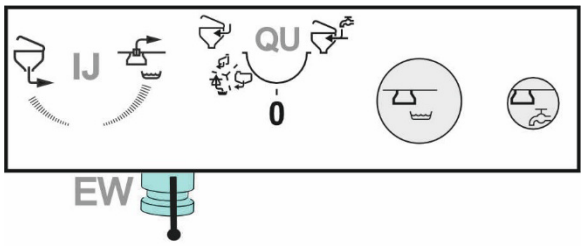
4. Switch tap **QU** in position 
5. Connect the suction hose to the suction connection.
6. Pressure valve chest **DA** in position  .
7. TwinTerminal:  fill the flushing water tank.

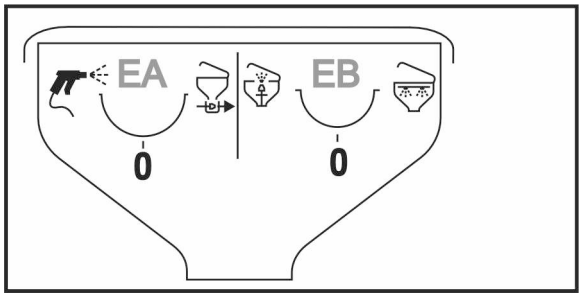
Pumping antifreeze into the spray liquid tank:

8. TwinTerminal:  suction from flushing water tank.
9. When filling through the tank opening of the flushing water tank: pressure valve chest **DA** in position  (10 seconds).
10. Pressure valve chest **DA** in position  .



Distributing the antifreeze:



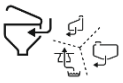


11. TwinTerminal:  suction from the spray liquid tank.
12. Recirculate antifreeze in the entire liquid circuit.

To do so, put the pressure tap **DA** in the following position:

-  internal cleaning (30 seconds)
-  spray the external cleaning into the induction bowl (10 seconds).
-  and change positions on switch tap **IJ**.

  Then switch tap **IJ** in position  .

  Switch tap **QU** in position 

  Change the positions of switch taps **EA**, **EB** on the induction bowl, actuate the corresponding functions for 10 seconds and evacuate the content.

-  and switch the agitator on and off at maximum.

→ DUS: allow the antifreeze to circulate (one minute).

13. TwinTerminal:  activate the circulation cleaning.
14. Implement with HighFlow: drain the HighFlow:

Applying the antifreeze through the nozzles:

15. Unfold the boom.
16. TwinTerminal:  select (Spray liquid suction).
17. Switch on spraying until the antifreeze emerges from the nozzles.

- Part-width section control: Switch on and off several times
- AmaSelect: switch through all of the nozzle positions

18. Switch the boundary nozzles / edge nozzles.

⚠ Collect the sprayed liquid!

⚠ Check the sprayed liquid for sufficient frost protection! If necessary, add more antifreeze and repeat the procedure.

19. TwinTerminal:  Select (XtremeClean) (one minute).

Pumping out the antifreeze:

20. Empty the spray liquid tank using the pump.

    Pressure valve chest **DA** in Position  .

→ Pump the antifreeze and spray liquid mixture into a suitable tank, re-use or dispose of properly.

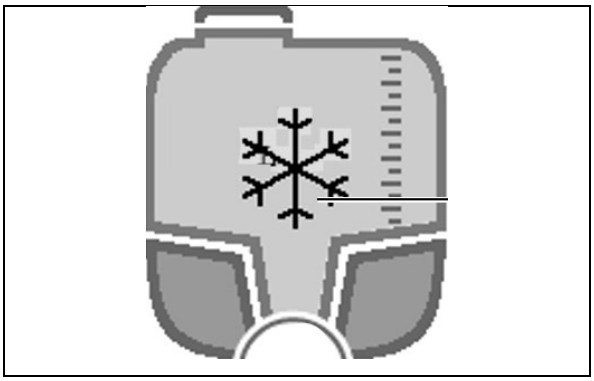
21. Drain the suction filter insert and pressure filter insert.

General information:

22. Implement with HighFlow: drain the HighFlow:

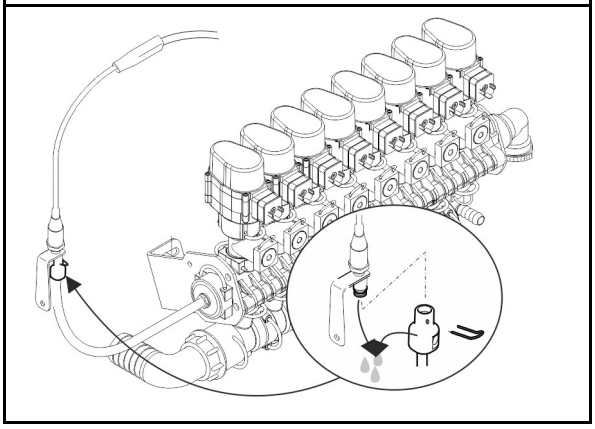
    switch tap under the Highflow pressure filter in position  and allow the spray line to run completely empty.
    Remove the HighFlow pressure filter and clean it.

→ Winterizing is shown on the control terminal.

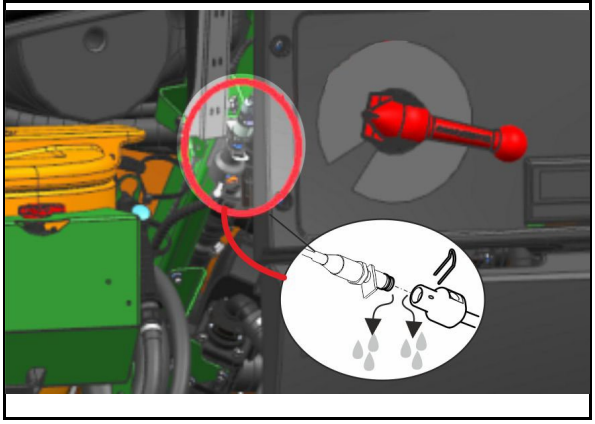


23. Detach the hose from the pressure sensor to drain the pressure sensor.

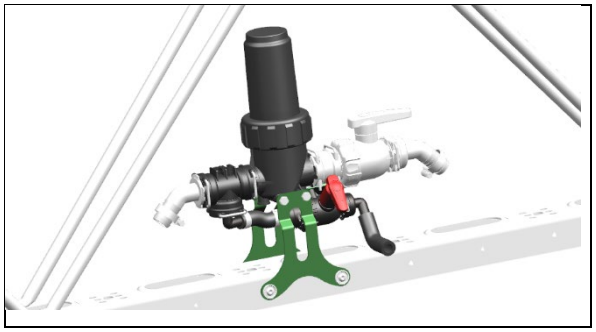
Super-L boom pressure sensor on the boom valve chest



Agitator pressure sensor on the control panel



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



25. Drain the hand wash facility and leave the tap open.
26. Lubricate the cardan joints of the universal joint shaft and grease the profile tubes for longer periods out of operation.
27. Treat the piston rods of the hydraulic cylinders with corrosion protection.
28. Store the pressure gauge and any other electronic accessories in a place where they are safe from frost!
29. Perform an oil change on the pumps before recommissioning.

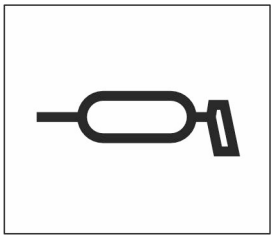
14.3 Lubrication specifications

Grease all lubricating nipples (keep seals clean).

Lubricate / grease the implement at the specified intervals.

Before greasing, carefully clean lubrication points and grease gun to ensure that contamination is not pressed into the bearings.

Press out all the contaminated grease in the bearings.

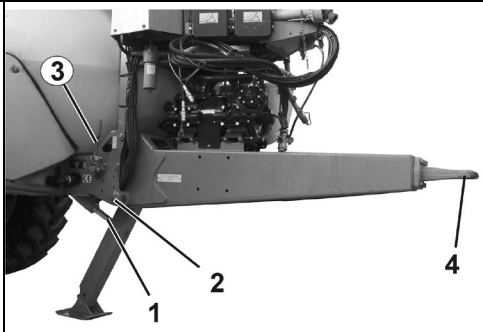


Lubricants

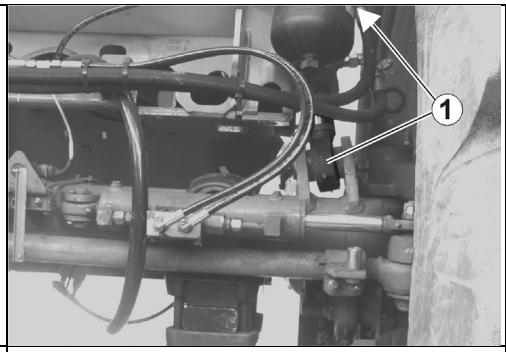
For lubrication work use a lithium saponified multipurpose grease with EP additives:

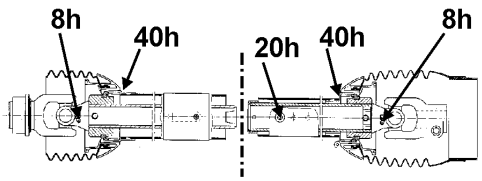
Company	Lubricant designation
ARAL	Aralub HL 2
FINA	Marson L2
ESSO	Beacon 2
SHELL	Retinax A

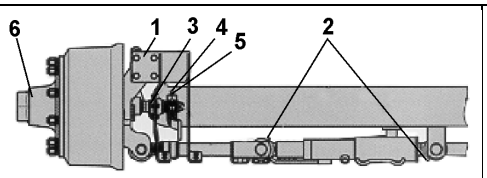
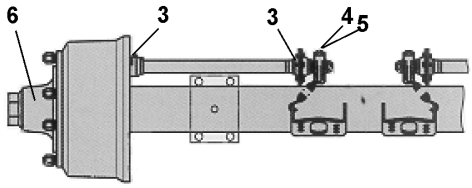
14.3.1 Lubrication point overview

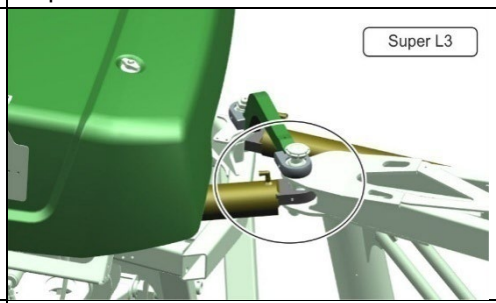
	Lubrication point	Interval [h]	Number of lubrication points	Type of lubrication
				
1	Hydraulic cylinder for jack	100	2	Grease nipple
2	Drawbar bearing	50	2	Grease nipple
3	Parking brake	100	1	Grease the rope and pulleys. Grease the spindle via the grease nipple.
4	Drawbar eye	50	1	Grease

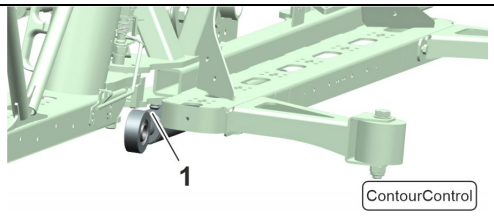
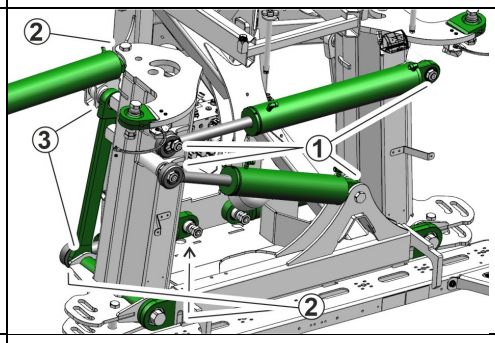
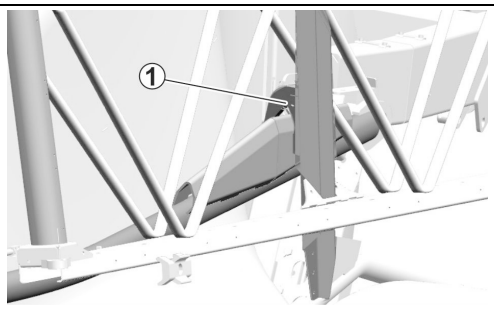
				
1	Lifting cylinder	100	4	Grease nipple

				
1	Hydraulic cylinder for the hydro-pneumatic Suspension	100	4	Grease nipple

	Lubrication point	Interval [h]	Number of lubrication points	Type of lubrication
				
	Universal joint shaft		5	Grease nipple

				
				
1	Steering pin bearing, top and bottom	40		Grease nipple
2	Steering cylinder heads on steering axles	200		Grease nipple
3	Brake shaft bearing, outer and inner	200		Grease nipple
4	Slack adjuster	1000		Grease nipple
5	Automatic boom positioner ECO-Master	1000		Grease nipple
6	Replace grease on wheel hub bearing, check taper roller bearing for wear	1000		Grease nipple

				
	Outer boom locking Super S, Super L1, Super L2	100	2	Grease nipple
				
	Super L3	100	2	Grease nipple

	Lubrication point	Interval [h]	Number of lubrication points	Type of lubrication
				
	ContourControl	100	2	Grease nipple
				
1-3	Super L3 / Flex 2 / > 38 m	100	16	Grease nipple
				
1	Transport locking	250	2	Grease nipple

- For winter operation, grease the protective tubes to prevent them from freezing.
- Also observe the installation and service instructions from the universal joint shaft manufacturer, which are fastened to the universal joint shaft.

Steering cylinder heads on steering axles

In addition to this lubrication work, it must be ensured that the steering cylinders and the supply line are always vented.

Brake shaft bearing, outer and inner

Caution! Grease and oil must not get into the brake. Depending on the series, the cam bearing for the brakes is not sealed.

Use only lithium saponified grease with a drop point above 190° C.

Automatic boom positioner ECO-Master

Each time the brake linings are changed:

1. Remove the rubber sealing cap.
2. Lubricate (80g) until sufficient fresh grease emerges at the adjusting screw.
3. Turn the adjusting screw approx. one turn back with a ring spanner. Actuate the brake lever several times by hand.
4. In doing so, the automatic readjustment must take place smoothly. Repeat several times if necessary.
5. Put on the sealing cap. Grease again.

Renew the wheel bearing grease

1. Jack up the vehicle safely and release the brakes.
2. Remove the wheels and dust caps.
3. Remove the cotter pin and unscrew the axle nut.
4. Use a suitable puller tool to pull off the wheel hub with brake drum, tapered roller bearing and sealing elements from the stub axle.
5. Label removed wheel hubs and bearing cages, so that they are not mixed up when installed.
6. Clean the brake, check it for wear, make sure it is intact and functions and replace worn parts.

   The inside of the brake must be kept free of lubrication and impurities.
7. Thoroughly clean the inside and outside of the wheel hubs. Remove old grease completely. Thoroughly clean bearings and seals (diesel oil) and check for reusability.

   Before installing the bearings, lightly grease the bearing seats and install all parts in the reverse order. Carefully drive parts onto press fits with tube bushings without jamming or damaging them.

   Grease the bearings, the wheel hub cavity between the bearings and the dust cap before installing them. The grease quantity should fill approx. a quarter to a third of the space in the installed hub.
8. Install the axle nut and adjust the bearings and brakes. Then perform a functional check and an appropriate test run, and eliminate any observed faults.

To lubricate the wheel hub bearing, use only BPW Special long-life grease with a drop point above 190°C.

Using the wrong grease or too much grease can cause damage.

Mixing lithium-saponified grease with sodium-saponified grease can result in damage caused by incompatibility.

14.4 Maintenance schedule – overview

- **Execute maintenance tasks after the first scheduled maintenance period has been reached.**
- **The times, running hours or maintenance intervals of any third party documentation shall have priority.**

After the first working run

Component	Servicing work	see page	Workshop work
Wheels	• Check the wheel nuts	218	
Hydropneumatic sprung suspension	• Check the bolts for tight fit.	220	
Trailer hitch	• Check the bolts for tight fit.	220	
Hydraulic system	• Check leak tightness	221	
Spraying pump	• Check the oil level	226	

Daily

Component	Servicing work	see page	Workshop work
Whole implement	• Check for visible defects		
Oil filter (for Profi-folding)	• Check the contamination indicator	224	
	Replace if necessary		**X**
Spraying pump	• Clean, flush	226	
Spray liquid tank		172	
Line filters in the nozzle lines (if equipped)		234	
Spraying nozzles		232	
Brake	• Draining the air reservoir	212	
Spraying pump	• Check the oil level • Check the oil (the oil must not be cloudy)	226	

Weekly / 50 operating hours

Component	Servicing work	see page	Workshop work
Hydraulic system	• Check leak tightness	221	**X**
Tyres	• Check the tyre inflation pressure • Check the tyres for firm seating • Check for damage	218	
Coupling device	• Check for damage, deformation and cracks	219	

Every three months / 200 operating hours

Component	Servicing work	see page	Workshop work
Brake	• Check for leaks • Check the pressure in the air reservoir • Check the brake cylinder pressure • Visual inspection of the brake cylinder • Joints on brake valves, brake cylinders and brake linkages	215	**X**
	• Brake adjustments on the slack adjuster	211	**X**
	• Brake pad check		
	• Automatic load-dependent braking force regulator (ALB)	216	**X**
Wheels	• Check the bearing clearance on the wheel hubs	210	**X**
Line filter	• Clean • Replace damaged filter inserts	234	
Hydropneumatic sprung suspension	• Check the bolts for tight fit.	220	
Parking brake	• Check the braking effect when the parking brake is applied	217	
Booms	• Check the boom sections for cracks or initial crack formation		
Coupling device	• Check the fastening bolts for wear and tight fit	219	

Annually / 1000 operating hours

Component	Servicing work	see page	Workshop work
Spraying pump	• Oil change	228	X
	• Check valves, replace as necessary	228	X
	• Check the piston diaphragm and replace if necessary	228	X
Flow meter and return flow meter	• Calibrate flow meters • Calibrate the return flow meter	231	
Nozzles	• Meter the field sprayer and check the lateral distribution; if necessary, replace worn nozzles	232	
Angular gearbox on the universal joint shaft drive	• Oil change	220	X
Brake drum	• Check for soiling	210	X
Wheels	• Check the wheel nuts	218	
Brake	Automatic slack adjuster: • Functional check • Brake settings	211	X
Pneumatic brake	• Clean the compressed air line filter on the coupling head	213	X
	• Clean the compressed air line filter in the brake line	213	X
AmaSwitch	• Replace the diaphragm of the single-nozzle control	235	

As required

Component	Servicing work	see page	Workshop work
Super-L boom	• Correct the settings	224	X
Hydraulic throttle valves	• Adjust the actuation speed	224	
Single-circuit hydraulic brake system	• Check all brake lines for wear • Check all threaded fittings for leaks • Replace parts that are worn or damaged.	216	
Electro hydraulic boom	• Functional check	226	X

14.5 Axle and brake

For optimum brake performance with a minimum of wear, we recommend that the brakes on the tractor are synchronised with those on the trailed sprayer. After the service braking system has been run in for a suitable period, arrange for the brakes to be synchronised by a specialist workshop.

Have the brakes synchronised before these empirical values are reached if you observe excessive wear of the brake linings.

To avoid problems with the brakes, adjust all vehicles in accordance with EC Guideline 71/320 EEC.

WARNING!

- **Repair and adjustment work on the service braking system should only be carried out by trained specialist personnel.**
- **Special care is required for welding, torch cutting and drilling work in the vicinity of brake lines.**
- **Always perform a braking test after any adjusting or repair work on the braking system.**

General visual inspection

WARNING

Carry out a general visual check of the brake system. Observe and check the following criteria:

- **Tubes, hose lines and coupling heads must not be externally damaged or corroded.**
- **Connecting rods, e.g. on fork heads, must be properly secured, easy to move, and not worn out.**
- **Ropes and cables**
  - **Must be properly run.**
  - **May not have any visible cracks.**
  - **may not be knotted.**
- **Check the piston stroke on the brake cylinders, and adjust as necessary.**
- **The air reservoir must not**
  - **move around in the tensioning belts.**
  - **be damaged.**
  - **show any outward signs of corrosion damage.**

Checking the brake drum for soiling (workshop work)

1. Unscrew the two cover plates (1) on the inside of the brake drum.
2. Remove any dirt and plant residue.
3. Refit the cover plates.

