

Operating manual

AMAZONE

UX 4201 Super

UX 5201 Super

UX 6201 Super

Trailed field sprayer with Comfort Package CP Plus



MG6209
BAG0157.5 07.20
Printed in Germany

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

en



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 GmbH & 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 GmbH & 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: MG6209

Compilation date: 07.20

© Copyright AMAZONEN-WERKE H. DREYER GmbH & Co. KG, 2020

All rights reserved.

Reprinting, even of sections, only possible with the approval of AMAZONEN-WERKE H. DREYER GmbH & Co. KG.

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 GmbH & 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

H. DREYER GmbH & Co. KG

Postfach 51

D-49202 Hasbergen, Germany

Tel.: + 49 (0) 5405 50 1-0

E-mail: amazone@amazone.de



| | | |
|----------|--|-----------|
| 1 | User information..... | 11 |
| 1.1 | Purpose of the document | 11 |
| 1.2 | Locations in the operating manual | 11 |
| 1.3 | Diagrams | 11 |
| 2 | General safety instructions | 12 |
| 2.1 | Obligations and liability..... | 12 |
| 2.2 | Representation of safety symbols | 14 |
| 2.3 | Organisational measures | 15 |
| 2.4 | Safety and protective equipment..... | 15 |
| 2.5 | Informal safety measures | 15 |
| 2.6 | User training | 16 |
| 2.7 | Safety measures in normal operation | 17 |
| 2.8 | Danger from residual energy..... | 17 |
| 2.9 | Maintenance and repair work, fault elimination..... | 17 |
| 2.10 | Design changes..... | 17 |
| 2.10.1 | Spare and wear parts and aids | 18 |
| 2.11 | Cleaning and disposal | 18 |
| 2.12 | User workstation..... | 18 |
| 2.13 | Warning symbols and other markings on the machine | 19 |
| 2.13.1 | Positions of warning symbols and other labels | 20 |
| 2.14 | Dangers in case of non-observance of the safety instructions | 29 |
| 2.15 | Safety-conscious working | 29 |
| 2.16 | Safety information for users | 30 |
| 2.16.1 | General safety instructions and accident prevention instructions | 30 |
| 2.16.2 | Hydraulic system | 33 |
| 2.16.3 | Electrical system | 34 |
| 2.16.4 | PTO shaft operation | 34 |
| 2.16.5 | Attached implements..... | 36 |
| 2.16.6 | Brake system..... | 36 |
| 2.16.7 | Tyres..... | 37 |
| 2.16.8 | Field sprayer operation..... | 38 |
| 2.16.9 | Cleaning, maintenance and repair | 39 |
| 3 | Loading and unloading..... | 40 |
| 4 | Product description | 41 |
| 4.1 | Overview of assembly groups | 41 |
| 4.2 | Safety and protection equipment | 43 |
| 4.3 | Supply lines between the tractor and the implement | 44 |
| 4.4 | Transportation equipment | 44 |
| 4.5 | Intended use..... | 45 |
| 4.6 | Implement inspection | 46 |
| 4.7 | Consequences of using certain crop protection agents | 46 |
| 4.8 | Danger areas and danger points..... | 47 |
| 4.9 | Rating plate and CE mark | 48 |
| 4.10 | Conformity | 48 |
| 4.11 | Technically possible maximum application rate | 48 |
| 4.12 | Maximum permissible application rate | 49 |
| 4.13 | Technical data | 50 |
| 4.13.1 | Total dimensions | 50 |
| 4.13.2 | Basic implement..... | 50 |
| 4.13.3 | Spraying technology..... | 51 |
| 4.13.4 | residual amounts | 52 |
| 4.13.1 | Payload | 53 |

| | | |
|----------|---|-----------|
| 4.14 | Noise production data | 54 |
| 4.15 | Necessary tractor equipment | 55 |
| 5 | Layout and function of the basic implement | 56 |
| 5.1 | Method of operation | 56 |
| 5.2 | Control panel | 58 |
| 5.3 | Induction bowl | 60 |
| 5.3.1 | Switch taps on the induction bowl | 61 |
| 5.4 | Universal joint shaft | 62 |
| 5.4.1 | Coupling the universal joint shaft | 64 |
| 5.4.2 | Uncoupling the universal joint shaft | 65 |
| 5.5 | Hydraulic connections | 66 |
| 5.5.1 | Coupling the hydraulic hose lines | 68 |
| 5.5.2 | Uncoupling the hydraulic hose lines | 68 |
| 5.6 | Pneumatic brake system | 69 |
| 5.6.1 | Coupling the brake system | 71 |
| 5.6.2 | Uncoupling the brake system | 72 |
| 5.7 | Hydraulic operating brake system | 73 |
| 5.7.1 | Coupling the hydraulic service brake system | 73 |
| 5.7.2 | Uncoupling the hydraulic service brake system | 73 |
| 5.7.3 | Emergency brake | 73 |
| 5.8 | Parking brake | 75 |
| 5.9 | Foldable wheel chocks | 76 |
| 5.10 | Safety chain between tractor and implements | 77 |
| 5.11 | AutoTrail steering axle | 78 |
| 5.12 | Hydraulic jack | 79 |
| 5.13 | Spray liquid tank | 80 |
| 5.13.1 | Agitators | 81 |
| 5.13.2 | Maintenance platform with ladder | 82 |
| 5.14 | Flushing water tank | 83 |
| 5.15 | Hand wash unit | 84 |
| 5.16 | Hydro-pneumatic spring suspension (optional) | 84 |
| 5.17 | Pump equipment | 85 |
| 5.18 | Filter equipment | 86 |
| 5.18.1 | Filling sieve | 86 |
| 5.18.2 | Suction filter | 86 |
| 5.18.3 | Self-cleaning pressure filter | 87 |
| 5.18.4 | Nozzle filters | 87 |
| 5.19 | Application rate increase with HighFlow | 88 |
| 5.20 | Towing device (optional) | 89 |
| 5.21 | Safety device against unauthorised use | 90 |
| 5.22 | Underbody panelling | 90 |
| 5.23 | Drag hose pre-equipment | 90 |
| 5.24 | Transport and safety container (optional) | 91 |
| 5.25 | Exterior wash down kit (optional) | 91 |
| 5.26 | Camera system | 92 |
| 5.27 | Work lights (optional) | 93 |
| 5.28 | Control terminal | 94 |
| 6 | Layout and function of the sprayer boom | 95 |
| 6.1 | Super-L boom | 98 |
| 6.2 | Reduction joint on the outer boom (optional) | 101 |
| 6.3 | Boom width reduction (option) | 102 |
| 6.4 | Boom extension (option) | 103 |
| 6.5 | Hydraulic tilt adjustment (optional) | 104 |

Table of Contents

| | | |
|-----------|--|------------|
| 6.6 | DistanceControl (optional)..... | 104 |
| 6.7 | Spray lines..... | 105 |
| 6.8 | Nozzles..... | 107 |
| 6.8.1 | Multiple nozzles..... | 107 |
| 6.8.2 | Edge nozzles..... | 110 |
| 6.9 | Automatic single nozzle control (optional) | 111 |
| 6.9.1 | Single nozzle control AmaSwitch..... | 111 |
| 6.9.2 | 4-way AmaSelect single nozzle control..... | 111 |
| 6.10 | Special optional equipment for liquid fertiliser..... | 113 |
| 6.10.1 | Three-ray nozzles (optional) | 113 |
| 6.10.2 | 7-hole nozzles / FD nozzles (optional)..... | 114 |
| 6.10.3 | Drag hose equipment for Super-L boom (optional)..... | 115 |
| 6.11 | Lifting module | 116 |
| 7 | Comfort Package Plus | 117 |
| 7.1 | General..... | 117 |
| 7.1.1 | TwinTerminal..... | 117 |
| 7.1.2 | Software version..... | 117 |
| 7.1.3 | Entering numerical values..... | 118 |
| 7.1.4 | Hierarchy of the software | 118 |
| 7.1.5 | Work / Special functions menu..... | 119 |
| 7.2 | Work menu | 120 |
| 7.2.1 | Status displays in the Work menu..... | 121 |
| 7.2.2 | Spray liquid tank menu..... | 122 |
| 7.2.3 | Flushing water tank menu..... | 123 |
| 7.2.4 | Induction bowl menu | 124 |
| 7.3 | Special functions menu | 125 |
| 7.3.1 | Selecting the filling profile | 126 |
| 7.3.2 | Filling pause | 127 |
| 7.3.3 | Automatic cleaning of induction bowl..... | 128 |
| 7.3.4 | Increasing the filling capacity | 128 |
| 7.4 | Alarm / warning and notification | 129 |
| 8 | Start-up | 130 |
| 8.1 | Checking the suitability of the tractor | 131 |
| 8.1.1 | Calculating the actual values for the total tractor weight, tractor axle loads and load capacities, as well as the minimum ballast | 131 |
| 8.1.2 | Requirements for tractor operation with attached implements..... | 135 |
| 8.2 | Adjusting the length of the PTO shaft to the tractor..... | 139 |
| 8.3 | Securing the tractor / implement against unintentional start-up and rolling away | 141 |
| 8.4 | Installing the wheels | 142 |
| 8.5 | Initial operation of service brake system..... | 143 |
| 8.6 | Adjusting the hydraulic system with the system setting screw | 144 |
| 9 | Coupling and uncoupling the implement..... | 146 |
| 9.1 | Coupling the implement | 146 |
| 9.2 | Uncoupling the implement..... | 148 |
| 9.2.1 | Manoeuvring the uncoupled implement | 149 |
| 10 | Road transport..... | 150 |
| 11 | Use of the implement | 152 |
| 11.1 | Preparing for spraying operation | 155 |
| 11.2 | Preparing the spray liquid | 156 |
| 11.2.1 | Calculating the filling and re-fill quantity..... | 160 |
| 11.2.2 | Filling table for remaining spray area | 161 |
| 11.2.3 | Filling the spray liquid tank..... | 162 |
| 11.2.4 | Flushing in the agent through the induction bowl..... | 165 |
| 11.2.5 | Spray agent suction from containers..... | 167 |
| 11.2.6 | Filling the flushing water tank..... | 168 |

| | | |
|-----------|---|------------|
| 11.3 | Spraying operation | 169 |
| 11.3.1 | Applying the spray liquid | 171 |
| 11.3.2 | Drift reduction measures | 173 |
| 11.3.3 | Diluting the spray liquid with flushing water | 173 |
| 11.3.4 | Residual amounts | 174 |
| 11.3.5 | Diluting the excess residue in the spray liquid tank and spraying out the diluted residue remaining at the end of spraying operations | 175 |
| 11.3.6 | Emptying the spray liquid tank using the pump | 175 |
| 12 | Cleaning the implement after operation | 176 |
| 12.1 | Quick cleaning of the empty field sprayer | 177 |
| 12.2 | Intensive cleaning of the empty field sprayer | 178 |
| 12.3 | Draining the final residues | 179 |
| 12.4 | XtremeClean high-pressure cleaning | 180 |
| 12.5 | Performing chemical cleaning | 182 |
| 12.6 | Cleaning the suction filter and pressure filter | 183 |
| 12.7 | Cleaning the sprayer with a full tank (work interruption) | 186 |
| 12.8 | External cleaning | 186 |
| 13 | Faults | 187 |
| 14 | Cleaning, maintenance and repairs | 189 |
| 14.1 | Cleaning | 191 |
| 14.2 | Winter storage or longer periods out of operation | 192 |
| 14.3 | Lubrication specifications | 195 |
| 14.3.1 | Lubrication point overview | 196 |
| 14.4 | Maintenance schedule – overview | 199 |
| 14.5 | Axle and brake | 202 |
| 14.5.1 | Automatic load-dependent braking force regulator (ALB) | 207 |
| 14.5.2 | Hydraulic brakes | 207 |
| 14.6 | Parking brake | 208 |
| 14.7 | Tyres / wheels | 209 |
| 14.7.1 | Tyre inflation pressure | 209 |
| 14.7.2 | Mounting tyres (workshop work) | 210 |
| 14.8 | Check the coupling device | 211 |
| 14.9 | Towing device | 212 |
| 14.10 | Hydropneumatic spring suspension | 212 |
| 14.11 | Hydraulic system | 213 |
| 14.11.1 | Labelling of hydraulic hose lines | 214 |
| 14.11.2 | Maintenance intervals | 214 |
| 14.11.3 | Inspection criteria for hydraulic hose lines | 214 |
| 14.11.4 | Installation and removal of hydraulic hose lines | 215 |
| 14.11.5 | Oil filter | 216 |
| 14.11.6 | Adjusting the hydraulic throttle valve | 216 |
| 14.11.7 | Hydro-pneumatic pressure reservoir | 217 |
| 14.12 | Settings on the unfolded sprayer boom | 218 |
| 14.13 | Electro hydraulic boom | 219 |
| 14.14 | Pump | 220 |
| 14.14.1 | Check the oil level | 220 |
| 14.14.2 | Changing the oil | 220 |
| 14.14.3 | Cleaning | 220 |
| 14.14.4 | Checking and replacing the suction and pressure-side valves (workshop work) | 221 |
| 14.14.5 | Checking and replacing the piston diaphragm (workshop work) | 222 |
| 14.14.6 | Swivelling flushing water pump | 223 |
| 14.15 | Calibrate the flow meter | 223 |
| 14.16 | Eliminating limescale in the system | 224 |
| 14.17 | Metering the field sprayer | 225 |

Table of Contents

| | | |
|-----------|---|------------|
| 14.18 | Nozzles | 227 |
| 14.19 | Line filter | 228 |
| 14.20 | Instructions on testing the field sprayer | 229 |
| 14.21 | Bolt tightening torques | 231 |
| 14.22 | Disposing of the field sprayer | 232 |
| 15 | Diagrams and overviews | 233 |
| 15.1 | Liquid circuit | 233 |
| 15.2 | Actuators and sensors | 237 |
| 15.3 | Hydraulic diagram | 238 |
| 15.4 | Fuses and relays | 240 |
| 16 | Spray table | 242 |
| 16.1 | Spray tables for flat-fan, anti-drift, injector and airmix nozzles, spraying height 50 cm | 242 |
| 16.2 | Spraying nozzles for liquid fertiliser | 246 |
| 16.2.1 | Spray table for three-ray nozzles, spraying height 120 cm | 246 |
| 16.2.2 | Spray table for 7-hole nozzles | 247 |
| 16.2.3 | Spray table for FD- nozzles | 249 |
| 16.2.4 | Spray table for drag hose unit | 250 |
| 16.3 | Conversion table for spraying ammonium nitrate / urea solution (AUS) liquid fertiliser | 253 |

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.

| Job \ Person | 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 tightened 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.

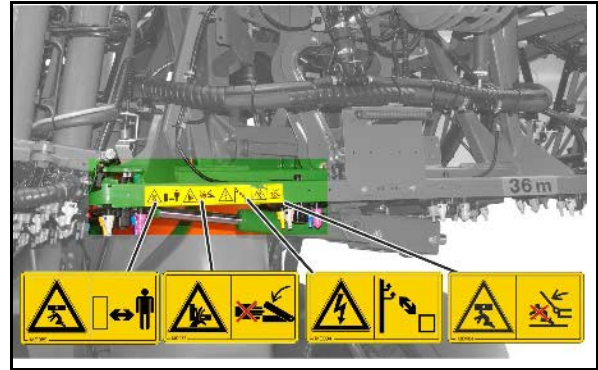
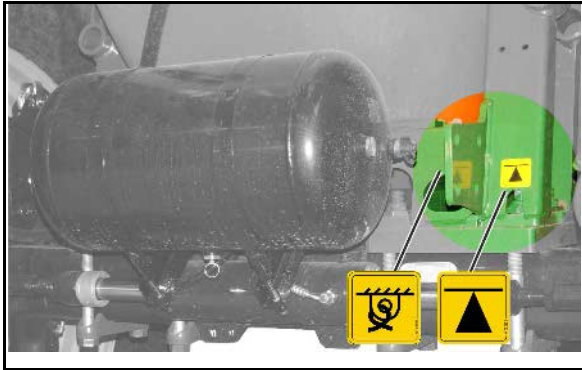
For example: only touch implement parts when they have come to a complete standstill.

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.





General safety instructions

Order number and explanation

Warning symbols

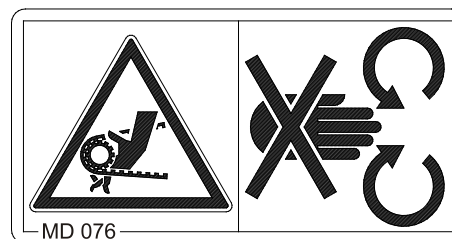
MD 076

Risk of hands or arms being drawn in or entrapped by driven, unprotected chain or belt drives!

This danger causes serious injuries, including loss of body parts such as hand or arm.

Never open or remove protective equipment on chain or belt drives,

- while the tractor engine is running and the universal joint shaft is connected / hydraulic drive is engaged
- if the ground wheel drive is moving



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 084

Risk of crushing the entire body due to standing in the swivel range when implement parts are being lowered.

Causes serious, potentially fatal injuries anywhere on the body.

- It is forbidden to stand in the swivel range of the implement when implement parts are being lowered.
- Instruct personnel to leave the swivel range of any implement parts which can be lowered before you lower the parts.

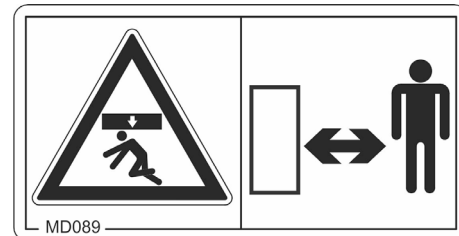


MD 089

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.

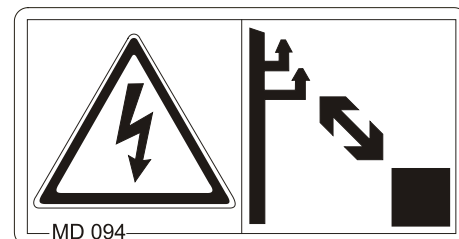


MD 094

Risk of electric shock or burns from accidentally touching overhead power lines or by coming within the prohibited distance of high voltage overhead power lines!

This danger causes serious or potentially fatal injuries anywhere on the body.

Keep a safe distance to the electric overhead power lines when swinging machine parts in and out.



| 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 |

General safety instructions

MD 095

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



MD 096

Danger from escaping high-pressure hydraulic fluid due to leaking hydraulic hose lines.