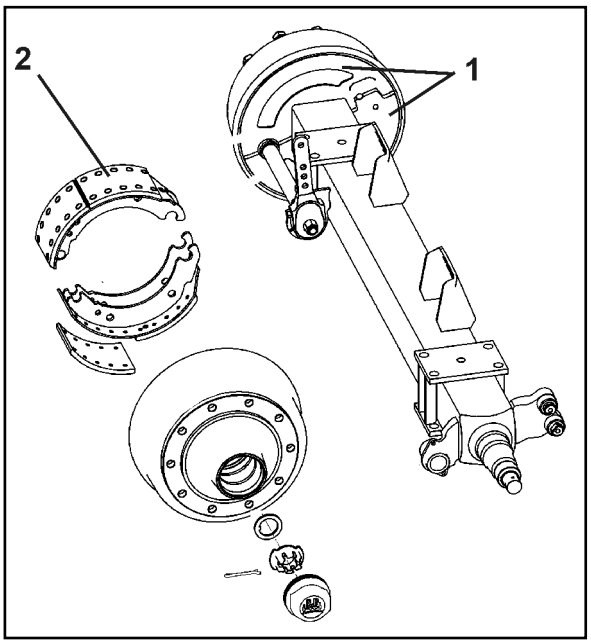
CAUTION

Penetrating dirt may clog the brake linings (2), which considerably reduces the braking power.

Danger of accident!

If there is dirt in the brake drum, the brake linings must be checked by a specialist workshop.

For this purpose, the wheel and brake drum must be detached.



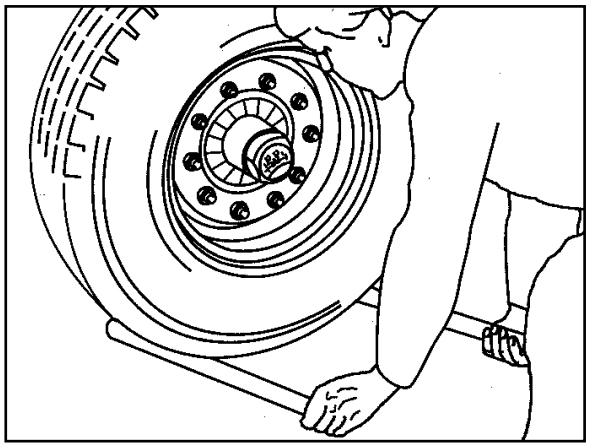
Check bearing clearance on wheel hubs (workshop work)

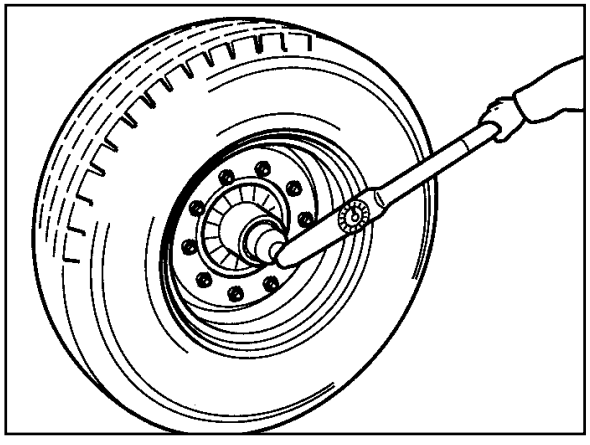
To check the bearing clearance on the wheel hubs, lift the axle until the wheels are free. Release the brake. Place a lever between the tyre and the ground and check the bearing clearance.

If there is noticeable bearing clearance:

Adjusting the bearing clearance

- Remove the dust cup or hub cap.
- Remove the cotter pin from the axle nut.
- Tighten the wheel nut by simultaneously turning the wheel until the run of the wheel hub is lightly braked.
- Turn the axle nut back to the next possible cotter pin hole. If there is congruence, to the next hole (max. 30°).
- Insert the cotter pin and bend it up slightly.
- Replenish the dust cap with some long-life grease and pound or screw it into in the wheel hub.





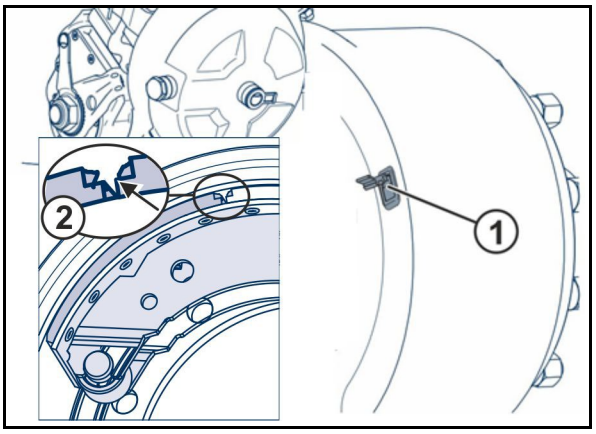
Brake pad check

To check the brake pad thickness, open the inspection hole (1) by opening the rubber tab.

Changing the brake pads → Workshop work

Criterion for changing the brake pads:

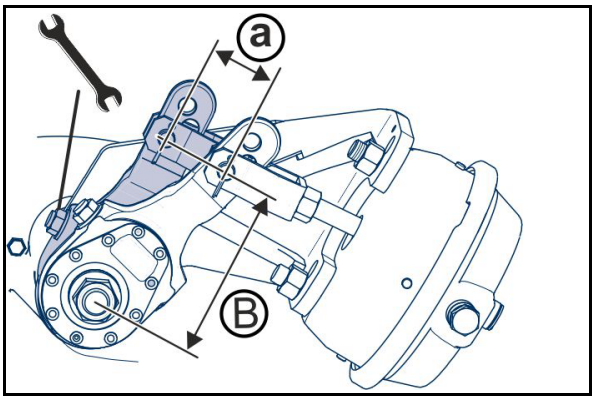
- Minimum pad thickness of 5 mm was reached.
- Wear edge (2) was reached.



Adjustment on the slack adjuster (workshop work)

Manually actuate the slack adjuster in the push direction. If the free travel of the long-stroke diaphragm cylinder pressure rod is max. 35 mm, the wheel brake must be readjusted.

The setting is carried out on the hexagonal adjusting screw of the slack adjuster. Set the free travel "a" to 10-12 % of the connected brake lever length "B",
e.g. lever length 150 mm = free travel 15 - 18 mm.

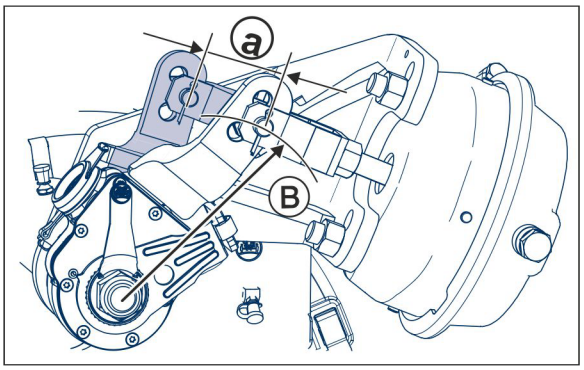


Checking the function of the automatic slack adjuster

1. Secure the machine against rolling away and release the service brake and parking brake.
2. Manually actuate the slack adjuster.

The free travel (a) may be a maximum of 10-15% of the connected brake lever length (B) (e.g. brake lever length 150 mm = free travel 15 – 22 mm).

Readjust the slack adjuster if the free travel is outside of the tolerance. → Workshop work



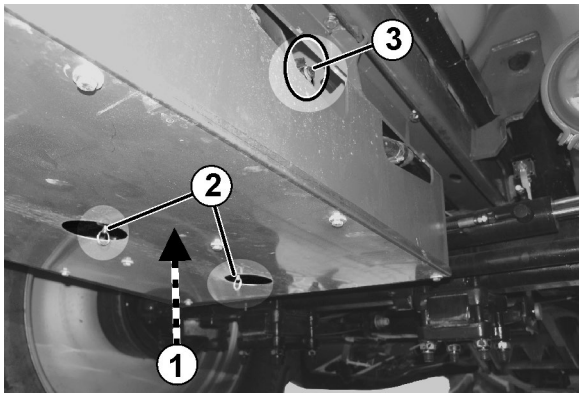
Air reservoir

Drain the air reservoir every day.

(1) Air reservoir

(2) Drainage valve

(3) Test connection for pressure gauge



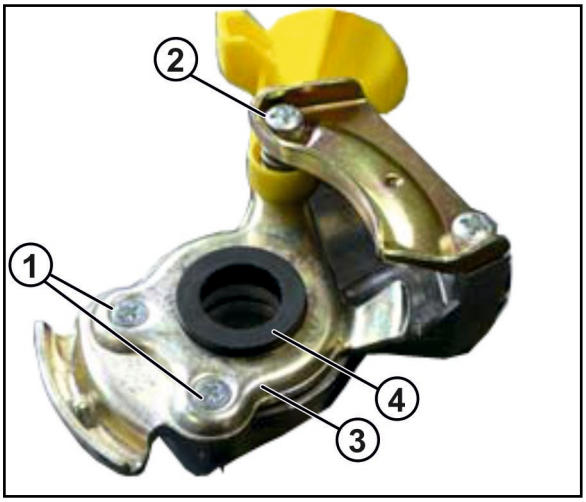
1. Pull the drainage valve in a sideways direction using the ring until no more water escapes from the air reservoir.

→ Water flows out of the drainage valve.

2. Unscrew the drainage valve from the air reservoir and clean the air reservoir if there are signs of dirt

14.5.1 Cleaning the compressed air line filter on the coupling head

Perform work in an unpressurized state. Secure the implement against rolling away.



1. Remove the bolt locking compound by hammering and remove the bolts (1).
2. Unscrew the bolts (2) by a few turns.
3. Lift the plate (3) over the rubber seal (4) and turn to the side.

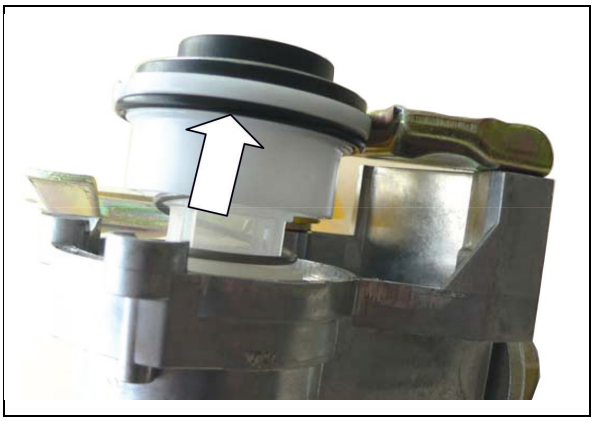
The unit is under spring tension.

4. Remove the rubber seal.

5. Clean and grease the sealing surfaces, O-ring and compressed air line filter.

→ Replace the rubber seal if necessary.

Correctly position the O-ring on the plastic ring.

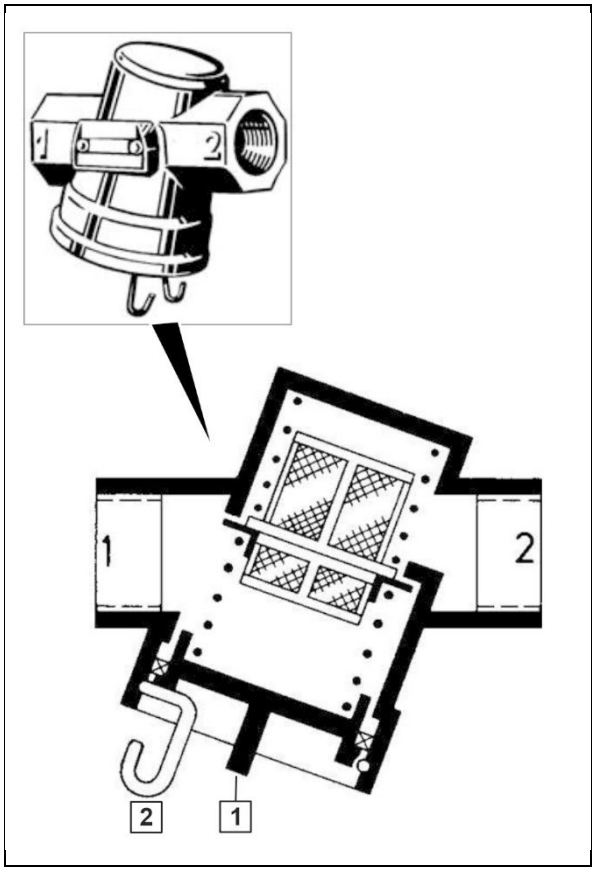


6. Reassemble in the reverse sequence.

- Bolt tightening torque (1): 2.5 Nm
- Bolt tightening torque (2): 7 Nm

14.5.2 Cleaning the compressed air line filter in the brake line

1. Press in the cover (1).
2. Take out the snap ring (2).
3. Take out the cover and compressed air line filter with 2 springs.
4. Clean or replace the compressed air line filter.
5. Grease the sealing ring.
6. Reassemble in the reverse sequence.



Test instructions for dual circuit service brake system (workshop work)

1. Leak tightness check

1. Check all connections, pipe lines, hose lines and screw connections are tight.
2. Remedy any leaks.
3. Repair any areas of chafing on pipes and hoses.
4. Replace porous and defective hoses.
5. The dual-circuit service brake system may be considered tight if within 10 minutes the pressure does not drop any more than 0.15 bar.
6. Seal any leaking areas or replace leaking valves.

2. Checking the pressure in the air reservoir

1. Connect a pressure gauge to the test connection on the air reservoir.

   Target value 6.0 to 8.1 $^{+\,0.2}$ bar

3. Checking the brake cylinder pressure

1. Connect a pressure gauge to the test connection on the brake cylinder.

   Target value: with brake not applied 0.0 bar

4. Visual inspection of brake cylinder

1. Check the dust collars or bellows (5) for damage.
2. Replace damaged parts.

5. Joints on brake valves, brake cylinders and brake linkages

Joints on brake valve, brake cylinders and brake linkages must slide smoothly, lubricate or grease lightly if necessary.

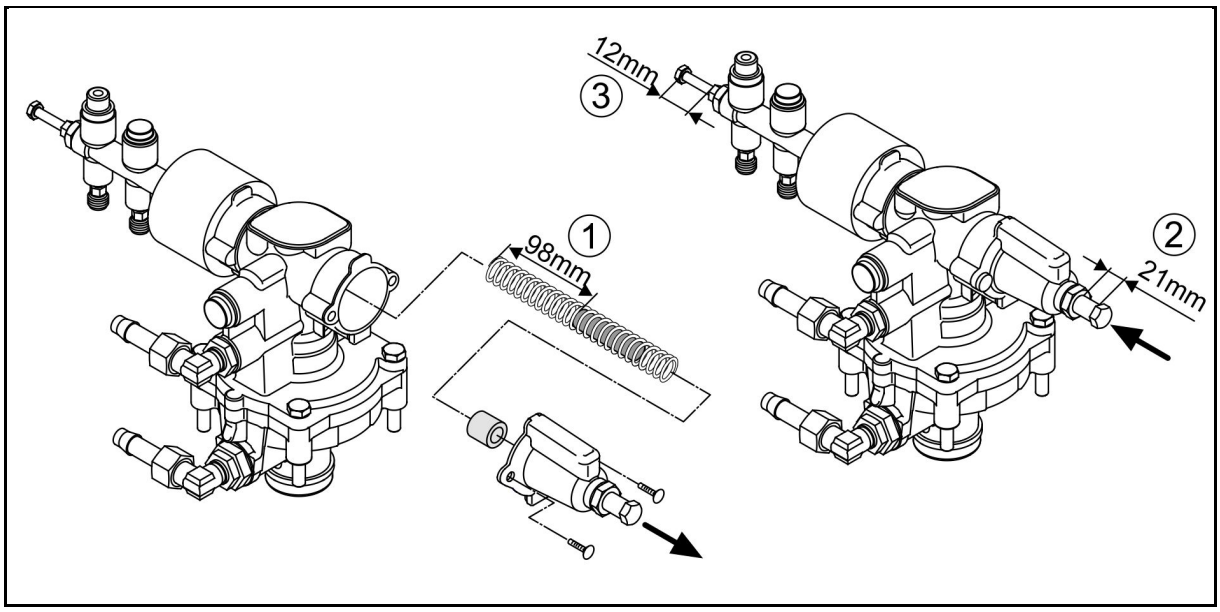
Adjustment values for automatic load-dependent braking (ALB)

When replacing the breaking force regulator, the adjustment values 1, 2, and 3 must be set.

(1) Effective length of the compression spring

(2) Free thread length between nut and cap

(3) Free thread length between nuts and bolts



14.5.3 Single-circuit hydraulic brake system

Checking the single-circuit hydraulic brake system

- Check all brake hoses for wear
- check all screw unions for seal tightness
- renew any worn or damaged parts.

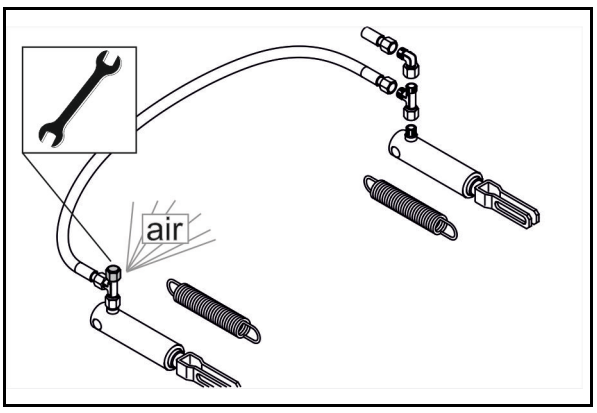
Venting the single-circuit hydraulic brake system (workshop task)

After each brake repair, for which the system has been opened, bleed the brake system, because air may have entered the pressure hoses.

1. Slightly loosen the vent valve.
2. Actuate the tractor brake.
3. Close the vent valve as soon as oil escapes.

→ Collect the escaping oil.

4. Perform a brake check.



14.6 Parking brake

On new implements, the brake cables for the parking brake can stretch.

Readjust the parking brake

- if three-quarters of the spindle tensioning distance is required to firmly apply the parking brake.
- if you have just fitted new brake linings.

Readjusting the parking brake

When the parking brake is released, the brake cable must be slightly slack. In doing so, the brake cable may not rest or rub against other vehicle parts.

1. Loosen the cable clips.
2. Shorten the brake cable accordingly and then tighten the cable clips again.
3. Check for the proper braking effect when the parking brake is applied.

14.7 Tyres / wheels

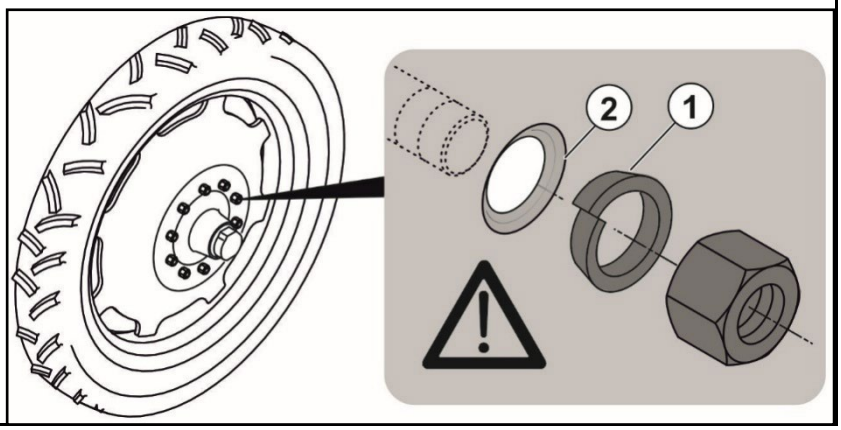
1. Check the bolted connections.
2. Check and adjust the tyre inflation pressure according to the specifications on the sticker on the rim.
3. Check the tyres for damage and firm seating on the rim.

- **Required tightening torque for wheel nuts or bolts: 510 Nm**

To assemble the wheels, use:

(1) conical rings in front of the wheel nuts.

(2) only rims with a fitting countersink for the conical ring.



- Only use the tyres and rims that we have specified.
- Repair work on tyres must only be carried out by specialists using suitable assembly tools.
- Tyre fitting requires sufficient skills and proper assembly tools.
- Use the jack only at the marked jacking points!

14.7.1 Mounting tyres (workshop work)

- Remove any instances of corrosion from the wheel rim seating surfaces before fitting a new / another tyre. Corrosion can cause damage to the wheel rims when the vehicle is in operation.
- When fitting new tyres, always use new valves for tubeless tyres or new inner tubes.
- Always fit the valves with valve caps which have a gasket insert.

14.8 Check the coupling device

DANGER!