This danger may cause serious injuries, perhaps even resulting in death, if escaping high-pressure hydraulic fluid passes through the skin and into the body.

- Never attempt to plug leaks in hydraulic hose lines with your hand or fingers.
- Read and observe the information in the operating manual before carrying out maintenance work on the hydraulic hose lines.
- If you are injured by hydraulic fluid, contact a doctor immediately.



MD 097

Risk of crushing and contusions between the rear of the tractor and the implement when coupling and uncoupling the implement!

These dangers can cause extremely serious and potentially fatal injuries.

- It is forbidden to actuate the three-point hydraulic system of the tractor as long as persons are standing between the rear of the tractor and the machine.
- Actuate the operating controls for the tractor's three-point hydraulic system
 - Only from the intended workstation alongside the tractor.
 - Only when you are outside the danger area between the tractor and the implement.

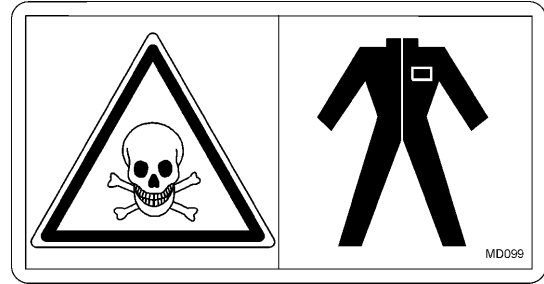


MD 099

Risk of contact with hazardous materials due to improper handling.

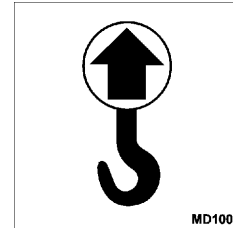
Causes serious, potentially fatal injuries anywhere on the body.

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



MD 100

This symbol indicates the lifting gear attachment points used for loading of the implement.



MD101

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

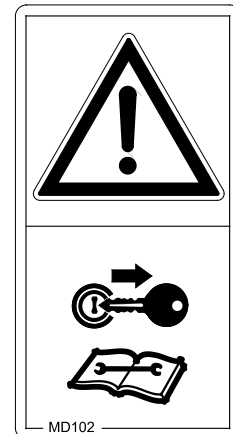


MD 102

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.



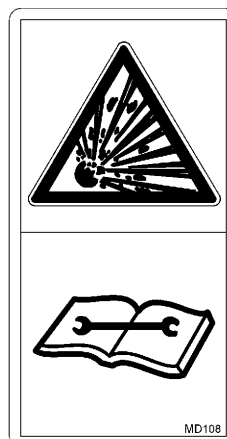
General safety instructions

MD 108

Risk of explosion, or danger from hydraulic fluid escaping under high pressure, caused by the pressure accumulator which is under pressure from gas and oil.

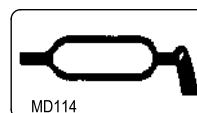
These dangers can cause serious and potentially fatal injuries if highly pressurised, escaping hydraulic fluid penetrates the skin and passes into the body.

- Read and observe the instructions in the operating manual before carrying out any maintenance or repair work.
- If you are injured by hydraulic fluid, contact a doctor immediately.



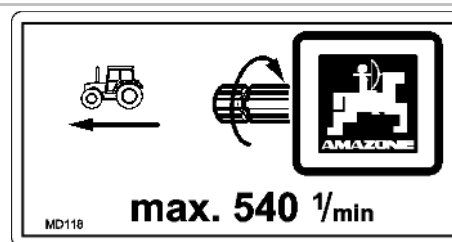
MD 114

This symbol indicates a lubrication point



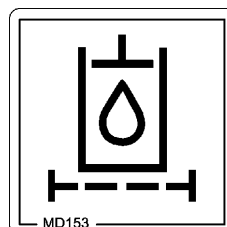
MD 118

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



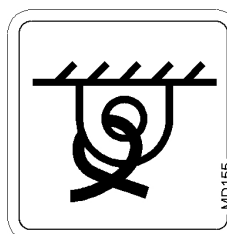
MD 153

This pictogram indicates a hydraulic oil filter.



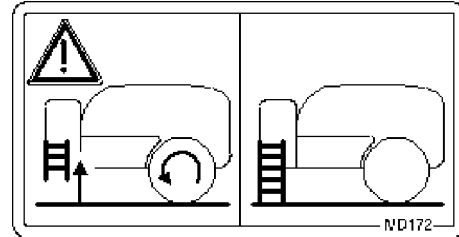
MD 155

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



MD 172

Swing the ladder to the operation platform upwards into transport position when driving!

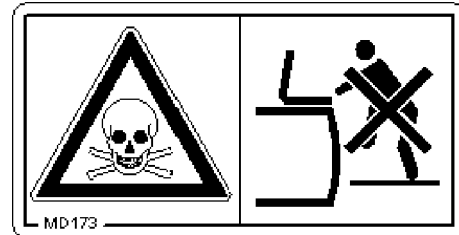


MD 173

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.

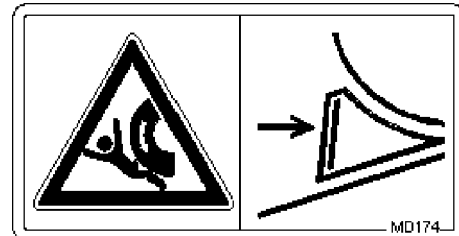


MD 174

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).



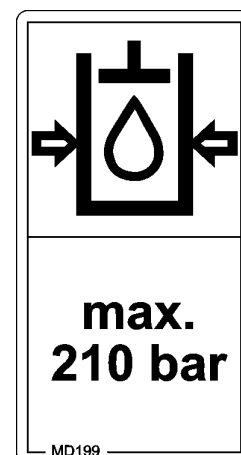
MD 175

The torque for the bolt connection is 510 Nm.



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.

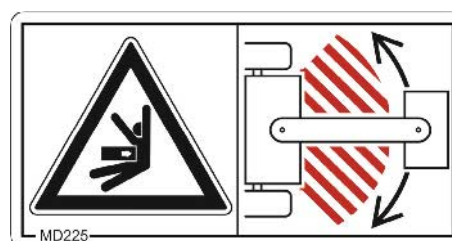


MD 225

Risk of crushing of the entire body due to standing in the swivel range of the drawbar between the tractor and the attached implement!

Causes serious, potentially fatal injuries anywhere on the body.

- Standing or walking in the danger area between the tractor and implement is prohibited whenever the tractor engine is running and the tractor is not secured against unintentional rolling.
- Instruct people to leave the danger area between the tractor and the implement whenever the engine of the tractor is running and the tractor is not secured against unintentional rolling.



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

- warning information on exposure to crop protection agents
 - Observe the recommendations of the crop protection agent manufacturer in respect of
 - protective clothing
 - regulations on dosing, applications and cleaning
- Pay attention to crop protection legislation regulations!
- 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 agents, wear the proper protective clothing, such as gloves, overalls, safety glasses, etc!
- For tractors with a cab with ventilation fans, replace filters for the fresh air supply with active charcoal filters!
- Observe the information on the compatibility of crop protection agents and substances for the field sprayer.
- Do not spray crop protection agents that tend to stick or congeal!
- 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.
- Only fill field sprayers
 - using a free flow from the mains water supply.
 - using genuine AMAZONE filling equipment!

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 and unloading

Loading and unloading with a tractor



WARNING

There is a risk of an accident when the tractor is unsuitable and the implement brake system is not connected to the tractor or is filled.



- Correctly couple the implement to the tractor, before loading the implement onto a transport vehicle or unloading it from a transport vehicle.
- You may only couple and transport the implement with a tractor for loading and unloading, as long as the tractor fulfils the power requirements.

Pneumatic brake system:

- Only move off with the implement connected when the pressure gauge on the tractor shows 5.0 bar.

Loading using a lifting crane

There are 4 attachment points (1) on the right and on the left of the implement respectively.



DANGER

Danger to life! Machine can drop down!

Empty the tank before lifting the machine.
Lift the machine only at the points indicated.



DANGER

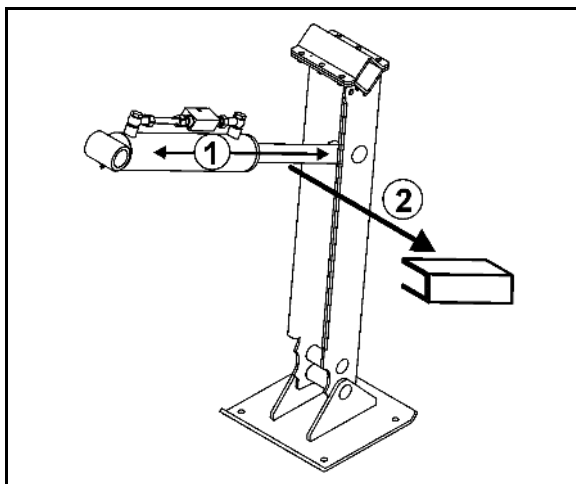
The minimum tensile strength per sling must be 2000 kg!

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.