- **Replace a damaged drawbar with a new one immediately - for road traffic safety reasons.**
- **Repairs may only be carried out by the manufacturer factory.**
- **For safety reasons, it is forbidden to weld on and drill holes in the drawbar.**

Check the coupling device (drawbar, lower link traverse, ball coupling, drawbar eye) for the following:

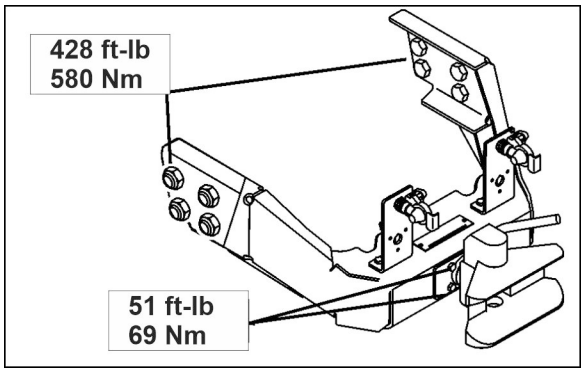
- damage, deformation, cracks
- wear
- tight fit of the fastening bolts

Coupling device		Wear dimension		Fixing bolts	Number	Tightening torque	
Lower link traverse	Cat. 3	1,36 in	34.5 mm	M20 8.8	8	302 ft-lb	410 Nm
	Cat. 4:	1,89 in	48.0 mm				
	Cat. 5:	2,20 in	56.0 mm				
Ball coupling							
K80 (LI009)		3,23 in	82 mm	M16 10.9	8	221 ft-lb	300 Nm
K80 (LI040)		3,23 in	82 mm	M20 10.9	8	302 ft-lb	560 Nm
K80 (LI015)		3,23 in	82 mm	M20 10.9	12	413 ft-lb	560 Nm
Drawbar eye							
D35 (LI038)		1,65 in	42 mm	M16 12.9	6	251 ft-lb	340 Nm
D40 (LI017)		1,63 in	41.5 mm	M16 10.9	6	221 ft-lb	300 Nm
D40 (LI006)		1,67 in	42.5 mm	M20 8.8	8	291 ft-lb	395 Nm
D46(LI034)		1,89 in	48 mm	M20 10.9	12	406 ft-lb	550 Nm
D50 (LI037)		2,36 in	60 mm	M16 12.9	4	251 ft-lb	340 Nm
D50 (LI010)		2,02 in	51.5 mm	M16 10.9	8	221 ft-lb	300 Nm
D50 (LI059)		2,02 in	51.5 mm	M20 10.9	4	413 ft-lb	560 Nm
D50 (LI011)		2,02 in	51.5 mm	M20 8.8	8	302 ft-lb	410 Nm
D50 LI060)		2,07 in	52.5 mm	M20 10.9	8	413 ft-lb	560 Nm
D51 (LI039)		2,09 in	53 mm	M20 10.9	12	443 ft-lb	600 Nm
D51 (LI069)		2,09 in	53 mm	M16 10.9	6	214 ft-lb	290 Nm
D58 (LI031)		2,36 in	60 mm	M20 10.9	12	406 ft-lb	550 Nm
D62 (LI007)		2,50 in	63.5 mm	M20 10.9	8	435 ft-lb	590 Nm
D79 (LI021)		3,19 in	81 mm	M20 10.9	12	406 ft-lb	550 Nm

14.9 Towing device

Check the bolts for tight fit.

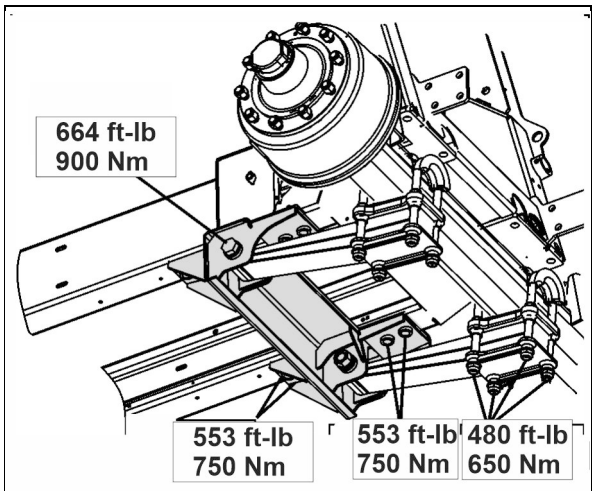
Observe the specified tightening torques.



14.10 Hydropneumatic spring suspension

Check the bolts for tight fit.

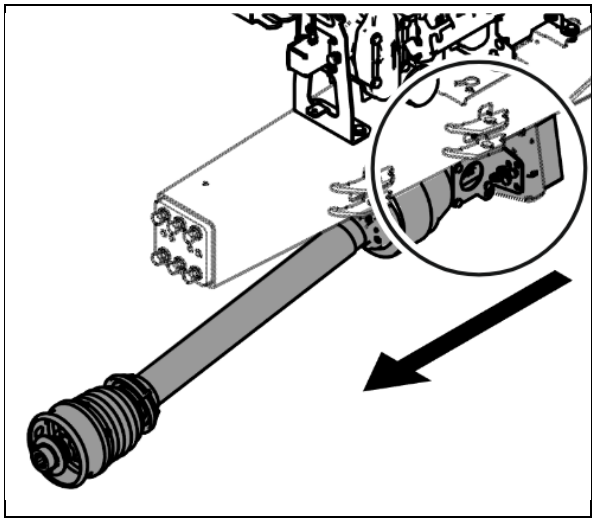
Observe the specified tightening torques.



14.11 Changing the oil of the angular gearbox on the universal joint shaft drive

1. Dismount gearbox.
2. Check gearbox for leaks.
3. Replace defective seals.
4. Change the oil.
5. Mount gearbox.

Gear oil: 0.65 l, ISO VG 150 EP/SAE 90



14.12 Hydraulic system

WARNING

Risk of infection through the high pressure hydraulic fluid of the hydraulic system entering the body.

- Only a specialist workshop may carry out work on the hydraulic system.
- Depressurise the hydraulic system before carrying out work on the hydraulic system.
- When searching for leak points, always use suitable aids.
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.

  Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!

  If you are injured by hydraulic fluid, contact a doctor immediately. Risk of infection!

- When connecting the hydraulic hose lines to the hydraulic system of connected implements, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if they are damaged or worn. Only use genuine AMAZONE hydraulic hose lines!
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural aging, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose lines made of thermoplastics, other guide values may be decisive.
- Dispose of old oil in compliance with regulations. If you have problems with disposal, contact your oil supplier.
- Keep hydraulic fluid out of the reach of children!
- Ensure that no hydraulic fluid enters the soil or waterways.

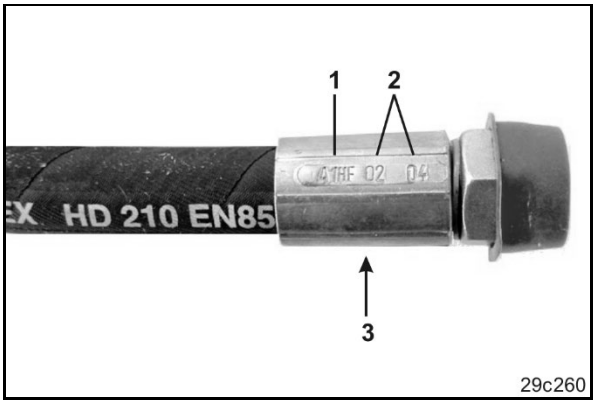
14.12.1 Labelling of hydraulic hose lines

The valve chest identification provides the following information:

(1) Manufacturer's marking on the hydraulic hose line (A1HF)

(2) Date of manufacture of the hydraulic hose line (02 04 = February 2004)

(3) Maximum approved operating pressure (210 BAR).



14.12.2 Maintenance intervals

After the first 10 operating hours, and then every 50 operating hours

1. Check all the components of the hydraulic system for tightness.
2. If necessary, tighten screw unions.

Before each start-up:

1. Check hydraulic hose lines for visible damage.
2. Eliminate any scouring points on hydraulic hose lines and pipes.
3. Replace any worn or damaged hydraulic hose lines immediately.

14.12.3 Inspection criteria for hydraulic hose lines

For your own safety and to reduce environmental pollution, comply with the following inspection criteria!

Replace hoses if the respective hose fulfils at least one of the following criteria:

- Damage to the outer layer up to the ply (e.g. scouring points, cuts, cracks).
- Brittleness of the outer layer (crack formation of the hose material).
- Deformations that do not match the natural shape of the hose. Both in a depressurized and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
- Leak points.
- Installation requirements not complied with.

- Life span of 6 years has been exceeded.

  The date of manufacture of the hydraulic hose line on the valve chest plus six years is decisive. If the date of manufacture on the assembly is "2004", then the hose should not be used beyond February 2010. For more information, see "Labelling of hydraulic hose lines".

Common causes for leaking hoses / pipes and connection pieces include:

- missing O-rings or gaskets
- damaged or badly fitting O-rings
- brittle or deformed O-rings or gaskets
- foreign bodies
- badly fitting hose clamps

14.12.4 Installation and removal of hydraulic hose lines

You must

- only use genuine AMAZONE replacement hoses. These replacement hoses withstand the chemical, mechanical and thermal strains.
- always use hose clamps made from V2A for fitting hoses.

When installing and removing hydraulic hose lines, always observe the following information:

- Ensure cleanliness.• Always install the hydraulic hose lines to ensure the following in all operating positions
  - o There is no tension, apart from the hose's own weight.
  - o There is no possibility of jolting on short lengths.
  - o Outer mechanical influences on the hydraulic hose lines are avoided.

    Use appropriate arrangements and fixing to prevent any scouring of the hoses on components or on each other. If necessary, secure hydraulic hose lines using protective covers. Cover sharp-edged components.
  - o The approved bending radii may not be exceeded.

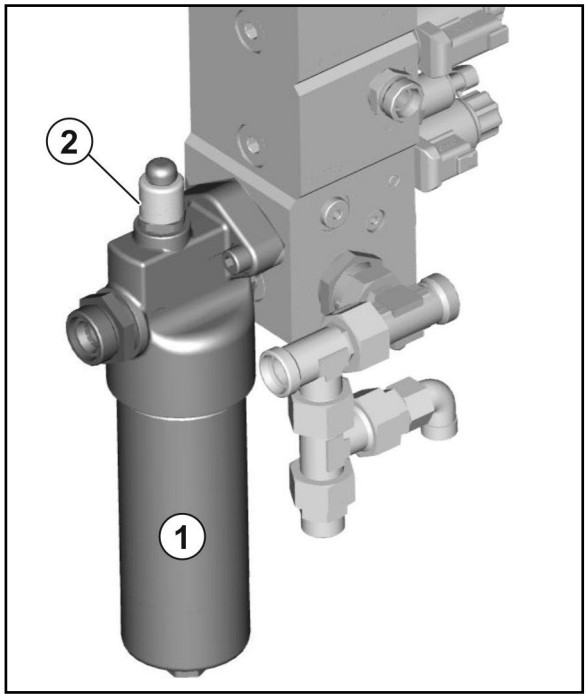
- When connecting a hydraulic hose line to moving parts, the hose length must be appropriate so that the smallest approved bending radius is not undershot over the whole area of movement and/or the hydraulic hose line is not over-tensioned.
- Fasten the hydraulic hose lines at the specified fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- It is forbidden to apply paint on the hydraulic hose lines!

14.12.5 Oil filter

- Oil filter for Profi-folding
- Oil filter for hydraulic pump drive

Hydraulic oil filter (1) with contamination indicator (2).

- Green Filter is working
- Red Replace filter



Checking the oil filter for contamination

The hydraulic oil must have reached operating temperature.

1. Press in the contamination indicator.
2. Continue working with the implement.
3. Observe the contamination indicator.

Replacing the oil filter

To dismantle the filter, unscrew the filter lid and remove the filter.

CAUTION

Depressurise the hydraulic system beforehand.

Otherwise, there is danger of injuries from escaping hydraulic oil at high pressure.

After replacing the oil filter, press the contamination indicator back down.

→ **Green ring is visible again.**

14.12.6 Adjusting the hydraulic throttle valve

The operating speeds for the individual hydraulic functions are set at the factory using the respective hydraulic throttle valves on the valve block (fold/unfold sprayer boom, lock/unlock the vibration compensation, etc.). However, depending on the type of tractor, it may be necessary to correct these speed settings.

The operating speed for a hydraulic function associated with a particular throttle pair can be adjusted by screwing the hexagon socket head screw on the corresponding throttle in or out.

- Reduce operating speed = screw in hexagon socket head screw.
- Increase operating speed = screw out hexagon socket head screw.

Always adjust the two throttles in a throttle pair equally when correcting the operating speed of a hydraulic function.

14.13 Hydro-pneumatic pressure reservoir

WARNING
Risk of injury when working on the hydraulic system with pressure reservoir.

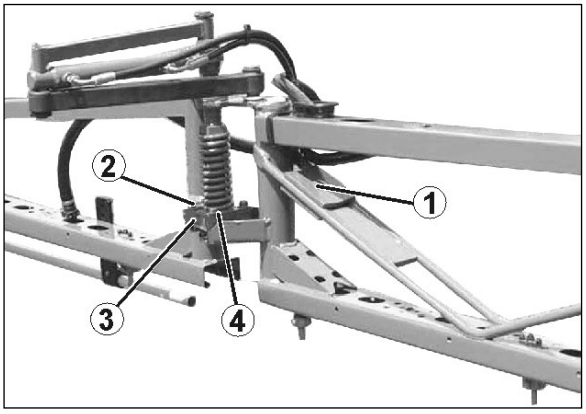
Work on the hydraulic block and hydraulic hoses with the pressure reservoir connected may only be performed by specialist personnel.

14.14 Settings on the unfolded sprayer boom

Alignment parallel to the ground

When the sprayer boom is unfolded and correctly adjusted, all of the spraying nozzles must have the same parallel distance from the ground.

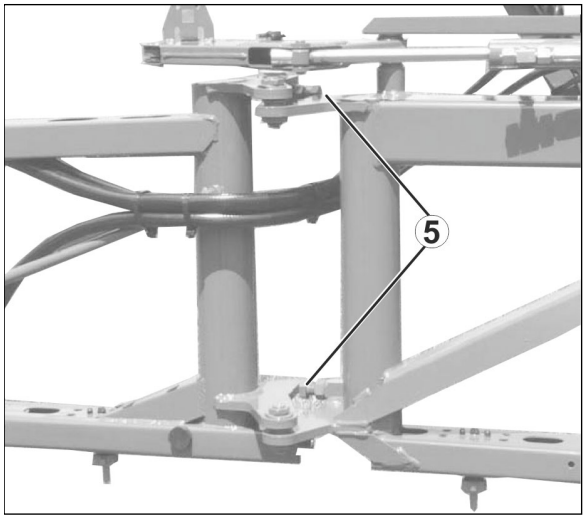
If this is not the case, align the unfolded sprayer boom using counterweights (1) with the vibration compensation **unlocked**. Attach the counterweights accordingly on the boom.



Horizontal alignment

In the direction of travel, all of the boom sections of the sprayer boom must be aligned. Horizontal alignment can be necessary

- after long periods of operation
- or rough ground contact of the sprayer boom.



inner boom

1. Loosen the lock nut of the adjusting screw (5).
2. Turn the adjusting screw against the stops until the inner boom section is aligned with the centre part of the boom.
3. Tighten the lock nut.

Outer boom section

1. Loosen the bolts (2) for the fastening lug (3). Alignment is carried out right on the plastic jaw
(4) using the elongated slots of the fastening lug.
2. Align the boom section.
3. Tighten the bolts (2).

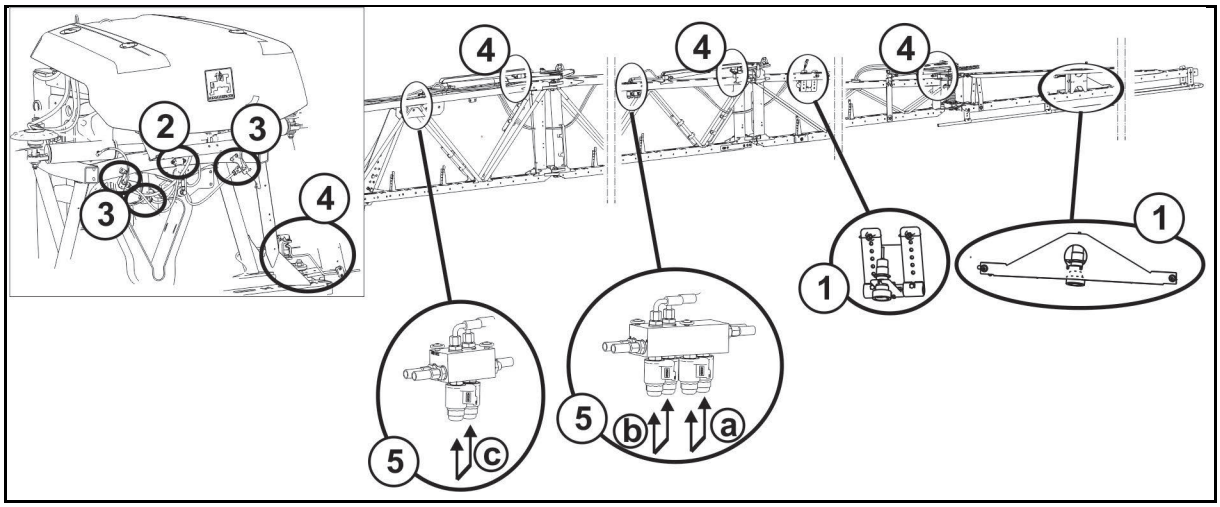
14.15 Electro hydraulic boom

WARNING

Risk of injury due to accidental movement of the sprayer boom in automatic mode when entering the radiation area of the ultra-sound sensor.

Lock the sprayer boom

- Before leaving the tractor.
- If unauthorised persons are standing in the area of the sprayer boom.



(1) Ultrasound sensors for boom tilt

(2) Yaw rate sensor for boom tilt

(3) Potentiometer for boom tilt

(4) Potentiometer for boom folding

(5) Hydraulic block with manual emergency folding function

Emergency folding function for the outer boom sections

In case of defective wiring harness, the boom sections can be hydraulically folded by manual actuation of the hydraulic block (5a, b, c).

→ Control terminal is switched on, oil circulation is active.

- Press the button on both solenoids 5a: outer boom section is folded.
- Press the button on both solenoids 5b: 2nd boom section from the outside is folded.
- Press the button on both solenoids 5c: 3rd boom section from the outside is folded.

Emergency folding with intact electronics:

See ISOBUS operating manual / settings / implement.

14.16 Pump

WARNING

Risks due to accidental contact with spray liquid!

Clean the implement with flushing water before you remove the spraying pump or other components that come into contact with spray agent or spray liquid.

14.16.1 Check the oil level

- Only use branded oil 20W30 or multi-purpose oil 15W40!
- Check that the oil level is correct! Damage may be caused both by the oil level being too low or too high.
- As the pump is not in a horizontal position at the hitch drawbar, average the oil level read.
- Foam generation and cloudy oil are signs of a faulty pump membrane.
  Do not run a defective pump.

1. Check whether the oil level is visible at the mark with the pump not running and standing on a level surface.
2. Check whether the oil is clear.
3. If the oil level is not visible at the mark, remove the lid and top up with oil.

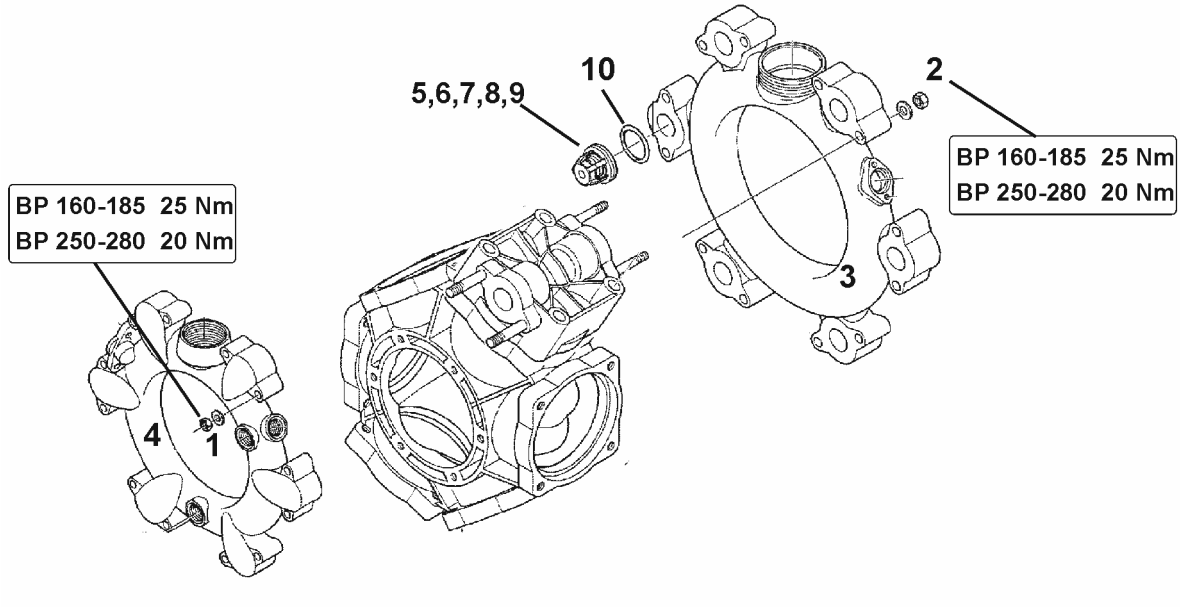
14.16.2 Changing the oil of the spray liquid pump

1. Remove the pump.
2. Take off the cover.
3. Drain the oil.
   - 3.1 Turn the pump upside down.
   - 3.2 Turn the drive shaft by hand until the spent oil has completely flowed out.