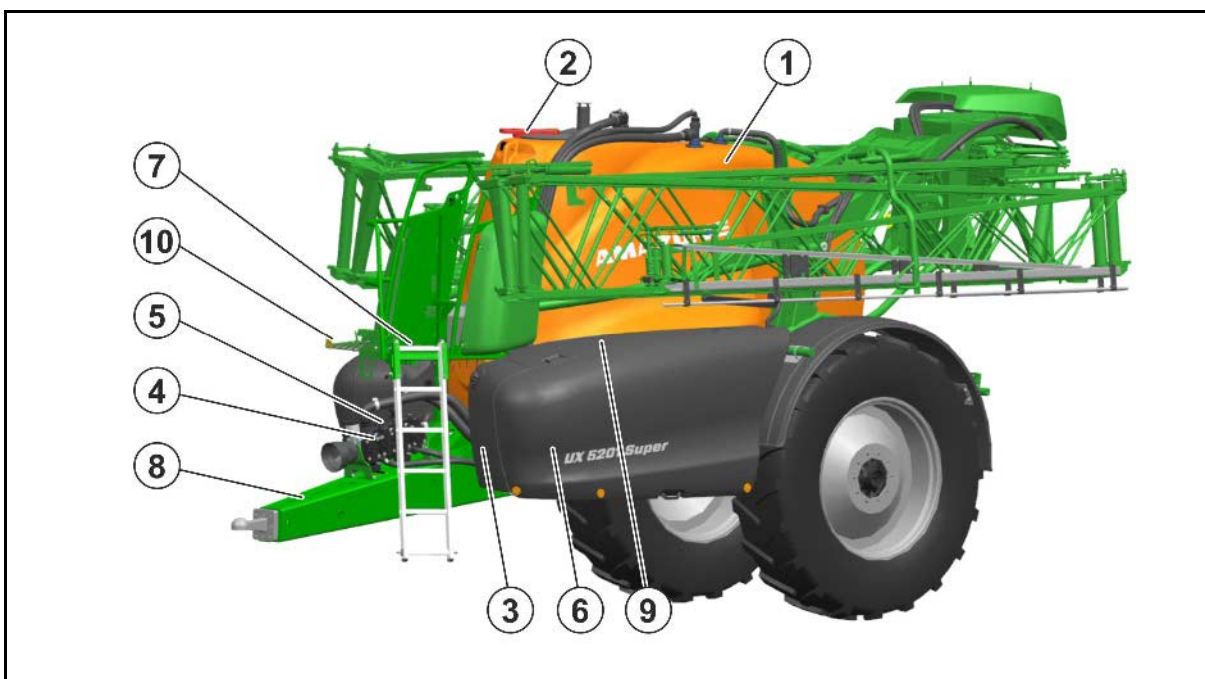
4 Product description

This section:

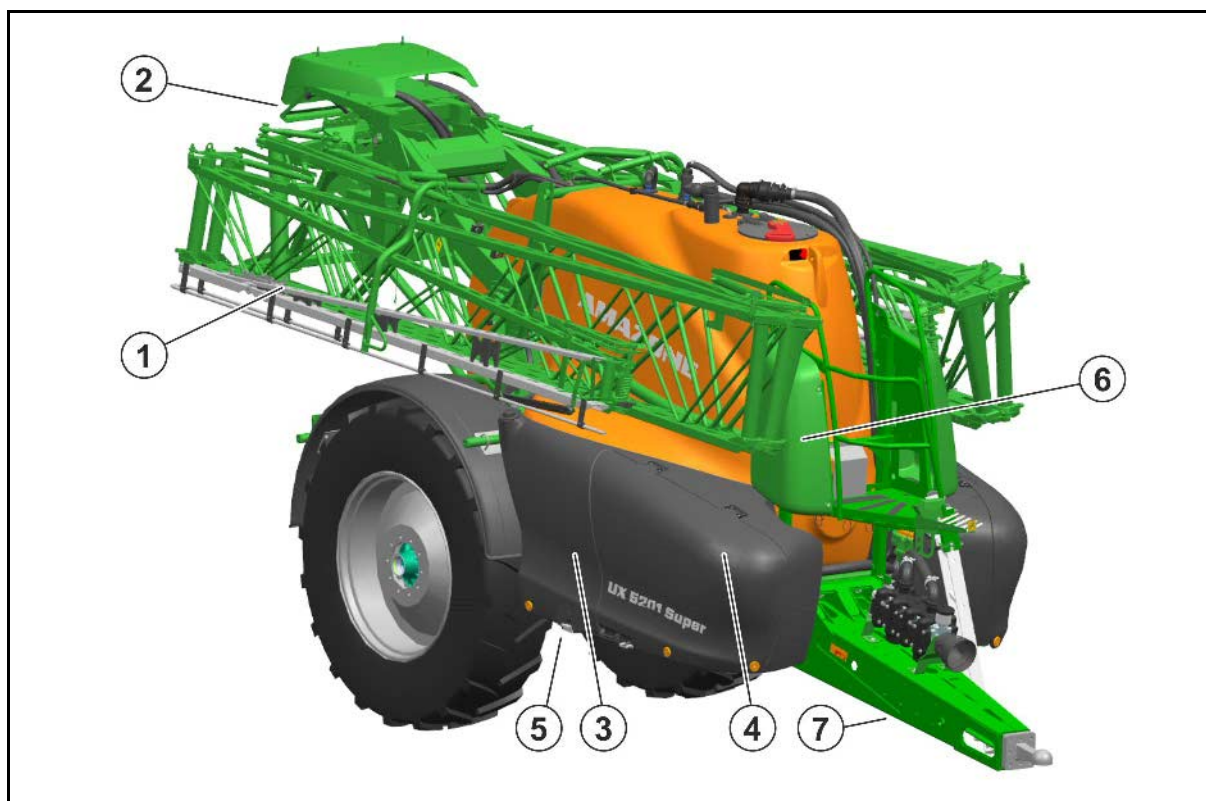
- provides a comprehensive overview of the implement layout.
- provides the names of the individual assembly groups and operator controls.

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 | (6) Control terminal cover |
| (2) Spray liquid tank filling opening | (7) Maintenance platform with ladder |
| (3) Washing water tank | (8) Drawbar with coupling device |
| (4) Spraying pump | (9) Flushing water tank, left |
| (5) Agitator pump | (10) Hose cabinet |



- (1) Folding sprayer boom with transport locking mechanism
- (2) Boom part width section valves
- (3) Flushing water tank, right
- (4) Storage compartment
- (5) Wheel chocks
- (6) Hydraulic system / electronics cover hood
- (7) Hydraulic jack

4.2 Safety and protection equipment

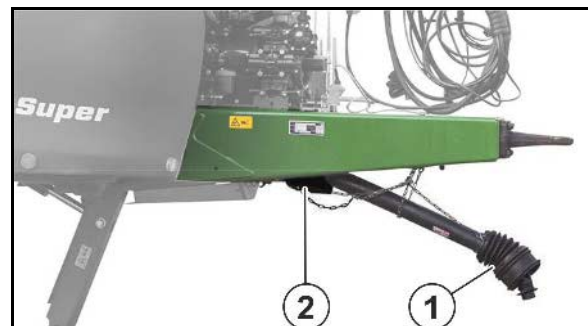
- Transport locking mechanism to prevent the Super-L boom from folding out unintentionally



- Railing on the maintenance platform



- (1) Universal joint shaft guard with supporting chains
- (2) Implement-side PTO shaft guard

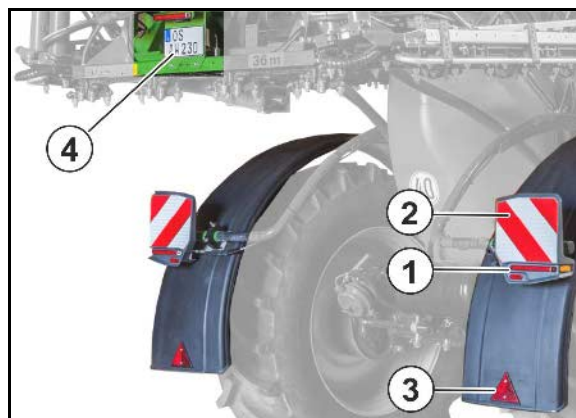


4.3 Supply lines between the tractor and the implement

- 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

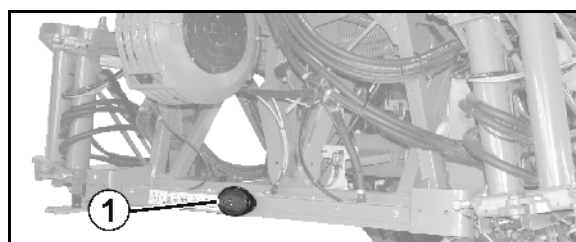
- (1) Rear lights, brake lights, turn indicators
- (2) 2 warning signs (square)
- (3) 2 red reflectors (triangular)
- (4) 1 number plate holder with lighting



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.