     The option also exists to drain the oil via the drain plug. However, with this procedure, a slight oil residue remains in the pump; we therefore recommend the first procedure.
4. Place the pump on a level surface.
5. Turn the drive shaft alternately right and left and slowly fill with new oil.
6. Mount the pump.
7. Briefly drive the pump.
8. Pour in the remaining quantity of oil for the sight glass, until oil is visible at the mark.

14.16.3 Checking and replacing the suction and pressure-side valves (workshop work)

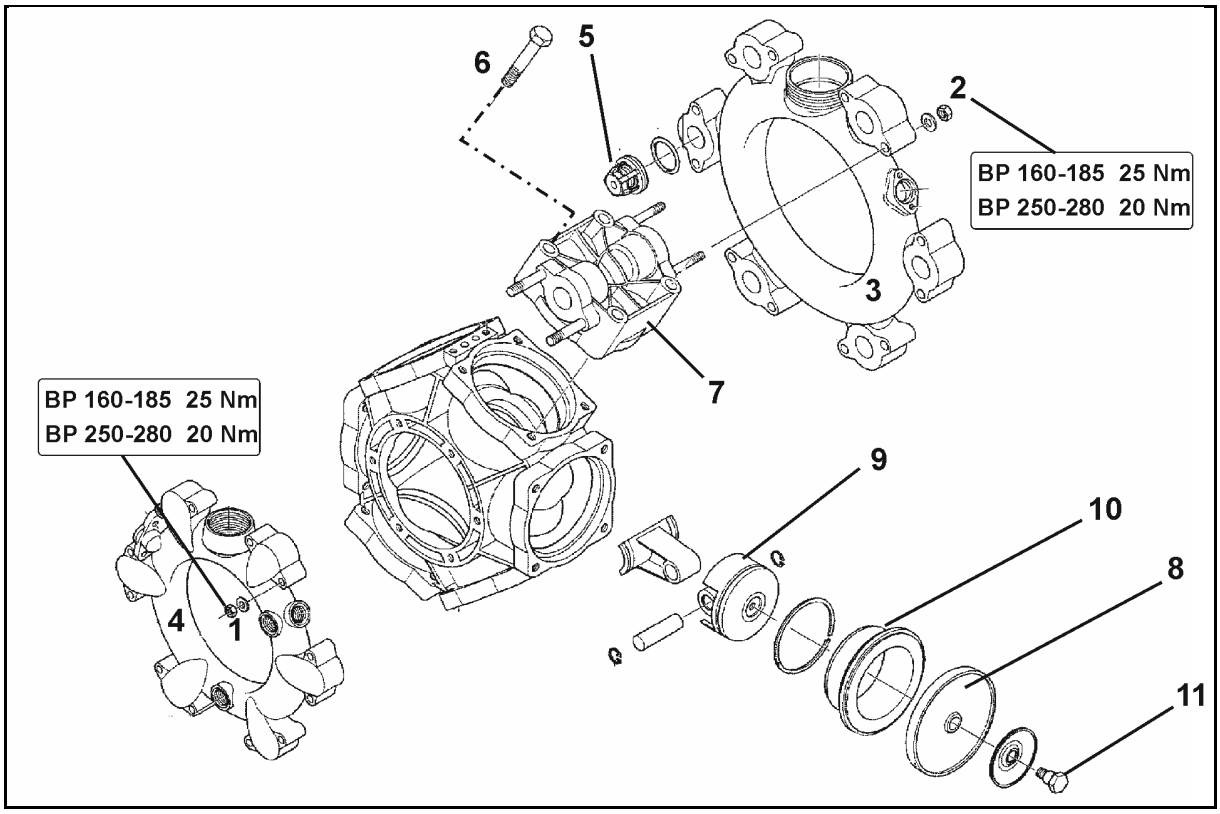
- Pay attention to the respective installation position of the valves on the suction and pressure sides before removing the valve group (5).
- When reassembling, ensure that the valve guide (9) is not damaged. Damage may cause the valves to jam.
- Always tighten the nuts (1,2) crosswise using the specified torque. Improper tightening of the nuts causes warping, which results in leaks.



1. If necessary, remove the pump.
2. Remove the nuts (1,2).
3. Remove the suction and pressure port (3 and 4).
4. Remove the valve groups (5).
5. Check the valve seat (6), valve (7), valve spring (8) and valve guide (9) for damage or wear.
6. Remove the O-ring (10).
7. Replace defective parts.
8. Fit the valve groups (5) after testing and cleaning.
9. Insert new O-rings (10).
10. Mount the suction (3) and pressure port (4) on the pump housing.
11. Tighten the nuts (1,2) crosswise using a torque of 18 ft-lb / **25 Nm (BP 160-185) / 15 ft-lb 20 Nm (AR 250-280)**.

14.16.4 Checking and replacing the piston diaphragm (workshop work)

- At least once a year, check that the piston diaphragm (8) is in perfect condition by removing it.
- Pay attention to the respective installation position of the valves on the suction and pressure sides before removing the valve group (5).
- Check and replace the piston diaphragm for each piston individually. Only remove the next piston in sequence after the currently removed piston has been completely checked and refitted.
- Always swivel the piston to be checked upwards so that the oil in the pump housing does not run out.
- As a rule, replace all piston diaphragms (8) even if only one piston diaphragm is distorted, punctured or porous.



Checking the piston diaphragm

1. If necessary, remove the pump.
2. Unscrew the nuts (1, 2).
3. Remove the suction and pressure port (3 and 4).
4. Remove the valve groups (5).
5. Remove the bolts (6).
6. Remove the cylinder head (7).
7. Check the piston diaphragm (8).
8. Replace the damaged piston diaphragm.

Replacing the piston diaphragm

- Ensure the correct position for the recesses and/or holes on the hydraulic cylinders.
- Secure the piston diaphragm (8) with a washer disc and a bolt (11) on the piston (9), so that the rim shows on the cylinder head side (7).
- Always tighten the nuts (1,2) crosswise using the specified torque. Improper tightening of the nuts causes warping, which results in leaks.

1. Loosen the bolt (11) and remove the piston diaphragm (8) together with the holding washer from the piston (9).
2. If the piston diaphragm has been punctured, drain the oil/spray liquid mixture from the pump housing.
3. Remove the hydraulic cylinder (10) from the pump housing.
4. Clean the pump housing by flushing it thoroughly with diesel oil or paraffin.
5. Clean all sealing faces.
6. Insert the cylinder (10) back into the pump housing.
7. Fit the piston diaphragm (8).
8. Align the cylinder head (7) on the pump housing and tighten the bolts (6) evenly in a crosswise fashion.

   Use thread lock for medium-fixed connections!
9. Fit the valve groups (5) after testing and cleaning.
10. Insert new O-rings.
11. Mount the suction (3) and pressure port (4) on the pump housing.
12. Tighten the nuts (1,2) crosswise using a torque of 18 ft-lb / **25 Nm (BP 160-185) / 15 ft-lb 20 Nm (AR 250-280)**.

14.17 Calibrate the flow meter

Refer to the ISOBUS software operating manual; section "Pulses per litre".

14.18 Metering the field sprayer

Test the field sprayer by metering

- **before the start of the season.**
- **each time the nozzles are changed.**
- **to check the setting information in the spray tables.**
- **in the case of deviations between the actual and required application rate [l/ha].**

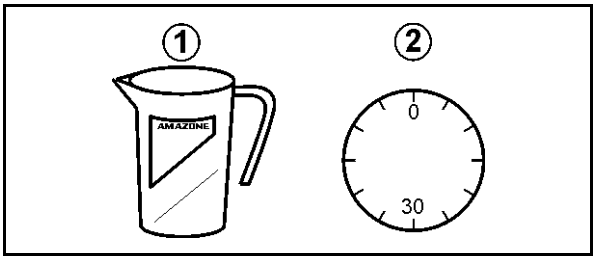
Observed deviations between the actual and required application rate [l/ha] can be caused by:

- the difference between the actual forward speed and that indicated on the tractor meter and/or
- natural wear to the spraying nozzles.

Accessories required for metering:

(1) Quick-check cup

(2) Stopwatch



Determining the actual application rate while stationary via the individual nozzle output

Determine the nozzle output on at least 3 different nozzles. To do so, check one nozzle on the left and right boom section respectively, and one in the middle of the sprayer boom, as follows.

1. Control terminal:

   1.1 Enter the value for the required application rate on the control terminal.

   1.4 Enter simulated speed.
2. Fill the spray liquid tank with water (approx. 264 gal / 1000 l).
3. Switch on the agitator.
4. Switch on the sprayer and check that all of the nozzles work properly.
5. Determine the individual nozzle output [l/min] on several nozzles.

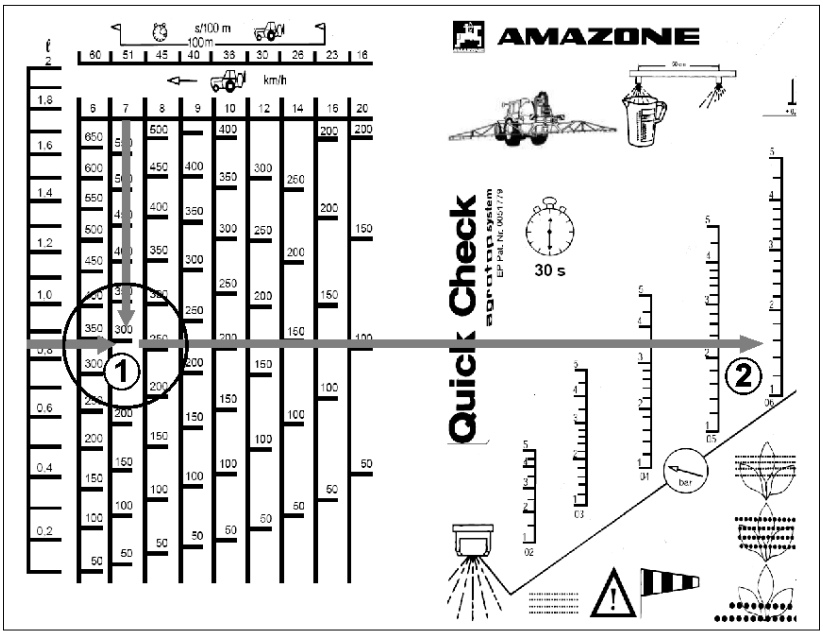
   To do so, hold the quick-check cup for exactly 30 seconds under a nozzle.
6. Switch off the spraying.
7. Determine the average individual nozzle output [l/ha].

- Using the table on the quick-check cup.
- By calculation.
- Using the spray table.

Example:

Noz. size	'06'
Intended forward speed	7 km/h
Nozzle output on the left boom section:	0.85 l/30s
Nozzle output in the middle	0.84 l/30s
Nozzle output on the right boom section:	0.86 l/30s
Calculated average value:	**0.85 l/30s →** **1.7 l/min**

1. Determining the individual nozzle output [l/ha] with the quick-check cup



(1) →Determined application rate 31 gal/ac [290 l/ha]
(2) →Determined spray pressure 23 psi [1.6 bar]

2. Calculating the individual nozzle output [l/ha]

$$\frac{d\ [l/min] \times 1200}{e\ [km/h]} = \text{Application rate } [l/ha]$$

- d: Nozzle output (calculated average value) [l/min]
- e: Forward speed [km/h]

$$\frac{1.7\ [l/min] \times 1200}{7\ [km/h]} = 291\ [l/ha]$$

3. Reading the individual nozzle output [l/ha] from the spray table

From the spray table (see page 248):

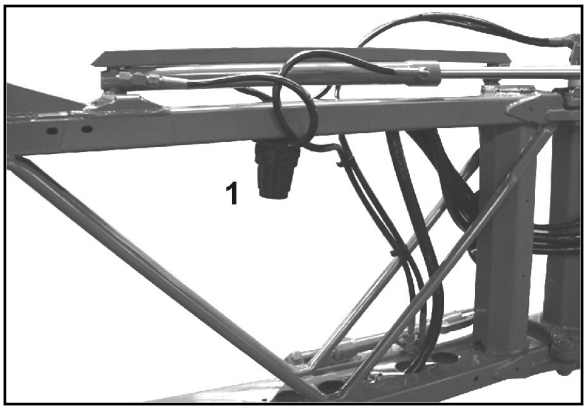
→ Application rate 291 l/ha
→ Spray pressure 1.6 bar

If the determined values for the application rate and application pressure do not match the set values:

- Calibrate the flow meter (see control terminal ISOBUS operating manual)
- Check all nozzles for wear and blockages.

14.19 Line filter

- Clean the line filters
  (1) every 3 - 4 months depending on operating conditions.
- Change damaged filter inserts.



14.20 Replacing the diaphragm of the single-nozzle control

1. On the control terminal, switch on spraying

2. Use the union nut to dismount the AmaSwitch motor. Do not take off the connection cable to do this.

3. Also dismount the washer.

4. Replace the diaphragm.

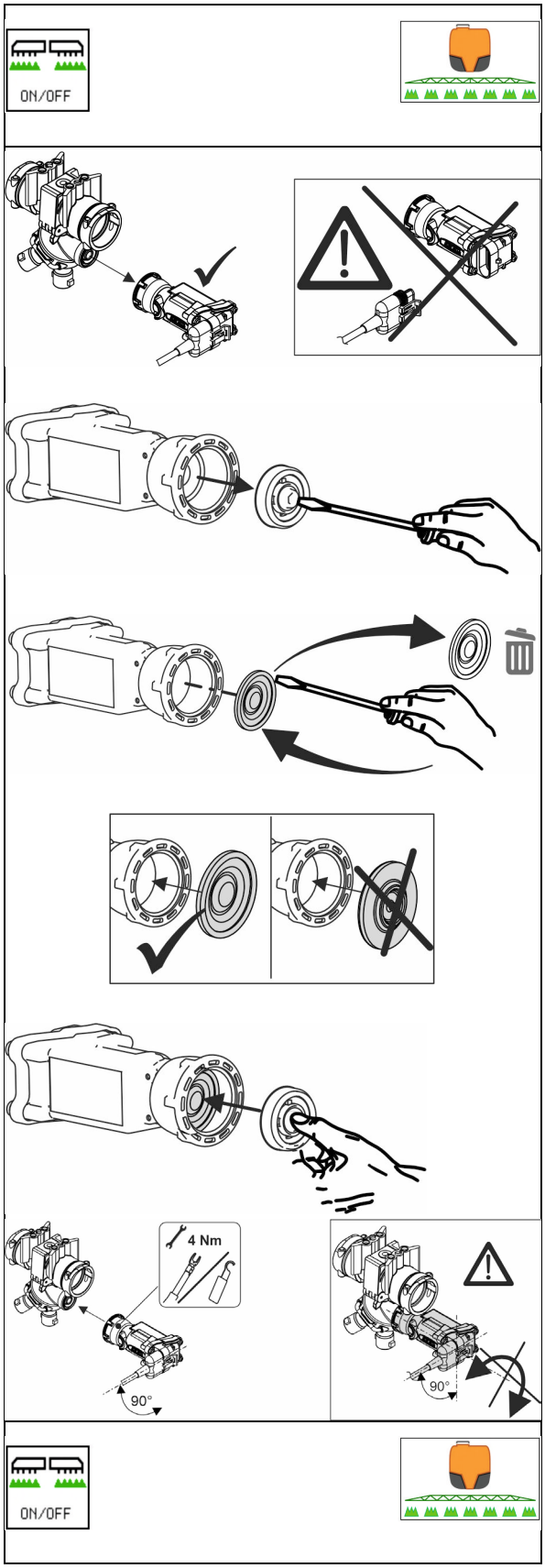
→ While doing so, ensure the correct position of the diaphragm.

5. Remount the washer.

6. Use the union nut to remount the motor.

→ In this process, ensure that the motor does not turn as well.

7. On the control terminal, switch off spraying.



14.21 Instructions on testing the field sprayer

- Only authorised centres are permitted to carry out spray tests.
- According to law, a spray test must be carried out:
  - o 6 months after commissioning (if not performed at time of purchase) at the latest, then
  - o every two years thereafter.

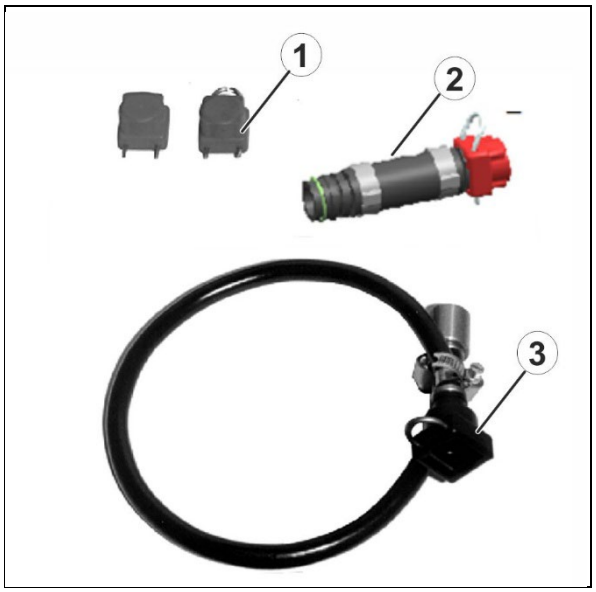
Field sprayer test set (optional), order no.: 114586

Pressure gauge test

(1) Push-on cap (order no.: 913954) and connector (order no.: ZF195)

(2) Blind hose (order no.: 116059)

(3) Pressure gauge connection (order no.: 7107000)

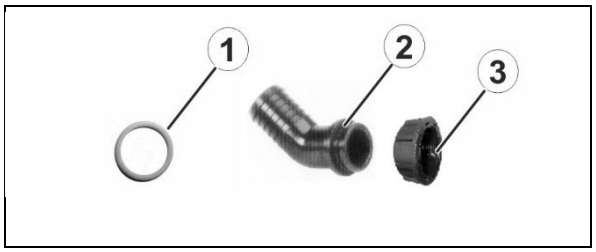


Flow meter test

(1) O-ring (order no.: FC122)

(2) Hose connection (order no.: GE095)

(3) Union nut (order no.: GE021)



Pump test

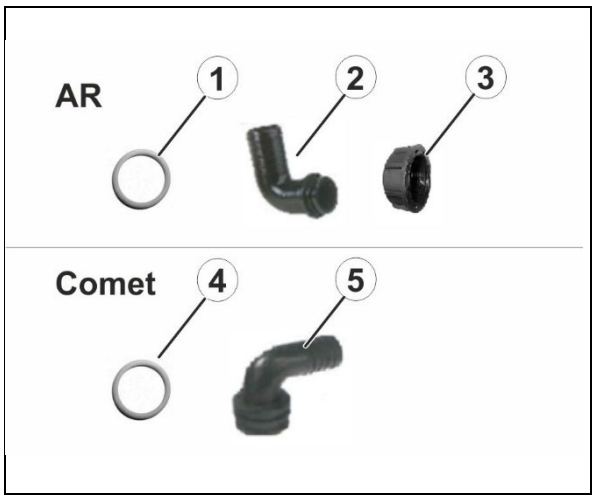
(1) O-ring (order no.: FC149)

(2) Hose connection (order no.: GE052)

(3) Union nut (order no.:GE022)

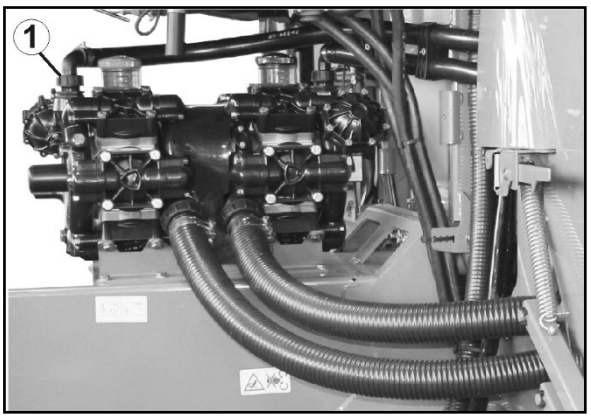
(4) O-ring (order no.: FC468)

(5) Hose connection (order no.: ZF1395)



Pump test - testing pump performance (delivery capacity, pressure)

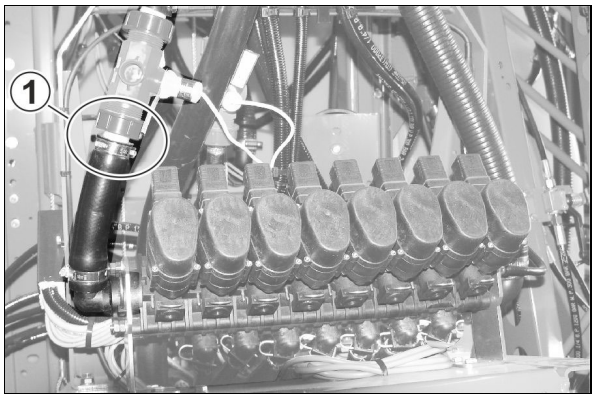
1. Loosen the union nut (1).
2. Put on the hose connection.
3. Tighten the union nut.