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 includes:

- 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 Trammat, 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:

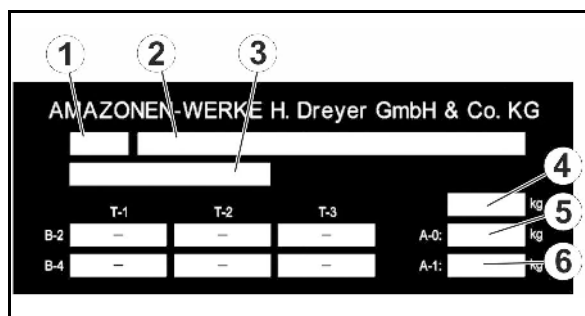
- Between the tractor and field sprayer, particularly when coupling and uncoupling.
- Where there are moving components.
- When the implement is in motion.
- In the swivelling range of the sprayer boom.
- In the spray liquid tank due to toxic vapours.
- Underneath raised, unsecured implements or parts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

Product description

4.9 Rating plate and CE mark

EU-Typenschild

- (1) Klasse, Unterklasse und Geschwindigkeitsklasse
- (2) EU-Typgenehmigungsnummer
- (3) Fahrzeug-Identifizierungsnummer
- (4) Technisch zulässiges Gesamtgewicht
- (5) Technisch zulässige Stützlast A0
- (6) Technisch zulässige Achslast A1



Maschinentypenschild

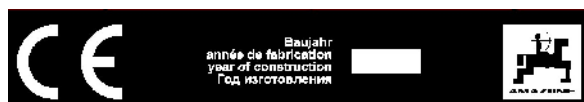
The following information is specified on the rating plate and the CE mark:

- Implement no.:
- Vehicle ID no.:
- Product
- Permissible technical axle load kg
- Tare weight kg
- Model year



CE-Kennzeichnung

- CE-Kennzeichnung mit Angabe des Baujahrs



4.10 Conformity

| Directives/Standards designation | |
|----------------------------------|--|
| The implement complies with the | <ul style="list-style-type: none"> • Implement directive 2006/42/EC • EMC directive 2014/30/EU |

4.11 Technically possible maximum application rate



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

- Maximum flow to the sprayer boom of 200 l/min (HighFlow 400 l/min).
- Maximum flow per part-width section of 25 l/min (with 2 spray lines: 40 l/min per part-width section).
- Maximum flow per nozzle body of 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)

$$\text{Permissible application rate [l/min]} = \text{Pump capacity [l/min]} - 0.05 \times \text{nominal tank volume [l]}$$

(see technical data)

Conversion of the application rate in l/ha:

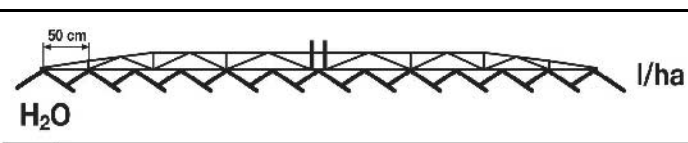




1. Determine the application rate per nozzle (divide the permissible application rate by the number of nozzles).
2. Read the application rate per hectare depending on the speed from the spray table (See page 245).

Example:

UX 6201, Pump 2x AR 280, Super L 36 m, 72 nozzles, 10 km/h

$$\text{Permissible application rate} = 2 \times 260 \text{ l/min} - 0.05 \times 6200 \text{ litres} = 210 \text{ l/min}$$

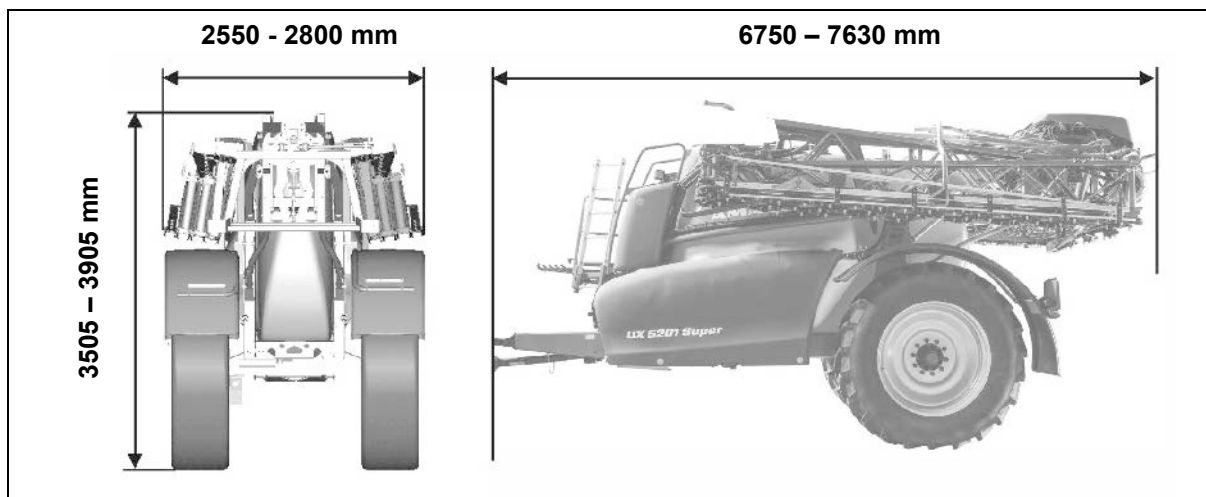
$$\rightarrow \text{Application rate per nozzle} = 2.9 \text{ l/min}$$

| | | | | | | | | | | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|---|---|----|-----|-----|-----|-----|----|----|
|  | | | | | | | | | | | |  |  |  | | | | | | | |
| 6 | 6,5 | 7 | 7,5 | 8 | 8,5 | 9 | 10 | 11 | 12 | 14 | 16 | bar | | | | | | | | | |
|  | | | | | | | | | | | | I/min | | 015 | 02 | 025 | 03 | 04 | 05 | 06 | 08 |
| 580 | 535 | 497 | 464 | 435 | 409 | 387 | 348 | 316 | 290 | 249 | 210 | 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 | | |
| | | | | | | | | | | | | | | | | | | | | | |
| → Permissible application rate per hectare = 348 l/ha | | | | | | | | | | | | | | | | | | | | | |

4.13 Technical data

4.13.1 Total dimensions

The total heights depend on the implement type, axle, and tyres.



4.13.2 Basic implement

| Type UX Super | 4201 | 5201 | 6201 |
|--|---|-------------|-------------|
| Spray liquid tank | | | |
| Actual volume | 4600 l | 5600 l | 6560 l |
| Nominal volume | 4200 l | 5200 l | 6200 l |
| Flushing water tank | 580 l | 580 l | 580 l |
| Filling height from the maintenance platform | 1060 mm | 1430 mm | 1460 mm |
| Permissible system pressure | <10 bar | | |
| Working speed | 4 – 18 km/h | | |
| Working width | 27 - 40 m | | |
| Central switching mechanism | Electric, part width section valve coupling | | |
| Spray pressure adjustment | Electric | | |
| Spray pressure setting range | 0.8-10 bar | | |
| Pressure filter | 50 (80.100) mesh | | |
| Agitator | Infinitely adjustable | | |
| Spray rate control | Ground speed-related via job computer | | |
| Nozzle height | 500 – 2500 mm | | |

4.13.3 Spraying technology

Part-width sections depending on the working width

| Working width | Number | Number of nozzles per part width sections |
|---------------|--------|---|
| 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 |
| 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 |
| 27 m | 7 | 8-7-8-8-8-7-8 |
| | 9 | 6-6-6-6-6-6-6-6-6 |
| 28 m | 7 | 9-7-8-8-8-7-9 |
| | 9 | 7-6-6-6-6-6-6-6-7 |
| 30 m | 9 | 8-7-6-6-6-6-6-7-8 |
| 32 m | 9 | 8-6-7-7-8-7-7-6-8 |
| 33 m | 9 | 7-8-7-7-8-7-7-8-7 |
| | 11 | 6-6-6-6-6-6-6-6-6-6-6 |
| 36 m | 7 | 10-10-10-12-10-10-10 |
| | 9 | 9-9-7-7-8-7-7-9-9 |
| 36 m / 24 m | 9 | 6-7-(9+1)-9-10-9-(9+1)-7-6 |
| 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 |
| 40 m | 9 | 8-9-9-9-10-9-9-9-8 |

Technical data: pump equipment

| Pump equipment | | Spraying pump / agitator pump |
|------------------------------------|------------|-----------------------------------|
| | | 2 x AR 280 |
| Delivery capacity at nominal speed | bei 0 bar | 2 x 260 l/min |
| | bei 10 bar | 2 x 245 l/min |
| Power requirement | | 18.8 kW |
| Design | | 12-cylinder piston diaphragm pump |
| 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

Product description

4.13.4 residual amounts

Technical residue incl. pump

| | |
|--------------------------------------|------|
| On the level | 23 l |
| Along the contours | |
| 15% direction of travel to the left | 23 l |
| 15% direction of travel to the right | 23 l |
| Along the gradient | |
| 15% up the slope | 37 l |
| 15% down the slope | 30 l |

Technical boom residues

| Working width | Number of part-width 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 | 9.0 l | 13.5 l | 14.5 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 |

DUS: Pressure circulating system

A: Dilutable

B: Not dilutable

C: Total

4.13.1 Payload

| | | | | | | |
|----------------|----------|--|----------|---------------------------------|----------|--------------------|
| Payload | = | Permissible technical axle load | + | Permissible drawbar load | - | Tare weight |
|----------------|----------|--|----------|---------------------------------|----------|--------------------|



DANGER

Exceeding the maximum permissible payload is prohibited.

Risk of accident due to unstable driving conditions!

It is forbidden to exceed the permissible technical axle load and the permissible drawbar load.

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 rating plate shows the permissible technical axle load.
- The rating plates of the hitch device and drawbar show the permissible drawbar load. Use the smaller value to calculate the payload.
- The rating plate shows the tare weight.

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 |
| Tyre load capacity (kg) | 2500 | 2575 | 2650 | 2725 | 2800 | 2900 | 3000 | 3075 |
| Load index | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 |
| Tyre load capacity (kg) | 3150 | 3250 | 3350 | 3450 | 3550 | 3650 | 3750 | 3850 |
| Load index | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 |
| Tyre load capacity (kg) | 4000 | 4125 | 4250 | 4375 | 4500 | 4625 | 4750 | 5000 |
| Load index | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 |
| Tyre load capacity (kg) | 5000 | 5150 | 5300 | 5450 | 5600 | 5800 | 6000 | 6150 |
| Load index | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 |
| Tyre load capacity (kg) | 6300 | 6500 | 6700 | 6900 | 7100 | 7300 | 7500 | 7750 |

| | | | | | | | | |
|----------------------------------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|
| Speed index | A5 | A6 | A7 | A8 | B | C | D | E |
| Permissible maximum speed (km/h) | 25 | 30 | 35 | 40 | 50 | 60 | 65 | 70 |

Product description

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

| | |
|----------------|-----------------------------|
| UX 4201 | starting at 85 kW (115 HP) |
| UX 5201 | starting at 95 kW (130 HP) |
| UX 6201 | starting at 110 kW (150 HP) |

Electrical equipment

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

Hydraulic system

| | | | | | | | | | | | |
|-------------------------------|---|--------------------|----------|-------------------------------|------------|----------------|------------|---------------------|------------|----------------------------|------------|
| Maximum operating pressure: | • 210 bar | | | | | | | | | | |
| Tractor pump capacity: | <table> <tr> <td>Profi boom folding</td><td>25 l/min</td></tr> <tr> <td>Drawbar or stub axle steering</td><td>+ 10 l/min</td></tr> <tr> <td>ContourControl</td><td>+ 10 l/min</td></tr> <tr> <td>Flushing water pump</td><td>+ 35 l/min</td></tr> <tr> <td>Hydraulic spray pump drive</td><td>+ 50 l/min</td></tr> </table> | Profi boom folding | 25 l/min | Drawbar or stub axle steering | + 10 l/min | ContourControl | + 10 l/min | Flushing water pump | + 35 l/min | Hydraulic spray pump drive | + 50 l/min |
| Profi boom folding | 25 l/min | | | | | | | | | | |
| Drawbar or stub axle steering | + 10 l/min | | | | | | | | | | |
| ContourControl | + 10 l/min | | | | | | | | | | |
| Flushing water pump | + 35 l/min | | | | | | | | | | |
| Hydraulic spray pump drive | + 50 l/min | | | | | | | | | | |
| Implement hydraulic fluid: | <ul style="list-style-type: none"> • HLP68 DIN 51524 <p>The implement hydraulic fluid is suitable for the combined hydraulic fluid circuits of all standard tractor brands.</p> | | | | | | | | | | |
| Tractor control units | • Depending on the equipment, see Seite 66. | | | | | | | | | | |

Brake system (depending on the equipment)

| | |
|-----------------------------------|--|
| Dual line service brake system: | • 1 coupling head (red) for the supply line |
| or | • 1 coupling head (yellow) for the brake line |
| Single line service brake system: | • 1 coupling head for the brake line |
| or | |
| Hydraulic brake system: | • 1 hydraulic coupling in accordance with ISO 5676 |



The hydraulic braking 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.

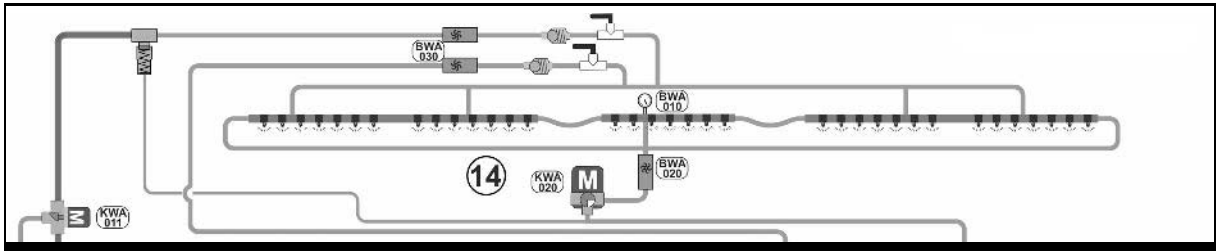
Alternatively:

through the pressure filter (4) to the single nozzle control (14).

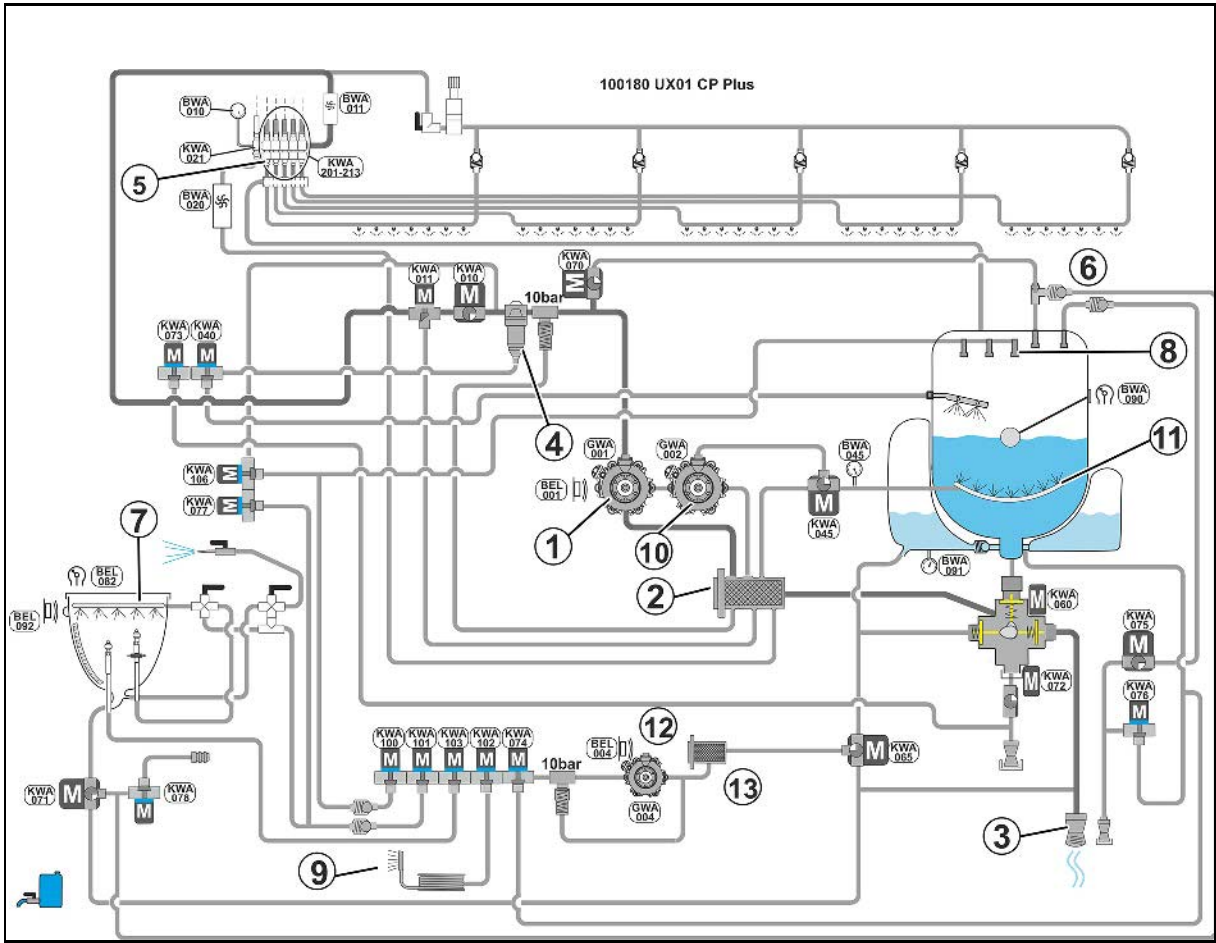
- to the injector (6) and the induction bowl (7).
To prepare the spray liquid, pour the required quantity of agent into the induction bowl and draw into the spray liquid tank.
- directly in the spray liquid tank.
- to the internal (8) or external cleaning switch tap (9).

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.