Flow meter test

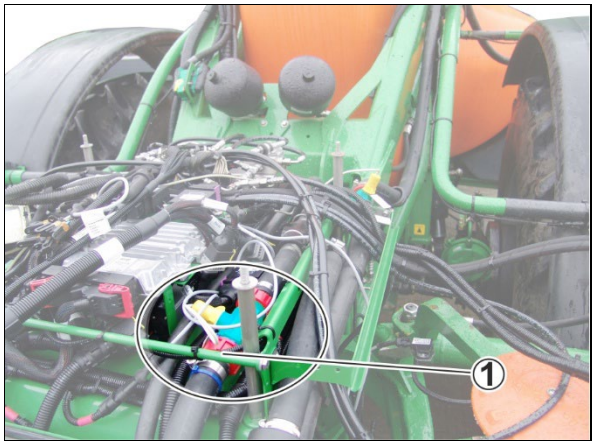
and boom part width section chest

1. Loosen the union nut (1) behind the flow meter.
2. Fasten the plug-in socket (order no. 919345) with the union nut and connect it to the testing device.
3. Switch on spraying.



DUS pro single nozzle control

1. Loosen the union nut (1) behind the flow meter.
2. Fasten the plug-in socket (order no. 919345) with the union nut and connect it to the testing device.
3. Switch on spraying.



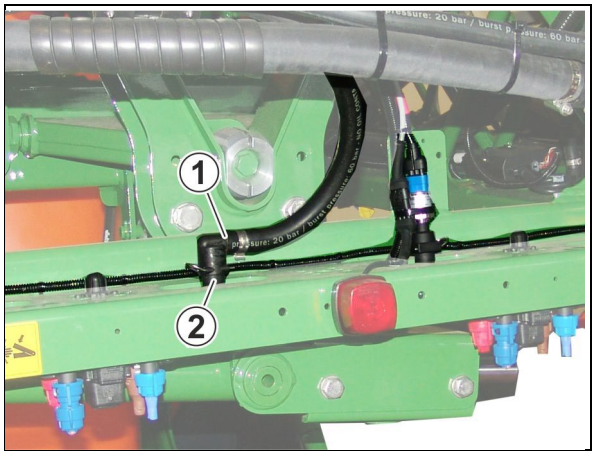
Pressure gauge test

and boom part width section chest

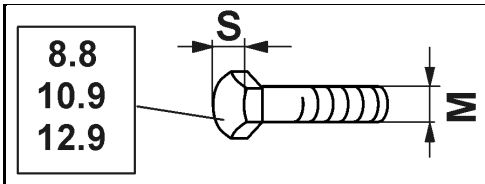
1. Remove one spray line from a part-width section valve and seal it with the blind hose (order no. 1166060).
2. Connect the pressure gauge connection to a part width section valve with the help of the turned socket.
3. Screw the check gauge 1/4 of an inch into the inside thread.
4. Switch on spraying

DUS pro single nozzle control

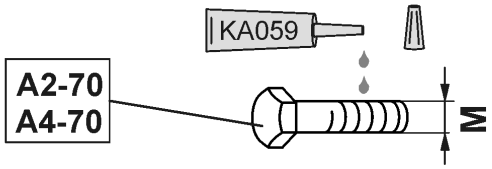
1. Disconnect the return line (1) beside the pressure sensor and seal it with the blind hose (order no. 1166060).
2. Connect the pressure gauge connection (order no. 7107000) to the spray line (2).
3. Screw the check gauge 1/4 of an inch into the inside thread.
4. Switch on spraying.



14.22 Bolt tightening torques



M	S	8.8		10.9		12.9	
		Ft-lb	Nm	Ft-lb	Nm	Ft-lb	Nm
M 8	13	18.5	25	25.8	35	30.2	41
M 8x1		19.9	27	28	38	30.2	41
M 10	16 (17)	36	49	51	69	61	61
M 10x1		38	52	54	73	65	65
M 12	18 (19)	63	86	89	120	107	107
M 12x1.5		66	90	92	125	111	111
M 14	22	100	135	140	190	170	170
M 14x1.5		111	150	155	210	184	184
M 16	24	155	210	221	300	262	262
M 16x1.5		166	225	232	315	280	280
M 18	27	214	290	299	405	358	358
M 18x1.5		240	325	339	460	406	406
M 20	30	302	410	428	580	509	509
M 20x1.5		339	460	472	640	568	568
M 22	32	406	550	575	780	686	686
M 22x1.5		450	610	634	860	774	774
M 24	36	524	710	738	1000	885	885
M 24x2		575	780	811	1100	959	959
M 27	41	774	1050	1106	1500	1328	1328
M 27x2		848	1150	1180	1600	1438	1438
M 30	46	1070	1450	1475	200	1770	1770
M 30x2		1180	1600	1660	2250	1991	1991



M		M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
	Ft-lb	1.8	3.6	6.2	15.2	30	52	82.6	128.3	178.5	252.2	346.7	434.4
	Nm	2.4	4.9	8.4	20.6	40.7	70.5	112	174	242	342	470	589

Coated screws have different tightening torques.Note special information for tightening torques in chapter Maintenance.

14.23 Disposing of the field sprayer

Clean the entire field sprayer thoroughly (from the inside and outside) before disposing of the field sprayer.

The following components can be used for energy recovery*: spray liquid tank, induction bowl, flushing water tank, hand wash tank, hoses and plastic fittings.

Metal parts can be scrapped.

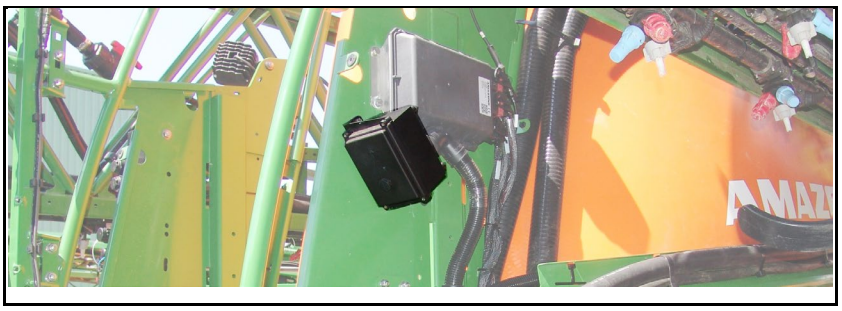
Observe the applicable legal regulations when disposing of the individual recyclable materials.

* Energy recovery

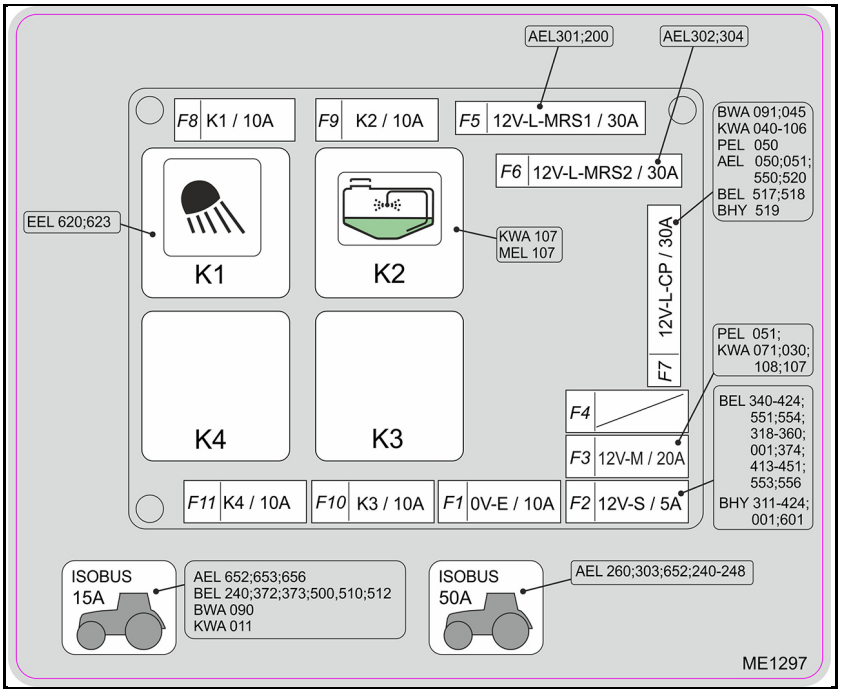
is the recovery of energy contained in plastic parts through combustion and using this energy to produce electricity and/or steam or to supply process heat. Energy recovery is suitable for mixed and for soiled plastics, especially for plastic fractions contaminated with harmful substances.

14.24 Fuses and relays

The fuse box is located under the cover at the front left.



14.24.1 Fuses for the boom functions



Number	Amperage	Function
F1	10 A	OV_E
F2	5 A	12V-L-S Tilting cylinder pressure, right-side
F3	20 A	12V_M
F4	30 A	Spare
F5	30 A	12V_L_MRS1
F6	30 A	12V_L_MRS2
F7	30 A	12V_C_CP
F8	10 A	K1 Boom work floodlights, left-side / surroundings on right-side
F9	10 A	K2
F10	10 A	K3
F11	10 A	K4

Relays for the boom functions

Number	Function
K1	Boom work floodlights, left-side / surroundings on right-side
K2	XTremeClean valve / drive
K3	spare
K4	spare

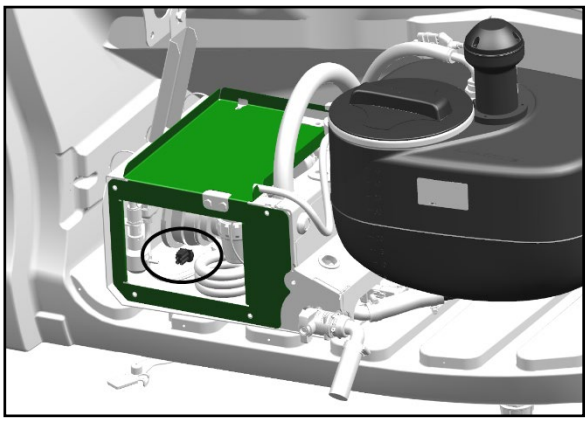
14.24.2 AmaSelect fuses on the boom

The fuses are located under the cover hood on the centre section of the boom.

Number	Amperage	Function
---	15 A	AmaSelect motor
---	15 A	AmaSelect lighting

14.24.3 Fuses for DirectInject

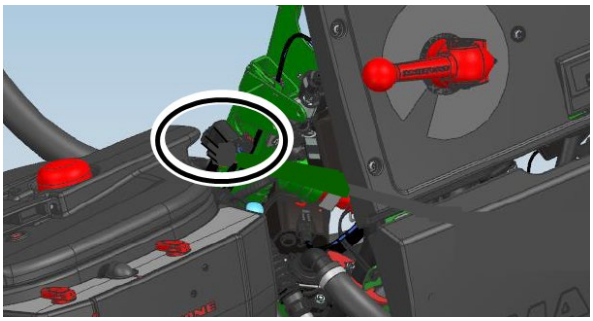
The fuses are under the DirectInject metering pump.



Number	Amperage	Function
F1	15 A	DirectInject
F2	15 A	DirectInject

14.24.4 Fuses for Comfort Package CP

The fuses are located on the left on the control panel.



Number	Rating	Function
F0050	15 A	CP
F0051	5 A	CP

15 Spray table

15.1 Spray tables for flat-fan, anti-drift, injector and airmix nozzles, spraying height 50 cm

- The application rates [l/ha] listed in the spray tables are only valid for water. To convert the application rates given into AUS, multiply these by 0.88 and, for NP solutions, by 0.85.
- Table 1 is used to select the right nozzle type. The nozzle type is determined by
  - the intended forward speed,
  - the required application rate and
  - the required atomisation characteristic (fine, medium or coarse-dropped) of the crop protection agent used for the crop protection measure.
- Table 2 is used to
  - determine the nozzle size.
  - determine the required spray pressure.
  - determine the required individual nozzle output for calibrating the field sprayer.

Permissible pressure ranges for different nozzle types and sizes

Nozzle type	Manufacturer	Permissible pressure range			
		Min. pressure		Max. pressure	
		psi	bar	psi	bar
XRC	TeeJet	14.5	1	72.5	5
AD	Lechler	21.75	1.5	72.5	5
Air Mix	agrotop	14.5	1	87	6
IDK / IDKN	Lechler	14.5	1	87	6
IDKT		21.75	1.5	87	6
ID3 01 - 015		43.5	3	116	8
ID3 02 - 08		29	2	116	8
IDTA 120		14.5	1	116	8
AI	TeeJet	29	2	116	8
TTI		14.5	1	101	7
AVI Twin	agrotop	29	2	116	8
TD Hi Speed		29	2	145	10

For further information on the nozzle characteristics, see the nozzle manufacturers' websites.

www.agrotop.com / www.lechler-agri.de / www.teejet.com

Selecting the nozzle type

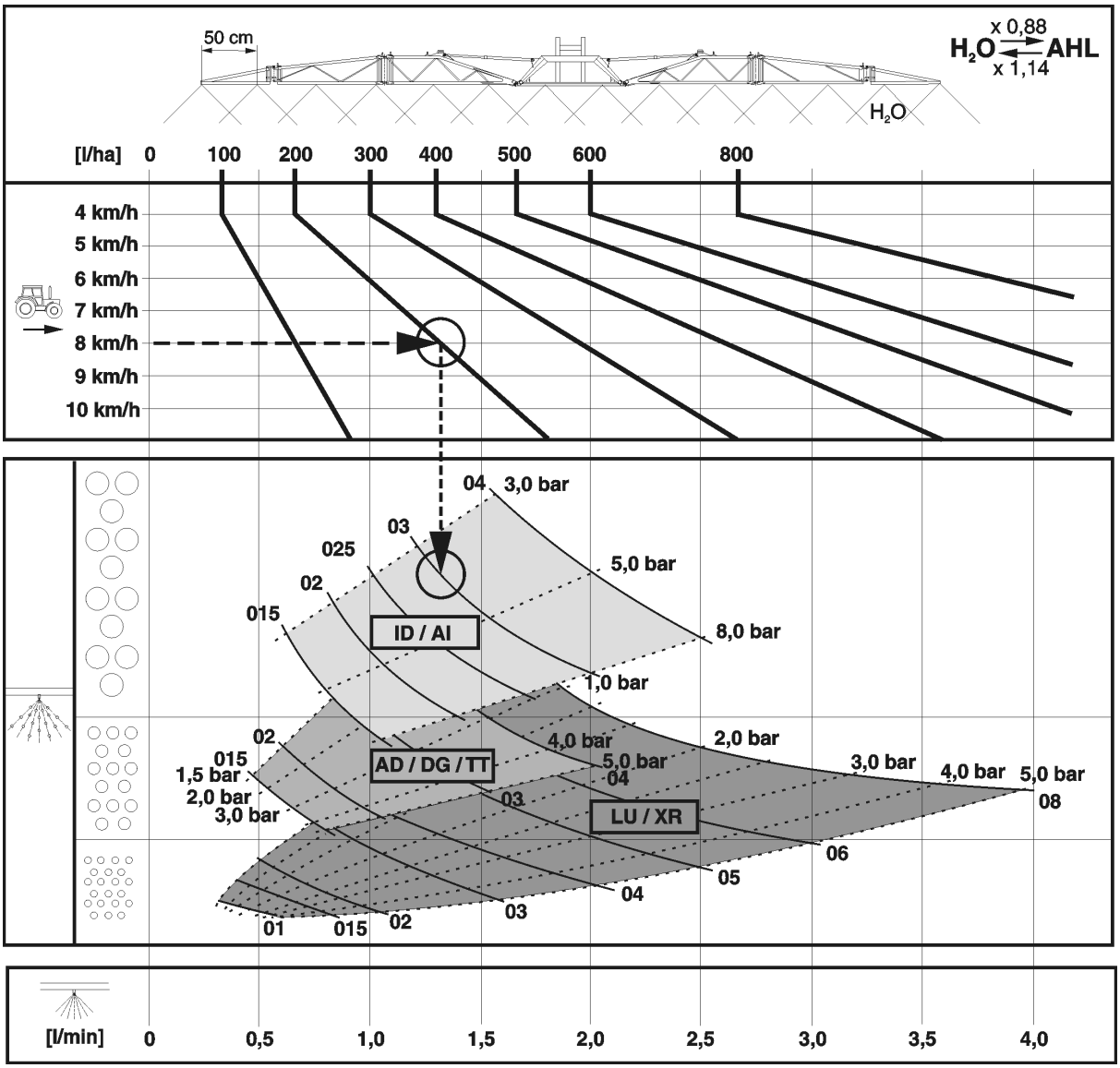


Table 1

Example:

Required application rate:	**21 gal / 200 l/ha**
Intended driving speed:	**5 mph / 8 km/h**
Required atomization characteristic for the crop protection measure to be carried out:	**Coarse-droplet** (fine drift)
Required nozzle type:	?
Required nozzle size:	?
Required spray pressure:	? psi / bar
Required individual nozzle output for metering the field sprayer:	? gpm / l/min

Determining the nozzle type, nozzle size, spray pressure and individual nozzle output

1. Determine the working point for the required application rate (**21 gal/ac / 200 l/ha**) and the intended driving speed (**5 mph / 8 km/h**).
2. At the working point, trace a vertical line down the table. Depending on the position of the working point, this line will run through the cells for various nozzle types.
3. Select the best nozzle type for the crop protection measure in question to be carried out with reference to the required atomization characteristic (fine, medium or coarse-droplet).