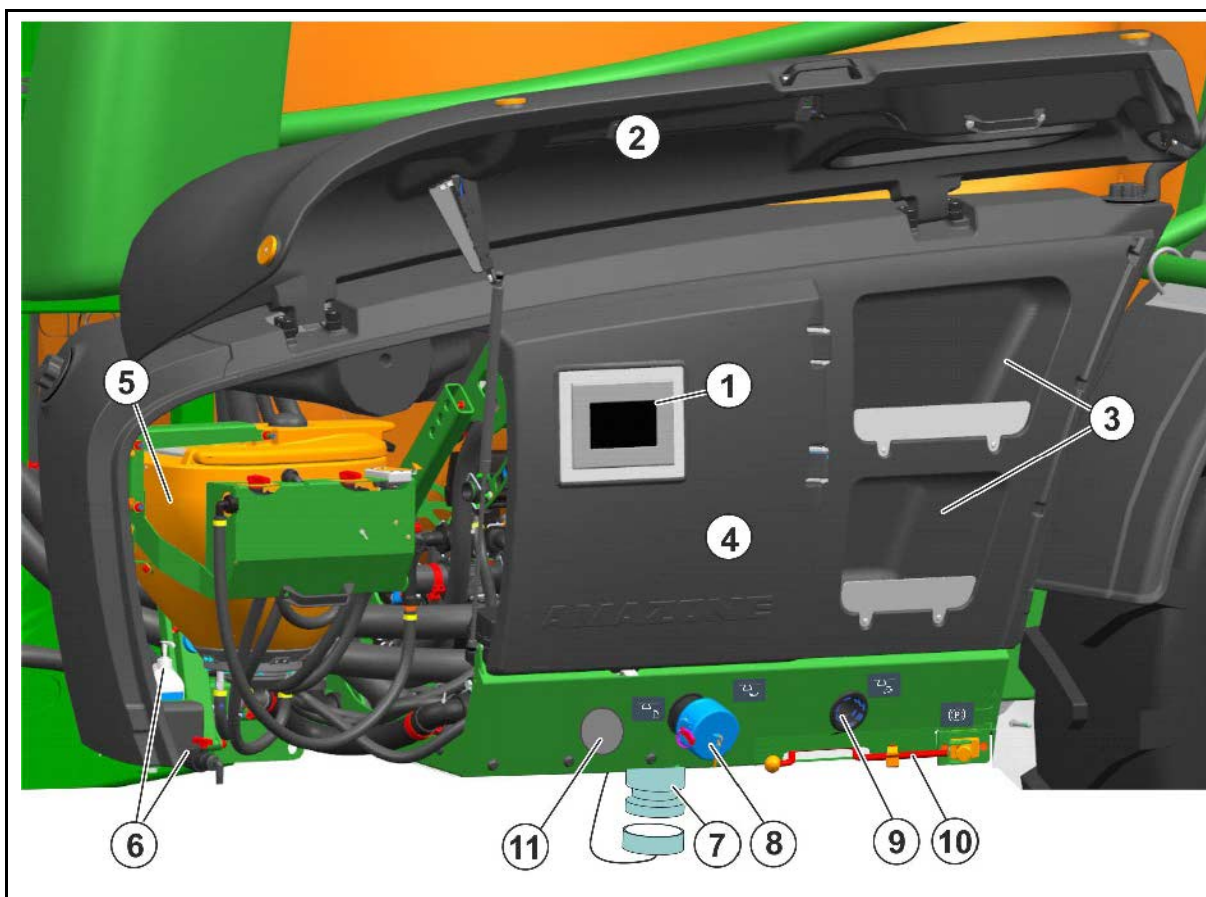
single nozzle control



Part-width section control



5.2 Control panel



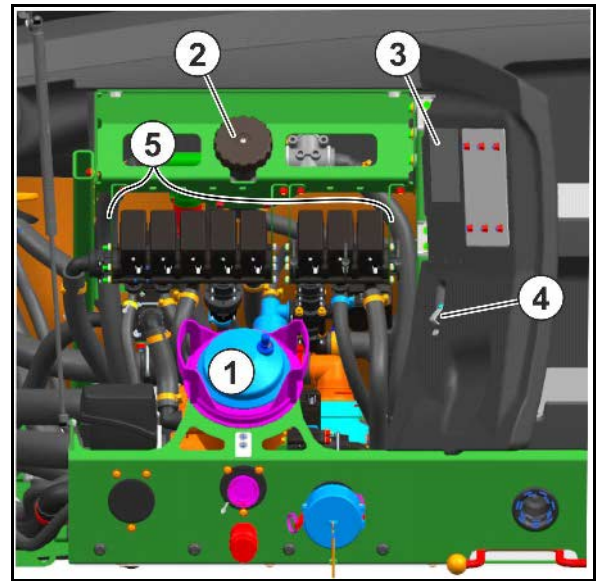
- | | |
|---|--|
| (1) Control terminal Comfort-Paket plus | (7) Drain for final residual quantity from the spray liquid tank and pressure filter |
| (2) Swivelling cover hood with lighting for the control panel | (8) Filling connection (suction) for spray liquid tank, flushing water tank |
| (3) Transport-/ safety box | (9) Filling connection (pressure) for spray liquid tank / flushing water tank |
| (4) Maintenance flap | (10) Parking brake |
| (5) Swivelling induction bowl in transport position | (11) Drip-free plug coupling |
| (6) Washing facility with soap dispenser | |

Under the maintenance flap

- (1) Suction filter
- (2) Pressure filter
- (3) Spray table
- (4) Clip for gloves
- (5) Valve group

From left to right:

- External cleaning
- Induction bowl cleaning
- Induction bowl
- Filling the flushing water tank
- Internal cleaning
- Additional agitator
- Drain quick emptying and pressure filter



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) Handle to swivel the induction bowl into working or transport position
- (3) The open folding cover can be used as a shelf
- (4) Locking mechanism for folding cover
- (5) Canister flushing nozzle button
- (6) Spray pistol for cleaning the control panel.
- (7) Cleaning nozzle

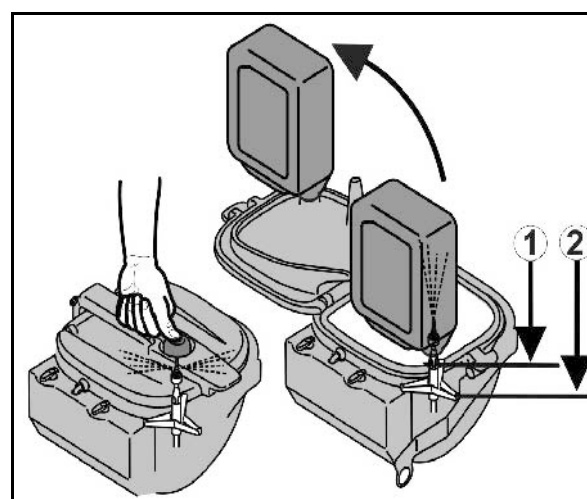
for canister with pressure plate

- (8) Induction bowl cleaning nozzle
- (9) Scale to show the contents
- (10) Switch tap EA
- (11) Switch tap EB
- (12) Switch tap - injector intensity
- (13) Induction bowl cleaning nozzle





Water escapes from the canister flushing nozzle if

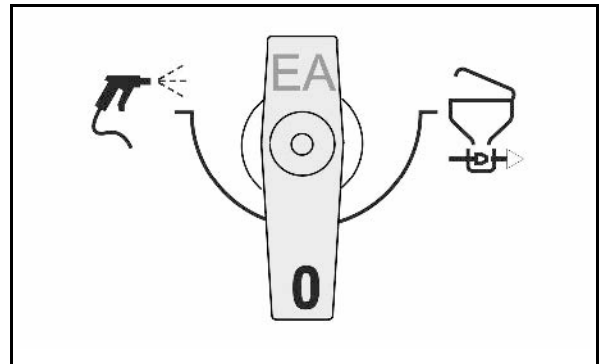
- the pressure plate is pressed downwards.
- the button presses the canister flushing nozzle downwards when the folding cover is closed.





5.3.1 Switch taps on the induction bowl

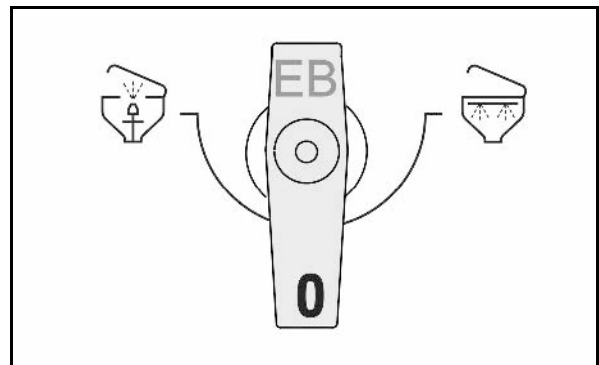
- **Switch tap (EA)**

- o  External cleaning of induction bowl
- o  Dissolve agent with mixing nozzle



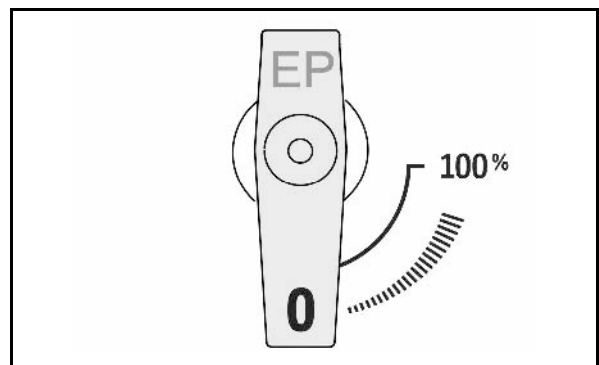
- **Switch tap (EB)**

- o  Clean canister / clean induction bowl
- o  Flushing via ring line



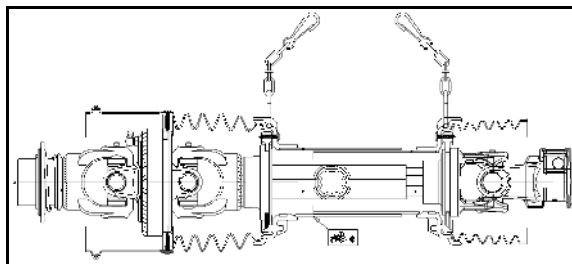
- **Switch tap - Injector intensity (EP)**

- o 0 – Injector off
- o 100% maximum suction capacity



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 139.
 - 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 34.