→ Nozzle choice for the example cited above:

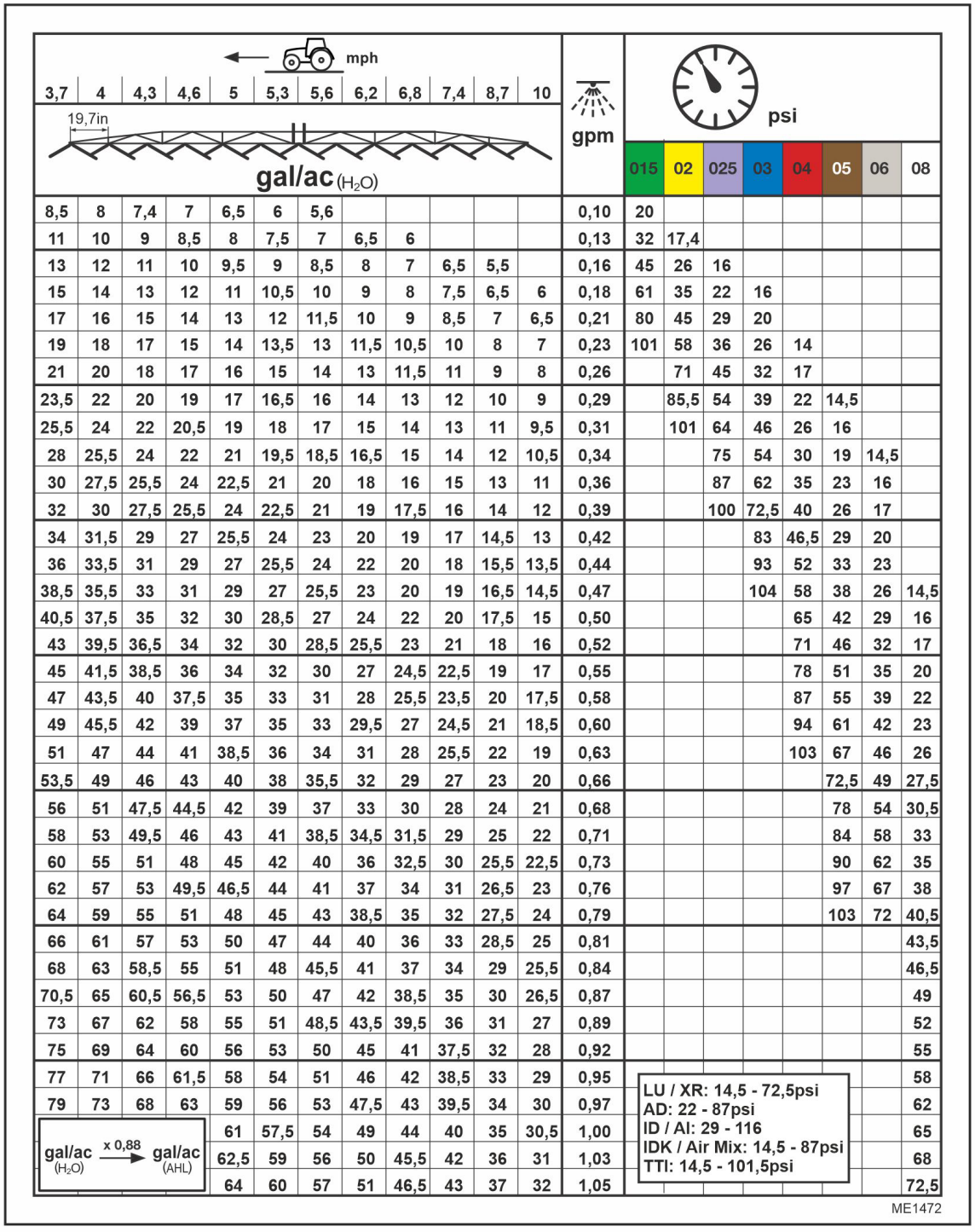
→ Nozzle type: **AI or ID**

4. Go to the Spray Table, see page **248**.
5. In the column with the intended driving speed (**5 mph / 8 km/h**), find the required application rate (**21 gal/ac / 200 l/ha**) or an application rate, which is as close as possible to the required application rate (in this case, for example, **20 ,8 gal/ac /195 l/ha**).
6. In the line with the required application rate

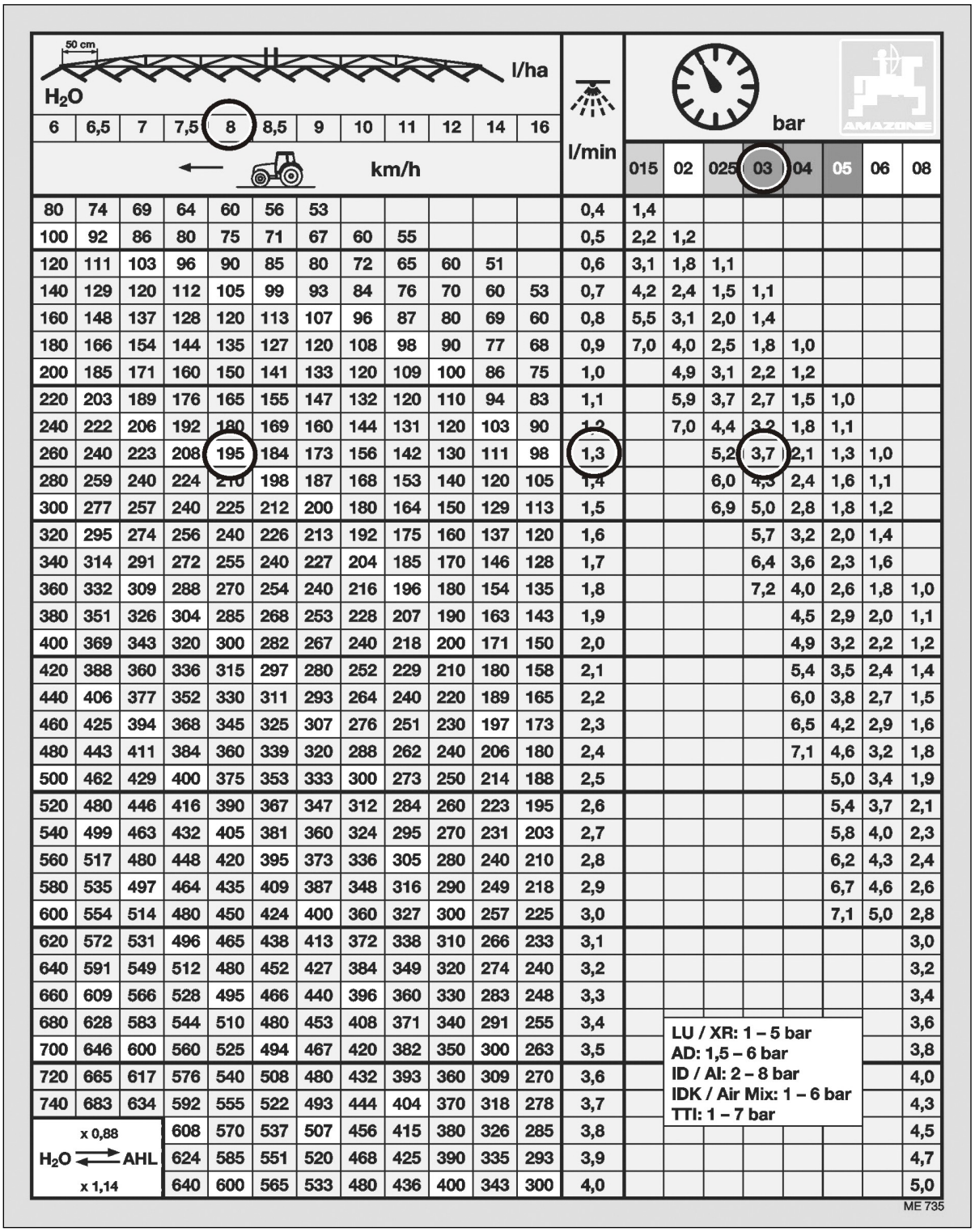
   (20,8 gal/ac / 195 l/ha)

   - read-off the nozzle sizes in question. Select a suitable nozzle size (e.g.**'03'**).
   - Where the nozzle size column intersects with the selected nozzle size, read-off the required spray pressure (**e.g. 54 psi / 3.7 bar**).
   - Read-off the required individual nozzle output (**0.3 gpm / 1.3 l/min**) for metering the field sprayer

Required nozzle type:	**AI /ID**
Required nozzle size:	**'03'**
Required spray pressure:	**54 psi / 3.7 bar**
Required individual nozzle output for calibrating the field sprayer:	**0.3 gpm / 1.3 l/min**



3,7	4	4,3	4,6	5	5,3	5,6	6,2	6,8	7,4	8,7	10	gpm	015	02	025	03	04	05	06	08
8,5	8	7,4	7	6,5	6	5,6						0,10	20							
11	10	9	8,5	8	7,5	7	6,5	6				0,13	32	17,4						
13	12	11	10	9,5	9	8,5	8	7	6,5	5,5		0,16	45	26	16					
15	14	13	12	11	10,5	10	9	8	7,5	6,5	6	0,18	61	35	22	16				
17	16	15	14	13	12	11,5	10	9	8,5	7	6,5	0,21	80	45	29	20				
19	18	17	15	14	13,5	13	11,5	10,5	10	8	7	0,23	101	58	36	26	14			
21	20	18	17	16	15	14	13	11,5	11	9	8	0,26		71	45	32	17			
23,5	22	20	19	17	16,5	16	14	13	12	10	9	0,29		85,5	54	39	22	14,5		
25,5	24	22	20,5	19	18	17	15	14	13	11	9,5	0,31		101	64	46	26	16		
28	25,5	24	22	21	19,5	18,5	16,5	15	14	12	10,5	0,34			75	54	30	19	14,5	
30	27,5	25,5	24	22,5	21	20	18	16	15	13	11	0,36			87	62	35	23	16	
32	30	27,5	25,5	24	22,5	21	19	17,5	16	14	12	0,39			100	72,5	40	26	17	
34	31,5	29	27	25,5	24	23	20	19	17	14,5	13	0,42				83	46,5	29	20	
36	33,5	31	29	27	25,5	24	22	20	18	15,5	13,5	0,44				93	52	33	23	
38,5	35,5	33	31	29	27	25,5	23	20	19	16,5	14,5	0,47				104	58	38	26	14,5
40,5	37,5	35	32	30	28,5	27	24	22	20	17,5	15	0,50					65	42	29	16
43	39,5	36,5	34	32	30	28,5	25,5	23	21	18	16	0,52					71	46	32	17
45	41,5	38,5	36	34	32	30	27	24,5	22,5	19	17	0,55					78	51	35	20
47	43,5	40	37,5	35	33	31	28	25,5	23,5	20	17,5	0,58					87	55	39	22
49	45,5	42	39	37	35	33	29,5	27	24,5	21	18,5	0,60					94	61	42	23
51	47	44	41	38,5	36	34	31	28	25,5	22	19	0,63					103	67	46	26
53,5	49	46	43	40	38	35,5	32	29	27	23	20	0,66						72,5	49	27,5
56	51	47,5	44,5	42	39	37	33	30	28	24	21	0,68						78	54	30,5
58	53	49,5	46	43	41	38,5	34,5	31,5	29	25	22	0,71						84	58	33
60	55	51	48	45	42	40	36	32,5	30	25,5	22,5	0,73						90	62	35
62	57	53	49,5	46,5	44	41	37	34	31	26,5	23	0,76						97	67	38
64	59	55	51	48	45	43	38,5	35	32	27,5	24	0,79						103	72	40,5
66	61	57	53	50	47	44	40	36	33	28,5	25	0,81								43,5
68	63	58,5	55	51	48	45,5	41	37	34	29	25,5	0,84								46,5
70,5	65	60,5	56,5	53	50	47	42	38,5	35	30	26,5	0,87								49
73	67	62	58	55	51	48,5	43,5	39,5	36	31	27	0,89								52
75	69	64	60	56	53	50	45	41	37,5	32	28	0,92								55
77	71	66	61,5	58	54	51	46	42	38,5	33	29	0,95								58
79	73	68	63	59	56	53	47,5	43	39,5	34	30	0,97								62
				61	57,5	54	49	44	40	35	30,5	1,00								65
				62,5	59	56	50	45,5	42	36	31	1,03								68
				64	60	57	51	46,5	43	37	32	1,05								72,5


50 cm
l/ha
H2O
6 6,5 7 7,5 8 8,5 9 10 11 12 14 16
km/h
l/min
bar
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 3,6
700 646 600 560 525 494 467 420 382 350 300 263 3,5 3,8
720 665 617 576 540 508 480 432 393 360 309 270 3,6 4,0
740 683 634 592 555 522 493 444 404 370 318 278 3,7 4,3
608 570 537 507 456 415 380 326 285 3,8 4,5
624 585 551 520 468 425 390 335 293 3,9 4,7
640 600 565 533 480 436 400 343 300 4,0 5,0
x 0,88
H2O AHL
x 1,14
LU / XR: 1 – 5 bar
AD: 1,5 – 6 bar
ID / AI: 2 – 8 bar
IDK / Air Mix: 1 – 6 bar
TTI: 1 – 7 bar
ME 735

15.2 Spraying nozzles for liquid manure

Nozzle type	Manufacturer	Permissible pressure range			
		Min. pressure		Max. pressure	
		psi	bar	psi	bar
3- jet	agrotop	29	2	116	8
7- hole	TeeJet	21.75	1.5	58	4
FD	Lechler	21.75	1.5	58	4
Drag hose	AMAZONE	14.5	1	58	4

15.3 AMAZONE spray tables - metric system

15.3.1 Spray table for three-ray nozzles, spraying height 120 cm

AMAZONE - Spray table for three-ray nozzles (yellow)

Pres-sure	Nozzle output		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,0	0,36	0,32	**64**	**55**	**48**	**43**	**39**	**35**	**32**	**28**	**24**
1,2	0,39	0,35	**69**	**60**	**52**	**47**	**42**	**38**	**35**	**30**	**26**
1,5	0,44	0,39	**78**	**67**	**59**	**53**	**47**	**43**	**39**	**34**	**30**
1,8	0,48	0,42	**85**	**73**	**64**	**57**	**51**	**47**	**43**	**37**	**32**
2,0	0,50	0,44	**88**	**75**	**66**	**59**	**53**	**48**	**44**	**38**	**33**
2,2	0,52	0,46	**92**	**78**	**69**	**62**	**55**	**50**	**46**	**39**	**35**
2,5	0,55	0,49	**98**	**84**	**74**	**66**	**57**	**54**	**49**	**52**	**37**
2,8	0,58	0,52	**103**	**88**	**77**	**69**	**62**	**56**	**52**	**44**	**39**
3,0	0,60	0,53	**106**	**91**	**80**	**71**	**64**	**58**	**53**	**46**	**40**

AMAZONE - Spray table for three-ray nozzles (red)

Pres-sure	Nozzle output		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1.0	0.61	0.54	**108**	**93**	**81**	**72**	**65**	**59**	**54**	**47**	**41**
1.2	0.67	0.59	**118**	**101**	**88**	**78**	**70**	**64**	**59**	**51**	**44**
1.5	0.75	0.66	**132**	**114**	**99**	**88**	**79**	**72**	**66**	**57**	**50**
1.8	0.79	0.69	**138**	**119**	**104**	**92**	**83**	**76**	**69**	**60**	**52**
2.0	0.81	0.71	**142**	**122**	**107**	**95**	**85**	**78**	**71**	**61**	**54**
2.2	0.84	0.74	**147**	**126**	**111**	**98**	**88**	**80**	**74**	**63**	**56**
2.5	0.89	0.78	**155**	**133**	**117**	**104**	**93**	**84**	**78**	**67**	**59**
2.8	0.93	0.82	**163**	**140**	**122**	**109**	**98**	**87**	**82**	**70**	**61**
3.0	0.96	0.84	**168**	**144**	**126**	**112**	**101**	**92**	**84**	**72**	**63**

AMAZONE - Spray table for three-ray nozzles (blue)

Pres-sure	Nozzle output		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1.0	0.86	0.76	**152**	**130**	**114**	**101**	**91**	**83**	**76**	**65**	**57**
1.2	0.94	0.83	**166**	**142**	**124**	**110**	**99**	**91**	**83**	**71**	**62**
1.5	1.05	0.93	**186**	**159**	**140**	**124**	**112**	**102**	**93**	**80**	**70**
1.8	1.11	0.98	**196**	**167**	**147**	**131**	**117**	**107**	**98**	**84**	**74**
2.0	1.15	1.01	**202**	**173**	**152**	**135**	**121**	**110**	**101**	**87**	**76**
2.2	1.20	1.06	**212**	**182**	**159**	**141**	**127**	**116**	**106**	**91**	**80**
2.5	1.26	1.12	**224**	**192**	**168**	**149**	**135**	**122**	**112**	**96**	**84**
2.8	1.32	1.17	**234**	**201**	**176**	**156**	**141**	**128**	**117**	**101**	**88**
3.0	1.36	1.20	**240**	**206**	**180**	**160**	**144**	**131**	**120**	**103**	**90**

AMAZONE - Spray table for three-ray nozzles (white)

Pres-sure	Nozzle output		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1.0	1.16	1.03	**206**	**177**	**155**	**137**	**124**	**213**	**103**	**89**	**78**
1.2	1.27	1.12	**224**	**192**	**168**	**149**	**134**	**222**	**112**	**96**	**84**
1.5	1.42	1.26	**252**	**217**	**190**	**168**	**151**	**138**	**126**	**109**	**95**
1.8	1.56	1.38	**277**	**237**	**207**	**184**	**166**	**151**	**139**	**119**	**104**
2.0	1.64	1.45	**290**	**249**	**217**	**193**	**174**	**158**	**145**	**125**	**109**
2.2	1.73	1.54	**307**	**263**	**230**	**204**	**185**	**168**	**154**	**132**	**115**
2.5	1.84	1.62	**325**	**279**	**244**	**216**	**195**	**178**	**163**	**140**	**122**
2.8	1.93	1.71	**342**	**293**	**256**	**228**	**205**	**187**	**171**	**147**	**128**
3.0	2.01	1.78	**356**	**305**	**267**	**237**	**214**	**194**	**178**	**153**	**134**

15.3.2 Spray table for 7-hole nozzles

AMAZONE Spray table for 7-hole nozzle SJ7-02VP (yellow)

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Wasser	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	0,55	0,49	**98**	**84**	**74**	**65**	**59**	**53**	**49**	**42**	**37**
2,0	0,64	0,57	**114**	**98**	**86**	**76**	**68**	**62**	**57**	**49**	**43**
2,5	0,72	0,64	**128**	**110**	**96**	**85**	**77**	**70**	**64**	**55**	**48**
3,0	0,80	0,71	**142**	**122**	**107**	**95**	**85**	**77**	**71**	**61**	**53**
3,5	0,85	0,75	**150**	**129**	**113**	**100**	**90**	**82**	**75**	**64**	**56**
4,0	0,93	0,82	**164**	**141**	**123**	**109**	**98**	**89**	**82**	**70**	**62**

AMAZONE Spray table for 7-hole nozzle SJ7-03VP (blue)

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Wasser	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	0,87	0,77	**154**	**132**	**116**	**103**	**92**	**84**	**77**	**66**	**58**
2,0	1,00	0,88	**176**	**151**	**132**	**117**	**106**	**96**	**88**	**75**	**66**
2,5	1,10	0,97	**194**	**166**	**146**	**129**	**116**	**106**	**97**	**83**	**73**
3,0	1,18	1,04	**208**	**178**	**156**	**139**	**125**	**113**	**104**	**89**	**78**
3,5	1,27	1,12	**224**	**192**	**168**	**149**	**134**	**122**	**112**	**96**	**84**
4,0	1,31	1,16	**232**	**199**	**174**	**155**	**139**	**127**	**116**	**99**	**87**

AMAZONE Spray table for 7-hole nozzle SJ7-04VP (red)

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Wasser	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	1,17	1,04	**208**	**178**	**156**	**139**	**125**	**113**	**104**	**89**	**78**
2,0	1,33	1,18	**236**	**202**	**177**	**157**	**142**	**129**	**118**	**101**	**89**
2,5	1,45	1,28	**256**	**219**	**192**	**171**	**154**	**140**	**128**	**110**	**96**
3,0	1,55	1,37	**274**	**235**	**206**	**183**	**164**	**149**	**137**	**117**	**103**
3,5	1,66	1,47	**295**	**253**	**221**	**196**	**177**	**161**	**147**	**126**	**110**
4,0	1,72	1,52	**304**	**261**	**228**	**203**	**182**	**166**	**152**	**130**	**114**

AMAZONE Spray table for 7-hole nozzle SJ7-05VP (brown)

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Wasser	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	1,49	1,32	**264**	**226**	**198**	**176**	**158**	**144**	**132**	**113**	**99**
2,0	1,68	1,49	**298**	**255**	**224**	**199**	**179**	**163**	**149**	**128**	**112**
2,5	1,83	1,62	**324**	**278**	**243**	**216**	**194**	**177**	**162**	**139**	**122**
3,0	1,95	1,73	**346**	**297**	**260**	**231**	**208**	**189**	**173**	**148**	**130**
3,5	2,11	1,87	**374**	**321**	**281**	**249**	**224**	**204**	**187**	**160**	**140**
4,0	2,16	1,91	**382**	**327**	**287**	**255**	**229**	**208**	**191**	**164**	**143**

AMAZONE Spray table for 7-hole nozzle SJ7-06VP (grey)

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Wasser	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	1,77	1,57	**314**	**269**	**236**	**209**	**188**	**171**	**157**	**135**	**118**
2,0	2,01	1,78	**356**	**305**	**267**	**237**	**214**	**194**	**178**	**153**	**134**
2,5	2,19	1,94	**388**	**333**	**291**	**259**	**233**	**212**	**194**	**166**	**146**
3,0	2,35	2,08	**416**	**357**	**312**	**277**	**250**	**227**	**208**	**178**	**156**
4,0	2,61	2,31	**562**	**396**	**347**	**308**	**277**	**252**	**231**	**198**	**173**

AMAZONE Spray table for 7-hole nozzle SJ7-08VP (white)

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Wasser	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	2,28	2,02	**404**	**346**	**303**	**269**	**242**	**220**	**202**	**173**	**152**
2,0	2,66	2,35	**470**	**403**	**353**	**313**	**282**	**256**	**235**	**201**	**176**
2,5	2,94	2,60	**520**	**446**	**390**	**347**	**312**	**284**	**260**	**223**	**195**
3,0	3,15	2,79	**558**	**478**	**419**	**372**	**335**	**304**	**279**	**239**	**209**
4,0	3,46	3,06	**612**	**525**	**459**	**408**	**367**	**334**	**306**	**262**	**230**

15.3.3 Spray table for FD- nozzles

AMAZONE Spray table for FD-04- nozzle

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Water	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	1,13	1,00	**200**	**171**	**150**	**133**	**120**	**109**	**100**	**86**	**75**
2,0	1,31	1,15	**230**	**197**	**173**	**153**	**138**	**125**	**115**	**99**	**86**
2,5	1,46	1,29	**258**	**221**	**194**	**172**	**155**	**141**	**129**	**111**	**97**
3,0	1,60	1,41	**282**	**241**	**211**	**188**	**169**	**154**	**141**	**121**	**106**
4,0	1,85	1,63	**326**	**279**	**245**	**217**	**196**	**178**	**163**	**140**	**122**

AMAZONE Spray table for FD-05- nozzle

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Water	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	1,41	1,24	**248**	**213**	**186**	**165**	**149**	**135**	**124**	**106**	**93**
2,0	1,63	1,44	**288**	**247**	**216**	**192**	**173**	**157**	**144**	**123**	**108**
2,5	1,83	1,61	**322**	**276**	**242**	**215**	**193**	**176**	**161**	**138**	**121**
3,0	2,00	1,76	**352**	**302**	**264**	**235**	**211**	**192**	**176**	**151**	**132**
4,0	2,31	2,03	**406**	**348**	**305**	**271**	**244**	**221**	**203**	**174**	**152**

AMAZONE Spray table for FD-06- nozzle

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Water	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	1,70	1,49	**298**	**255**	**224**	**199**	**179**	**163**	**149**	**128**	**112**
2,0	1,96	1,72	**344**	**295**	**258**	**229**	**206**	**188**	**172**	**147**	**129**
2,5	2,19	1,93	**386**	**331**	**290**	**257**	**232**	**211**	**193**	**165**	**145**
3,0	2,40	2,11	**422**	**362**	**317**	**282**	**253**	**230**	**211**	**181**	**158**
4,0	2,77	2,44	**488**	**418**	**366**	**325**	**293**	**266**	**244**	**209**	**183**

AMAZONE Spray table for FD-08- nozzle

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Water	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	2,26	1,99	**398**	**341**	**299**	**265**	**239**	**217**	**199**	**171**	**149**
2,0	2,61	2,30	**460**	**394**	**345**	**307**	**276**	**251**	**230**	**197**	**173**
2,5	2,92	2,57	**514**	**441**	**386**	**343**	**308**	**280**	**257**	**220**	**193**
3,0	3,20	2,82	**563**	**483**	**422**	**375**	**338**	**307**	**282**	**241**	**211**
4,0	3,70	3,25	**650**	**557**	**488**	**433**	**390**	**355**	**325**	**279**	**244**

AMAZONE Spray table for FD-10- nozzle

Pres-sure	Nozzle output per dosing disc		AUS spray rate AHL (l/ha) /								
	Water	AHL	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,5	2,83	2,49	**498**	**427**	**374**	**332**	**299**	**272**	**249**	**214**	**187**
2,0	3,27	2,88	**576**	**494**	**432**	**384**	**345**	**314**	**288**	**246**	**216**
2,5	3,65	3,21	**642**	**551**	**482**	**429**	**385**	**350**	**321**	**275**	**241**
3,0	4,00	3,52	**704**	**604**	**528**	**469**	**422**	**384**	**352**	**302**	**264**
4,0	4,62	4,07	**813**	**697**	**610**	**542**	**488**	**444**	**407**	**348**	**305**

15.3.4 Spray table for drag hose unit

AMAZONE Spray table for dosing disc 4916-26, (dia. 0.65 mm)

Pres-sure	Nozzle output per dosing disc		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,0	0,20	0,18	**71**	**61**	**53**	**47**	**43**	**37**	**36**	**31**	**27**
1,2	0,22	0,19	**78**	**67**	**58**	**52**	**47**	**43**	**39**	**34**	**29**
1,5	0,24	0,21	**85**	**73**	**64**	**57**	**51**	**47**	**43**	**37**	**32**
1,8	0,26	0,23	**92**	**79**	**69**	**61**	**55**	**50**	**46**	**40**	**35**
2,0	0,28	0,25	**99**	**85**	**74**	**66**	**60**	**54**	**50**	**43**	**37**
2,2	0,29	0,26	**103**	**88**	**77**	**68**	**62**	**56**	**52**	**44**	**39**
2,5	0,31	0,27	**110**	**94**	**82**	**73**	**66**	**60**	**55**	**47**	**41**
2,8	0,32	0,28	**113**	**97**	**85**	**76**	**68**	**62**	**57**	**49**	**43**
3,0	0,34	0,30	**120**	**103**	**90**	**80**	**72**	**66**	**60**	**52**	**45**
3,5	0,36	0,32	**127**	**109**	**96**	**85**	**77**	**70**	**64**	**55**	**48**
4,0	0,39	0,35	**138**	**118**	**104**	**92**	**83**	**76**	**69**	**59**	**52**

AMAZONE Spray table with dosing disc 4916-32, (dia. 0.8 mm)

Pres-sure	Nozzle output per dosing disc		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,0	0,31	0,27	**110**	**94**	**82**	**73**	**66**	**60**	**55**	**47**	**41**
1,2	0,34	0,30	**120**	**103**	**90**	**80**	**72**	**66**	**60**	**52**	**45**
1,5	0,38	0,34	**135**	**115**	**101**	**90**	**81**	**74**	**68**	**58**	**51**
1,8	0,41	0,36	**145**	**124**	**109**	**97**	**87**	**79**	**73**	**62**	**55**
2,0	0,43	0,38	**152**	**130**	**114**	**101**	**92**	**83**	**76**	**65**	**57**
2,2	0,45	0,40	**159**	**137**	**119**	**106**	**96**	**87**	**80**	**69**	**60**
2,5	0,48	0,42	**170**	**146**	**127**	**113**	**102**	**93**	**85**	**73**	**64**
2,8	0,51	0,45	**181**	**155**	**135**	**120**	**109**	**98**	**91**	**78**	**68**
3,0	0,53	0,47	**188**	**161**	**141**	**125**	**113**	**103**	**94**	**81**	**71**
3,5	0,57	0,50	**202**	**173**	**151**	**135**	**121**	**110**	**101**	**87**	**76**
4,0	0,61	0,54	**216**	**185**	**162**	**144**	**130**	**118**	**108**	**93**	**81**

AMAZONE Spray table for dosing disc 4916-39, (dia. 1.0 mm) (standard)

Pres-sure	Nozzle output per dosing disc		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,0	0,43	0,38	**153**	**131**	**114**	**101**	**92**	**84**	**77**	**66**	**57**
1,2	0,47	0,41	**167**	**143**	**124**	**110**	**100**	**91**	**84**	**72**	**62**
1,5	0,53	0,47	**187**	**160**	**141**	**126**	**112**	**102**	**94**	**80**	**71**
1,8	0,58	0,51	**204**	**175**	**154**	**137**	**122**	**112**	**102**	**88**	**77**
2,0	0,61	0,53	**216**	**185**	**162**	**144**	**130**	**118**	**108**	**93**	**81**
2,2	0,64	0,56	**227**	**194**	**170**	**151**	**136**	**124**	**114**	**97**	**85**
2,5	0,68	0,59	**240**	**206**	**180**	**160**	**142**	**132**	**120**	**103**	**90**
2,8	0,71	0,62	**251**	**215**	**189**	**168**	**151**	**137**	**126**	**108**	**95**
3,0	0,74	0,64	**262**	**224**	**197**	**175**	**158**	**143**	**131**	**112**	**99**
3,5	0,79	0,69	**280**	**236**	**210**	**186**	**168**	**153**	**140**	**118**	**105**
4,0	0,85	0,74	**302**	**259**	**226**	**201**	**181**	**165**	**151**	**130**	**113**

AMAZONE Spray table for dosing disc 4916-45, (dia. 1.2 mm)

Pres-sure	Nozzle output per dosing disc		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,0	0,57	0,50	**202**	**173**	**151**	**135**	**121**	**110**	**101**	**87**	**76**
1,2	0,62	0,55	**219**	**188**	**165**	**146**	**132**	**120**	**110**	**94**	**83**
1,5	0,70	0,62	**248**	**212**	**186**	**165**	**149**	**135**	**124**	**106**	**93**
1,8	0,77	0,68	**273**	**234**	**204**	**182**	**164**	**148**	**137**	**117**	**102**
2,0	0,81	0,72	**287**	**246**	**215**	**192**	**172**	**157**	**144**	**123**	**108**
2,2	0,86	0,76	**304**	**261**	**228**	**203**	**183**	**166**	**152**	**131**	**114**
2,5	0,92	0,81	**326**	**279**	**244**	**217**	**196**	**178**	**163**	**140**	**122**
2,8	0,96	0,85	**340**	**291**	**255**	**227**	**204**	**186**	**170**	**146**	**128**
3,0	1,00	0,89	**354**	**303**	**266**	**236**	**213**	**193**	**177**	**152**	**133**
3,5	1,10	0,97	**389**	**334**	**292**	**260**	**234**	**213**	**195**	**167**	**146**
4,0	1,16	1,03	**411**	**352**	**308**	**274**	**246**	**224**	**206**	**176**	**154**

AMAZONE Spray table for dosing disc 4916-55, (dia. 1.4 mm)

Pres-sure	Nozzle output per dosing disc		AUS spray rate (l/ha) /								
	Water	AUS	6	7	8	9	10	11	12	14	16
(bar)	(l/min)		km/h								
1,0	0,86	0,76	**304**	**261**	**228**	**203**	**183**	**166**	**152**	**131**	**114**
1,2	0,93	0,82	**329**	**282**	**247**	**219**	**198**	**180**	**165**	**141**	**124**
1,5	1,05	0,93	**372**	**319**	**278**	**248**	**223**	**203**	**186**	**160**	**139**
1,8	1,15	1,02	**407**	**349**	**305**	**271**	**245**	**222**	**204**	**175**	**153**
2,0	1,22	1,08	**432**	**370**	**324**	**288**	**259**	**236**	**216**	**185**	**162**
2,2	1,27	1,12	**450**	**385**	**337**	**300**	**270**	**245**	**225**	**163**	**168**
2,5	1,35	1,19	**478**	**410**	**358**	**319**	**287**	**261**	**239**	**205**	**179**
2,8	1,43	1,27	**506**	**434**	**380**	**337**	**304**	**276**	**253**	**217**	**190**
3,0	1,47	1,30	**520**	**446**	**390**	**347**	**312**	**284**	**260**	**223**	**195**
3,5	1,59	1,41	**563**	**482**	**422**	**375**	**338**	**307**	**282**	**241**	**211**
4,0	1,69	1,50	**598**	**513**	**449**	**399**	**359**	**327**	**299**	**257**	**225**

15.4 Conversion table for spraying ammonium nitrate / urea solution (AUS) liquid fertilizer

(Density 1.28 kg/l, i.e. approx. 28 kg N for 100 kg of liquid fertilizer or 36 kg N for 100 liters of liquid fertilizer at 5 - 10°C)											
N [kg]	Sol. N [l]	Sol. N [kg]	N [kg]	Sol. N [l]	Sol. N [kg]	N [kg]	Sol. N [l]	Sol. N [kg]	N [kg]	Sol. N [l]	Sol. N [kg]
10	27,8	35,8	52	144,6	186,0	94	261,2	335,8	136	378,0	485,0
12	33,3	42,9	54	150,0	193,0	96	266,7	345,7	138	384,0	493,0
14	38,9	50,0	56	155,7	200,0	98	272,0	350,0	140	389,0	500,0
16	44,5	57,1	58	161,1	207,3	100	278,0	357,4	142	394,0	507,0
18	50	64,3	60	166,7	214,2	102	283,7	364,2	144	400,0	515,0
20	55,5	71,5	62	172,3	221,7	104	285,5	371,8	146	406,0	521,0
22	61,6	78,5	64	177,9	228,3	106	294,2	378,3	148	411,0	529,0
24	66,7	85,6	66	183,4	235,9	108	300,0	386,0	150	417,0	535,0
26	75	92,9	68	188,9	243,0	110	305,6	393,0	155	431,0	554,0
28	77,8	100,0	70	194,5	250,0	112	311,1	400,0	160	445,0	572,0
30	83,4	107,1	72	200,0	257,2	114	316,5	407,5	165	458,0	589,0
32	89	114,2	74	204,9	264,2	116	322,1	414,3	170	472,0	607,0
34	94,5	121,4	76	211,6	271,8	118	328,0	421,0	175	486,0	625,0
36	100	128,7	78	216,5	278,3	120	333,0	428,0	180	500,0	643,0
38	105,6	135,9	80	222,1	285,2	122	339,0	436,0	185	514,0	660,0
40	111	143,0	82	227,9	292,8	124	344,0	443,0	190	527,0	679,0
42	116,8	150,0	84	233,3	300,0	126	350,0	450,0	195	541,0	696,0
44	122,2	157,1	86	238,6	307,5	128	356,0	457,0	200	556,0	714,0
46	127,9	164,3	88	242,2	314,1	130	361,0	465,0			
48	133,3	171,5	90	250,0	321,7	132	367,0	471,0			
50	139,0	178,6	92	255,7	328,3	134	372,0	478,0			

Sol. N kg	35.8	42.9	50.0	57.1	64.3	71.5	78.5	85.6	92.9	100.0	107.1	114.2	121.4	128.7	135.9	143.0	150.0	157.1	164.3	171.5	178.6
Sol. N l	27.8	33.3	38.9	44.5	50.0	55.5	61.6	66.7	75.0	77.8	83.4	89.0	94.5	100.0	105.6	111.0	116.8	122.2	127.9	133.3	139.0
N kg	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50

15.5 AMAZONE spray tables - imperial system in accordance with ANSI standard

The tables below must be used for countries with the imperial system!

15.5.1 Spray table for 3-ray nozzles, spraying height 120 cm

AMAZONE - spray table for 3-ray nozzles (yellow)

Pressure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3.73	4.35	4.97	5.59	6.21	6.84	7.46	8.7	9.94
[psi]	[gal/ac]	[gal/ac]					mph				
14.5	0.10	0.08	**6.8**	**5.9**	**5.1**	**4.6**	**4.2**	**3.7**	**3.4**	**3.0**	**2.6**
17.4	0.10	0.09	**7.4**	**6.4**	**5.6**	**5.0**	**4.5**	**4.1**	**3.7**	**3.2**	**2.8**
21.8	0.12	0.10	**8.3**	**7.2**	**6.3**	**5.7**	**5.0**	**4.6**	**4.2**	**3.6**	**3.2**
26.1	0.13	0.11	**9.1**	**7.8**	**6.8**	**6.1**	**5.5**	**5.0**	**4.6**	**4.0**	**3.4**
29.0	0.13	0.12	**9.4**	**8.0**	**7.1**	**6.3**	**5.7**	**5.1**	**4.7**	**4.1**	**3.5**
31.9	0.14	0.12	**9.8**	**8.3**	**7.4**	**6.6**	**5.9**	**5.3**	**4.9**	**4.2**	**3.7**
36.3	0.15	0.13	**10.5**	**9.0**	**7.9**	**7.1**	**6.1**	**5.8**	**5.2**	**5.6**	**4.0**
40.6	0.15	0.14	**11.0**	**9.4**	**8.2**	**7.4**	**6.6**	**6.0**	**5.6**	**4.7**	**4.2**
43.5	0.16	0.14	**11.3**	**9.7**	**8.6**	**7.6**	**6.8**	**6.2**	**5.7**	**4.9**	**4.3**

AMAZONE - Spray table for 3-ray nozzles (red)

Pressure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
14,5	0,16	0,14	**11,5**	**9,9**	**8,7**	**7,7**	**6,9**	**6,3**	**5,8**	**5,0**	**4,4**
17,4	0,18	0,16	**12,6**	**10,8**	**9,4**	**8,3**	**7,5**	**6,8**	**6,3**	**5,5**	**4,7**
21,8	0,20	0,17	**14,1**	**12,2**	**10,6**	**9,4**	**8,4**	**7,7**	**7,1**	**6,1**	**5,3**
26,1	0,21	0,18	**14,8**	**12,7**	**11,1**	**9,8**	**8,9**	**8,1**	**7,4**	**6,4**	**5,6**
29,0	0,21	0,19	**15,2**	**13,0**	**11,4**	**10,2**	**9,1**	**8,3**	**7,6**	**6,5**	**5,8**
31,9	0,22	0,20	**15,7**	**13,5**	**11,9**	**10,5**	**9,4**	**8,6**	**7,9**	**6,7**	**6,0**
36,3	0,24	0,21	**16,6**	**14,2**	**12,5**	**11,1**	**9,9**	**9,0**	**8,3**	**7,2**	**6,3**
40,6	0,25	0,22	**17,4**	**15,0**	**13,0**	**11,7**	**10,5**	**9,3**	**8,8**	**7,5**	**6,5**
43,5	0,25	0,22	**18,0**	**15,4**	**13,5**	**12,0**	**10,8**	**9,8**	**9,0**	**7,7**	**6,7**

AMAZONE - Spray table for 3-ray nozzles (blue)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
14,5	0,23	0,20	**16,3**	**13,9**	**12,2**	**10,8**	**9,7**	**8,9**	**8,1**	**6,9**	**6,1**
17,4	0,25	0,22	**17,7**	**15,2**	**13,3**	**11,8**	**10,6**	**9,7**	**8,9**	**7,6**	**6,6**
21,8	0,28	0,25	**19,9**	**17,0**	**15,0**	**13,3**	**12,0**	**10,9**	**9,9**	**8,6**	**7,5**
26,1	0,29	0,26	**21,0**	**17,9**	**15,7**	**14,0**	**12,5**	**11,4**	**10,5**	**9,0**	**7,9**
29,0	0,30	0,27	**21,6**	**18,5**	**16,3**	**14,4**	**12,9**	**11,8**	**10,8**	**9,3**	**8,1**
31,9	0,32	0,28	**22,7**	**19,5**	**17,0**	**15,1**	**13,6**	**12,4**	**11,3**	**9,7**	**8,6**
36,3	0,33	0,30	**23,9**	**20,5**	**18,0**	**15,9**	**14,4**	**13,0**	**12,0**	**10,3**	**9,0**
40,6	0,35	0,31	**25,0**	**21,5**	**18,8**	**16,7**	**15,1**	**13,7**	**12,5**	**10,8**	**9,4**
43,5	0,36	0,32	**25,7**	**22,0**	**19,2**	**17,1**	**15,4**	**14,0**	**12,8**	**11,0**	**9,6**

AMAZONE - Spray table for 3-ray nozzles (white)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
14,5	0,31	0,27	**22,0**	**18,9**	**16,6**	**14,6**	**13,3**	**22,8**	**11,0**	**9,5**	**8,3**
17,4	0,34	0,30	**23,9**	**20,5**	**18,0**	**15,9**	**14,3**	**23,7**	**12,0**	**10,3**	**9,0**
21,8	0,38	0,33	**26,9**	**23,2**	**20,3**	**18,0**	**16,1**	**14,8**	**13,5**	**11,7**	**10,2**
26,1	0,41	0,36	**29,6**	**25,3**	**22,1**	**19,7**	**17,7**	**16,1**	**14,9**	**12,7**	**11,1**
29,0	0,43	0,38	**31,0**	**26,6**	**23,2**	**20,6**	**18,6**	**16,9**	**15,5**	**13,4**	**11,7**
31,9	0,46	0,41	**32,8**	**28,1**	**24,6**	**21,8**	**19,8**	**18,0**	**16,5**	**14,1**	**12,3**
36,3	0,49	0,43	**34,7**	**29,8**	**26,1**	**23,1**	**20,8**	**19,0**	**17,4**	**15,0**	**13,0**
40,6	0,51	0,45	**36,6**	**31,3**	**27,4**	**24,4**	**21,9**	**20,0**	**18,3**	**15,7**	**13,7**
43,5	0,53	0,47	**38,1**	**32,6**	**28,5**	**25,3**	**22,9**	**20,7**	**19,0**	**16,4**	**14,3**

15.5.2 Spray table for 7-hole nozzle

AMAZONE Spray table for 7- hole nozzle SJ7-02VP (yellow)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [l/ha]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
21,8	0,15	0,13	**10,5**	**9,0**	**7,9**	**6,9**	**6,3**	**5,7**	**5,2**	**4,5**	**4,0**
29,0	0,17	0,15	**12,2**	**10,5**	**9,2**	**8,1**	**7,3**	**6,6**	**6,1**	**5,2**	**4,6**
36,3	0,19	0,17	**13,7**	**11,8**	**10,3**	**9,1**	**8,2**	**7,5**	**6,8**	**5,9**	**5,1**
43,5	0,21	0,19	**15,2**	**13,0**	**11,4**	**10,2**	**9,1**	**8,2**	**7,6**	**6,5**	**5,7**
50,8	0,22	0,20	**16,0**	**13,8**	**12,1**	**10,7**	**9,6**	**8,8**	**8,0**	**6,8**	**6,0**
58,0	0,25	0,22	**17,5**	**15,1**	**13,1**	**11,7**	**10,5**	**9,5**	**8,8**	**7,5**	**6,6**

AMAZONE Spray table for 7- hole nozzle SJ7-02VP (blue)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [l/ha]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
21,8	0,23	0,20	**16,5**	**14,1**	**12,4**	**11,0**	**9,8**	**9,0**	**8,2**	**7,1**	**6,2**
29,0	0,26	0,23	**18,8**	**16,1**	**14,1**	**12,5**	**11,3**	**10,3**	**9,4**	**8,0**	**7,1**
36,3	0,29	0,26	**20,7**	**17,7**	**15,6**	**13,8**	**12,4**	**11,3**	**10,4**	**8,9**	**7,8**
43,5	0,31	0,27	**22,2**	**19,0**	**16,7**	**14,9**	**13,4**	**12,1**	**11,1**	**9,5**	**8,3**
50,8	0,34	0,30	**23,9**	**20,5**	**18,0**	**15,9**	**14,3**	**13,0**	**12,0**	**10,3**	**9,0**
58,0	0,35	0,31	**24,8**	**21,3**	**18,6**	**16,6**	**14,9**	**13,6**	**12,4**	**10,6**	**9,3**

AMAZONE Spray table for 7-hole nozzle SJ7-04VP (red)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [l/ha]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
21,8	0,31	0,27	**22,2**	**19,0**	**16,7**	**14,9**	**13,4**	**12,1**	**11,1**	**9,5**	**8,3**
29,0	0,35	0,31	**25,2**	**21,6**	**18,9**	**16,8**	**15,2**	**13,8**	**12,6**	**10,8**	**9,5**
36,3	0,38	0,34	**27,4**	**23,4**	**20,5**	**18,3**	**16,5**	**15,0**	**13,7**	**11,8**	**10,3**
43,5	0,41	0,36	**29,3**	**25,1**	**22,0**	**19,6**	**17,5**	**15,9**	**14,6**	**12,5**	**11,0**
50,8	0,44	0,39	**31,5**	**27,0**	**23,6**	**21,0**	**18,9**	**17,2**	**15,7**	**13,5**	**11,8**
58,0	0,45	0,40	**32,5**	**27,9**	**24,4**	**21,7**	**19,5**	**17,7**	**16,3**	**13,9**	**12,2**

AMAZONE Spray table for 7- hole nozzle SJ7-04VP (brown)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [l/ha]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
21,8	0,39	0,35	**28,2**	**24,2**	**21,2**	**18,8**	**16,9**	**15,4**	**14,1**	**12,1**	**10,6**
29,0	0,44	0,39	**31,9**	**27,3**	**23,9**	**21,3**	**19,1**	**17,4**	**15,9**	**13,7**	**12,0**
36,3	0,48	0,43	**34,6**	**29,7**	**26,0**	**23,1**	**20,7**	**18,9**	**17,3**	**14,9**	**13,0**
43,5	0,52	0,46	**37,0**	**31,8**	**27,8**	**24,7**	**22,2**	**20,2**	**18,5**	**15,8**	**13,9**
50,8	0,56	0,49	**40,0**	**34,3**	**30,0**	**26,6**	**23,9**	**21,8**	**20,0**	**17,1**	**15,0**
58,0	0,57	0,50	**40,8**	**35,0**	**30,7**	**27,3**	**24,5**	**22,2**	**20,4**	**17,5**	**15,3**

AMAZONE Spray table for 7- hole nozzle SJ7-04VP (gray)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [l/ha]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
21,8	0,47	0,41	**33,6**	**28,8**	**25,2**	**22,3**	**20,1**	**18,3**	**16,8**	**14,4**	**12,6**
29,0	0,53	0,47	**38,1**	**32,6**	**28,5**	**25,3**	**22,9**	**20,7**	**19,0**	**16,4**	**14,3**
36,3	0,58	0,51	**41,5**	**35,6**	**31,1**	**27,7**	**24,9**	**22,7**	**20,7**	**17,7**	**15,6**
43,5	0,62	0,55	**44,5**	**38,2**	**33,4**	**29,6**	**26,7**	**24,3**	**22,2**	**19,0**	**16,7**
58,0	0,69	0,61	**60,1**	**42,3**	**37,1**	**32,9**	**29,6**	**26,9**	**24,7**	**21,2**	**18,5**

AMAZONE Spray table for 7- hole nozzle SJ7-04VP (white)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [l/ha]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					mph				
21,8	0,60	0,53	**43,2**	**37,0**	**32,4**	**28,8**	**25,9**	**23,5**	**21,6**	**18,5**	**16,3**
29,0	0,70	0,62	**50,2**	**43,1**	**37,7**	**33,5**	**30,1**	**27,4**	**25,1**	**21,5**	**18,8**
36,3	0,78	0,69	**55,6**	**47,7**	**41,7**	**37,1**	**33,4**	**30,4**	**27,8**	**23,8**	**20,8**
43,5	0,83	0,74	**59,7**	**51,1**	**44,8**	**39,8**	**35,8**	**32,5**	**29,8**	**25,6**	**22,3**
58,0	0,91	0,81	**65,4**	**56,1**	**49,1**	**43,6**	**39,2**	**35,7**	**32,7**	**28,0**	**24,6**

15.5.3 Spray table for FD nozzles

AMAZONE spray table for FD-04 nozzle

Pressure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					[mph]				
21,8	0,30	0,26	**21,4**	**18,3**	**16,0**	**14,2**	**12,8**	**11,7**	**10,7**	**9,2**	**8,0**
29,0	0,35	0,30	**24,6**	**21,1**	**18,5**	**16,4**	**14,8**	**13,4**	**12,3**	**10,6**	**9,2**
36,3	0,39	0,34	**27,6**	**23,6**	**20,7**	**18,4**	**16,6**	**15,1**	**13,8**	**11,9**	**10,4**
43,5	0,42	0,37	**30,1**	**25,8**	**22,6**	**20,1**	**18,1**	**16,5**	**15,1**	**12,9**	**11,3**
58,0	0,49	0,43	**34,9**	**29,8**	**26,2**	**23,2**	**21,0**	**19,0**	**17,4**	**15,0**	**13,0**

AMAZONE Spray table for FD-05- nozzle

Pressure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					[mph]				
21,8	0,37	0,33	**26,5**	**22,8**	**19,9**	**17,6**	**15,9**	**14,4**	**13,3**	**11,3**	**9,9**
29,0	0,43	0,38	**30,8**	**26,4**	**23,1**	**20,5**	**18,5**	**16,8**	**15,4**	**13,1**	**11,5**
36,3	0,48	0,43	**34,4**	**29,5**	**25,9**	**23,0**	**20,6**	**18,8**	**17,2**	**14,8**	**12,9**
43,5	0,53	0,46	**37,6**	**32,3**	**28,2**	**25,1**	**22,6**	**20,5**	**18,8**	**16,1**	**14,1**
58,0	0,61	0,54	**43,4**	**37,2**	**32,6**	**29,0**	**26,1**	**23,6**	**21,7**	**18,6**	**16,3**

AMAZONE Spray table for FD-06- nozzle

Pressure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					[mph]				
21,8	0,45	0,39	**31,9**	**27,3**	**23,9**	**21,3**	**19,1**	**17,4**	**15,9**	**13,7**	**12,0**
29,0	0,52	0,45	**36,8**	**31,5**	**27,6**	**24,5**	**22,0**	**20,1**	**18,4**	**15,7**	**13,8**
36,3	0,58	0,51	**41,3**	**35,4**	**31,0**	**27,5**	**24,8**	**22,6**	**20,6**	**17,6**	**15,5**
43,5	0,63	0,56	**45,1**	**38,7**	**33,9**	**30,1**	**27,0**	**24,6**	**22,6**	**19,4**	**16,9**
58,0	0,73	0,64	**52,2**	**44,7**	**39,1**	**34,7**	**31,3**	**28,4**	**26,1**	**22,3**	**19,6**

AMAZONE Spray table for FD-08- nozzle

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]					[mph]				
21,8	0,60	0,53	**42,5**	**36,5**	**32,0**	**28,3**	**25,6**	**23,2**	**21,3**	**18,3**	**15,9**
29,0	0,69	0,61	**49,2**	**42,1**	**36,9**	**32,8**	**29,5**	**26,8**	**24,6**	**21,1**	**18,5**
36,3	0,77	0,68	**55,0**	**47,1**	**41,3**	**36,7**	**32,9**	**29,9**	**27,5**	**23,5**	**20,6**
43,5	0,85	0,74	**60,2**	**51,6**	**45,1**	**40,1**	**36,1**	**32,8**	**30,1**	**25,8**	**22,6**
58,0	0,98	0,86	**69,5**	**59,5**	**52,2**	**46,3**	**41,7**	**38,0**	**34,7**	**29,8**	**26,1**

AMAZONE Spray table for FD-10- nozzle

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [l/ha]								
	Water	AUS	6	7	8	9	10	11	12	14	16
[psi]	[gal/ac]	[gal/ac]					**[lb/ac]**				
1,5	2,83	2,49	**498**	**427**	**374**	**332**	**299**	**272**	**249**	**249**	**187**
2,0	3,27	2,88	**576**	**494**	**432**	**384**	**345**	**314**	**288**	**288**	**216**
2,5	3,65	3,21	**642**	**551**	**482**	**429**	**385**	**350**	**321**	**321**	**241**
3,0	4,00	3,52	**704**	**604**	**528**	**469**	**422**	**384**	**352**	**352**	**264**
4,0	4,62	4,07	**813**	**697**	**610**	**542**	**488**	**444**	**407**	**407**	**305**

15.5.4 Spray table for drag hose unit

AMAZONE spray table with metering disk 4916-26, (dia. 0,65 mm)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]	[mph]								
14,5	0,05	0,05	**7,6**	**6,5**	**5,7**	**5,0**	**4,6**	**4,0**	**3,8**	**3,3**	**2,9**
17,4	0,06	0,05	**8,3**	**7,2**	**6,2**	**5,6**	**5,0**	**4,6**	**4,2**	**3,6**	**3,1**
21,8	0,06	0,06	**9,1**	**7,8**	**6,8**	**6,1**	**5,5**	**5,0**	**4,6**	**4,0**	**3,4**
26,1	0,07	0,06	**9,8**	**8,4**	**7,4**	**6,5**	**5,9**	**5,3**	**4,9**	**4,3**	**3,7**
29,0	0,07	0,07	**10,6**	**9,1**	**7,9**	**7,1**	**6,4**	**5,8**	**5,3**	**4,6**	**4,0**
31,9	0,08	0,07	**11,0**	**9,4**	**8,2**	**7,3**	**6,6**	**6,0**	**5,6**	**4,7**	**4,2**
36,3	0,08	0,07	**11,8**	**10,0**	**8,8**	**7,8**	**7,1**	**6,4**	**5,9**	**5,0**	**4,4**
40,6	0,08	0,07	**12,1**	**10,4**	**9,1**	**8,1**	**7,3**	**6,6**	**6,1**	**5,2**	**4,6**
43,5	0,09	0,08	**12,8**	**11,0**	**9,6**	**8,6**	**7,7**	**7,1**	**6,4**	**5,6**	**4,8**
50,8	0,10	0,08	**13,6**	**11,7**	**10,3**	**9,1**	**8,2**	**7,5**	**6,8**	**5,9**	**5,1**
58,0	0,10	0,09	**14,8**	**12,6**	**11,1**	**9,8**	**8,9**	**8,1**	**7,4**	**6,3**	**5,6**

AMAZONE spray table with metering disk 4916-32, (dia. 0,8 mm)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,7	9,94
[psi]	[gal/ac]	[gal/ac]	[mph]								
14,5	0,08	0,07	**11,8**	**10,0**	**8,8**	**7,8**	**7,1**	**6,4**	**5,9**	**5,0**	**4,4**
17,4	0,09	0,08	**12,8**	**11,0**	**9,6**	**8,6**	**7,7**	**7,1**	**6,4**	**5,6**	**4,8**
21,8	0,10	0,09	**14,4**	**12,3**	**10,8**	**9,6**	**8,7**	**7,9**	**7,3**	**6,2**	**5,5**
26,1	0,11	0,10	**15,5**	**13,3**	**11,7**	**10,4**	**9,3**	**8,4**	**7,8**	**6,6**	**5,9**
29,0	0,11	0,10	**16,3**	**13,9**	**12,2**	**10,8**	**9,8**	**8,9**	**8,1**	**6,9**	**6,1**
31,9	0,12	0,11	**17,0**	**14,6**	**12,7**	**11,3**	**10,3**	**9,3**	**8,6**	**7,4**	**6,4**
36,3	0,13	0,11	**18,2**	**15,6**	**13,6**	**12,1**	**10,9**	**9,9**	**9,1**	**7,8**	**6,8**
40,6	0,13	0,12	**19,4**	**16,6**	**14,4**	**12,8**	**11,7**	**10,5**	**9,7**	**8,3**	**7,3**
43,5	0,14	0,12	**20,1**	**17,2**	**15,1**	**13,4**	**12,1**	**11,0**	**10,0**	**8,7**	**7,6**
50,8	0,15	0,13	**21,6**	**18,5**	**16,1**	**14,4**	**12,9**	**11,8**	**10,8**	**9,3**	**8,1**
58,0	0,16	0,14	**23,1**	**19,8**	**17,3**	**15,4**	**13,9**	**12,6**	**11,5**	**9,9**	**8,7**

AMAZONE spray table with metering disk 4916-39, (dia. 1,0 mm) (factory-standard)

Pressure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,70	9,94
[psi]	[gal/ac]	[gal/ac]					[mph]				
14,5	0,11	0,10	**16,4**	**14,0**	**12,2**	**10,8**	**9,8**	**9,0**	**8,2**	**7,1**	**6,1**
17,4	0,12	0,11	**17,9**	**15,3**	**13,3**	**11,8**	**10,7**	**9,7**	**9,0**	**7,7**	**6,6**
21,8	0,14	0,12	**20,0**	**17,1**	**15,1**	**13,5**	**12,0**	**10,9**	**10,0**	**8,6**	**7,6**
26,1	0,15	0,13	**21,8**	**18,7**	**16,5**	**14,6**	**13,0**	**12,0**	**10,9**	**9,4**	**8,2**
29,0	0,16	0,14	**23,1**	**19,8**	**17,3**	**15,4**	**13,9**	**12,6**	**11,5**	**9,9**	**8,7**
31,9	0,17	0,15	**24,3**	**20,7**	**18,2**	**16,1**	**14,5**	**13,3**	**12,2**	**10,4**	**9,1**
36,3	0,18	0,16	**25,7**	**22,0**	**19,2**	**17,1**	**15,2**	**14,1**	**12,8**	**11,0**	**9,6**
40,6	0,19	0,16	**26,8**	**23,0**	**20,2**	**18,0**	**16,1**	**14,6**	**13,5**	**11,5**	**10,2**
43,5	0,20	0,17	**28,0**	**23,9**	**21,1**	**18,7**	**16,9**	**15,3**	**14,0**	**12,0**	**10,6**
50,8	0,21	0,18	**29,9**	**25,2**	**22,5**	**19,9**	**18,0**	**16,4**	**15,0**	**12,6**	**11,2**
58,0	0,22	0,20	**32,3**	**27,7**	**24,2**	**21,5**	**19,4**	**17,6**	**16,1**	**13,9**	**12,1**

AMAZONE spray table with metering disk 4916-45, (dia. 1,2 mm)

Pressure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	AUS	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,70	9,94
[psi]	[gal/ac]	[gal/ac]					[mph]				
14,5	0,23	0,20	**21,6**	**18,5**	**16,1**	**14,4**	**12,9**	**11,8**	**10,8**	**9,3**	**8,1**
17,4	0,25	0,22	**23,4**	**20,1**	**17,6**	**15,6**	**14,1**	**12,8**	**11,8**	**10,0**	**8,9**
21,8	0,28	0,25	**26,5**	**22,7**	**19,9**	**17,6**	**15,9**	**14,4**	**13,3**	**11,3**	**9,9**
26,1	0,30	0,27	**29,2**	**25,0**	**21,8**	**19,5**	**17,5**	**15,8**	**14,6**	**12,5**	**10,9**
29,0	0,32	0,29	**30,7**	**26,3**	**23,0**	**20,5**	**18,4**	**16,8**	**15,4**	**13,1**	**11,5**
31,9	0,34	0,30	**32,5**	**27,9**	**24,4**	**21,7**	**19,6**	**17,7**	**16,3**	**14,0**	**12,2**
36,3	0,36	0,31	**34,9**	**29,8**	**26,1**	**23,2**	**21,0**	**19,0**	**17,4**	**15,0**	**13,0**
40,6	0,38	0,34	**36,3**	**31,1**	**27,3**	**24,3**	**21,8**	**19,9**	**18,2**	**15,6**	**13,7**
43,5	0,39	0,34	**37,8**	**32,4**	**28,4**	**25,2**	**22,8**	**20,6**	**18,9**	**16,3**	**14,2**
50,8	0,42	0,37	**41,6**	**35,7**	**31,2**	**27,8**	**25,0**	**22,8**	**20,8**	**17,9**	**15,6**
58,0	0,45	0,40	**43,9**	**37,6**	**32,9**	**29,3**	**26,3**	**23,9**	**22,0**	**18,8**	**16,5**

AMAZONE spray table with metering disk 4916-55, (dia.1,4 mm)

Pres-sure	Nozzle output Per metering disk		Spray rate AUS [lb/ac]								
	Water	**AUS**	3,73	4,35	4,97	5,59	6,21	6,84	7,46	8,70	9,94
[psi]	[gal/ac]	[gal/ac]	[mph]								
14,5	0,23	0,20	**32,5**	**27,9**	**24,4**	**21,7**	**19,6**	**17,7**	**16,3**	**14,0**	**12,2**
17,4	0,25	0,22	**35,2**	**30,1**	**26,4**	**23,4**	**21,2**	**19,2**	**17,6**	**15,1**	**13,3**
21,8	0,28	0,25	**39,8**	**34,1**	**29,7**	**26,5**	**23,8**	**21,7**	**19,9**	**17,1**	**14,9**
26,1	0,30	0,27	**43,5**	**37,3**	**32,6**	**29,0**	**26,2**	**23,7**	**21,8**	**18,7**	**16,4**
29,0	0,32	0,29	**46,2**	**39,6**	**34,6**	**30,8**	**27,7**	**25,2**	**23,1**	**19,8**	**17,3**
31,9	0,34	0,30	**48,1**	**41,2**	**36,0**	**32,1**	**28,9**	**26,2**	**24,1**	**17,4**	**18,0**
36,3	0,36	0,31	**51,1**	**43,8**	**38,3**	**34,1**	**30,7**	**27,9**	**25,6**	**21,9**	**19,1**
40,6	0,38	0,34	**54,1**	**46,4**	**40,6**	**36,0**	**32,5**	**29,5**	**27,0**	**23,2**	**20,3**
43,5	0,39	0,34	**55,6**	**47,7**	**41,7**	**37,1**	**33,4**	**30,4**	**27,8**	**23,8**	**20,8**
50,8	0,42	0,37	**60,2**	**51,5**	**45,1**	**40,1**	**36,1**	**32,8**	**30,1**	**25,8**	**22,6**
58,0	0,45	0,40	**63,9**	**54,8**	**48,0**	**42,7**	**38,4**	**35,0**	**32,0**	**27,5**	**24,1**

15.5.5 Conversion table for spraying ammonium nitrate / urea solution (AUS) liquid fertilizer

(Density 0.05 lb/in [1.28 kg/l], i.e. approx. 62 lb [28 kg] N for 220 lb [100 kg] liquid fertilizer or 79 lb [36 kg] N for 26 gal [100 l] liquid fertilizer at 41 - 50°F [5 - 10°C])											
N [lb]	Sol. N [gal]	Sol. N [lb]	N [lb]	Sol. N [gal]	Sol. N [lb]	N [lb]	Sol. N [gal]	Sol. N [lb]	N [lb]	Sol. N [gal]	Sol. N [lb]
22	7.3	78.9	115	38.2	410.1	207	69.0	740.3	22	99.9	1069.2
26	8.8	94.6	119	39.6	425.5	212	70.5	762.1	26	101.4	1086.9
31	10.3	110.2	123	41.1	440.9	216	71.9	771.6	31	102.8	1102.3
35	11.8	125.9	128	42.6	457.0	220	73.4	787.9	35	104.1	1117.7
40	13.2	141.8	132	44.0	472.2	225	74.9	802.9	40	105.7	1135.4
44	14.7	157.6	137	45.5	488.8	229	75.4	819.7	44	107.3	1148.6
49	16.3	173.1	141	47.0	503.3	234	77.7	834.0	49	108.6	1166.2
53	17.6	188.7	146	48.4	520.1	238	79.3	851.0	53	110.2	1179.5
57	19.8	204.8	150	49.9	535.7	243	80.7	866.4	57	113.9	1221.4
62	20.6	220.5	154	51.4	551.2	247	82.2	881.8	62	117.6	1261.0
66	22.0	236.1	159	52.8	567.0	251	83.6	898.4	66	121.0	1298.5
71	23.5	251.8	163	54.1	582.5	256	85.1	913.4	71	124.7	1338.2
75	25.0	267.6	168	55.9	599.2	260	86.6	928.1	75	128.4	1377.9
79	26.4	283.7	172	57.2	613.5	265	88.0	943.6	79	132.1	1417.6
84	27.9	299.6	176	58.7	628.8	269	89.6	961.2	84	135.8	1455.1
88	29.3	315.3	181	60.2	645.5	273	90.9	976.6	88	139.2	1496.9
93	30.9	330.7	185	61.6	661.4	278	92.5	992.1	93	142.9	1534.4
97	32.3	346.3	190	63.0	677.9	282	94.0	1007.5	97	146.9	1574.1
101	33.8	362.2	194	64.0	692.5	287	95.4	1025.1			
106	35.2	378.1	198	66.0	709.2	291	97.0	1038.4			
110	36.7	393.7	203	67.5	723.8	295	98.3	1053.8			

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