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 141.
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!

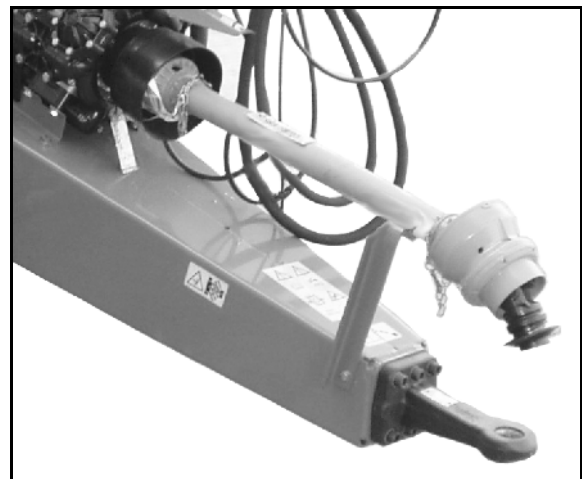
This danger causes light to serious injuries to the hands.

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.

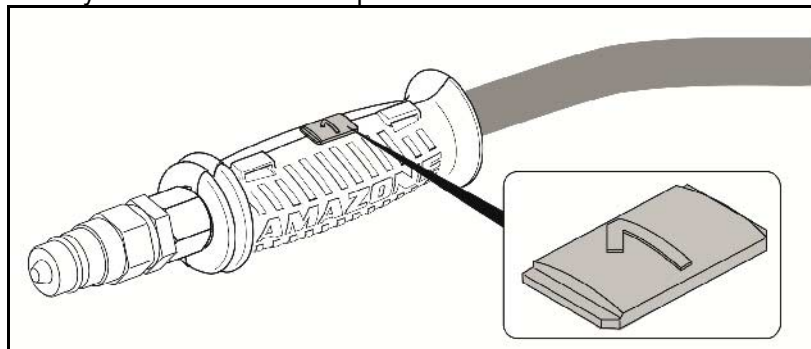
1. Uncouple the implement from the tractor. For this purpose, see the section "Uncoupling the implement", page 148.
2. Drive the tractor up to the implement in such a way that a gap (approx. 25 cm) remains between tractor and implement.
3. Secure the tractor against unintentional starting and unintentional rolling away, refer to the section "Securing the tractor against unintentional starting and rolling away" starting at page 141.
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 |  |  | Jack (optional) | Lifting | Double acting |  |
| |  | | | Lowering | | |
| Red |  | Permanent oil circulation | | | Single- acting |  |
| Red |  | Pressure-free return flow | | | | |
| Red |  | 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.

Maximum permissible pressure in the oil return: 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.

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



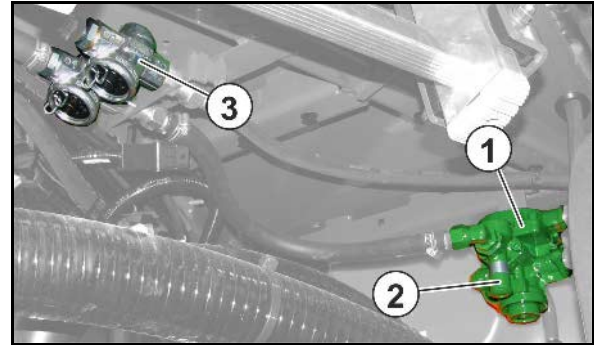
Observing the maintenance intervals is essential for proper functioning of the dual line service brake system.

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

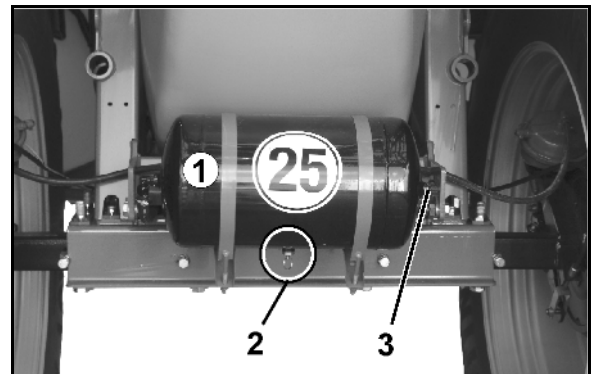
- must be pushed in up to the stop to release the service brake system, e.g. to manoeuvre the uncoupled trailed sprayer.
- must be pulled out up to the stop and the trailed sprayer is braked again by the supply pressure coming from the air reservoir.



new

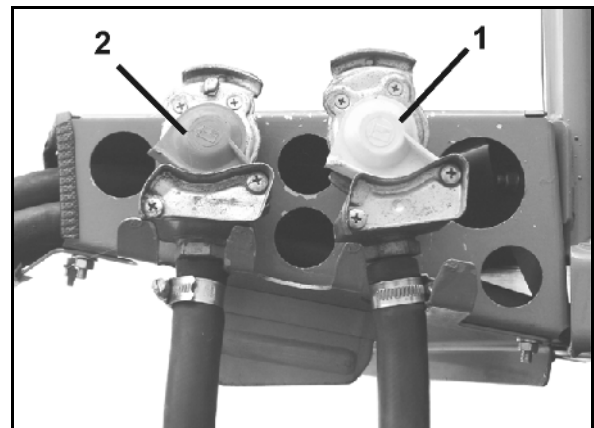
- (3) Line filter

- (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 axles are fitted with an automatic load-dependent braking force regulator (ALB).

The setting data depends on the axle load and is found on the ALB rating plate.



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:
 - **Dual-circuit** 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
 - **Single-circuit** pneumatic braking system:
 - 2.1 Properly fasten the coupling head (black) onto the tractor.
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
 - **Dual-circuit** pneumatic braking system:
 - 2.1 Release the supply line coupling head (red).
 - 2.2 Release the brake line coupling head (yellow).
 - **Single-circuit** pneumatic braking system:
 - 2.1 Release the coupling head (black).
3. Close the covers of the coupling heads on the tractor.

5.7 Hydraulic operating brake system

To control the hydraulic service brake system, the tractor requires a hydraulic braking device.

5.7.1 Coupling the hydraulic service 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 service 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

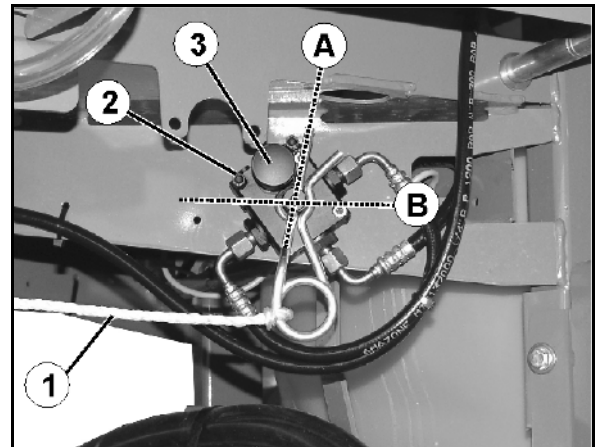
If the implement is disconnected from the tractor while driving, the emergency brake stops the implement.

- (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.



Layout and function of the basic implement

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:

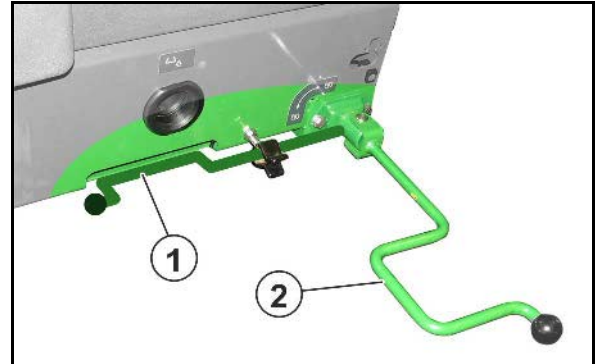
- into the brake and brakes the implement,
- or
- into the hose line to the tractor and impedes the coupling of the brake line to the tractor.

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

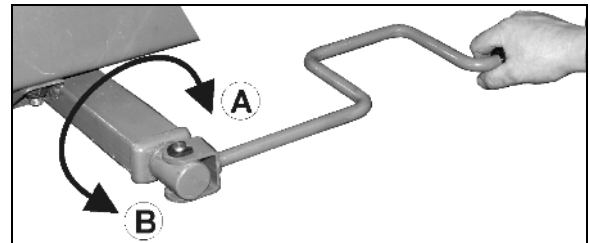
5.8 Parking brake

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.

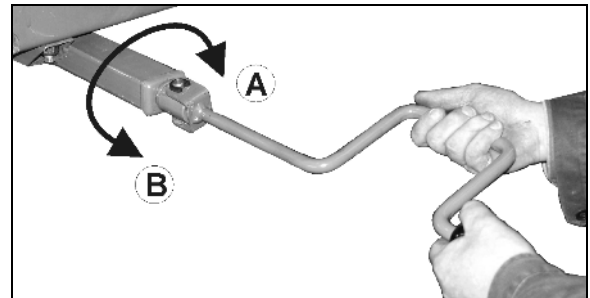
- (1) Crank; locked in resting position
 - (2) Crank in operating position
- new



- Crank position for releasing / applying in the end area.
(the parking brake requires approx. 20 kg manual force to be applied).



- Crank position for quick releasing / applying.
(A) Apply the parking brake.
(B) Release the parking brake.



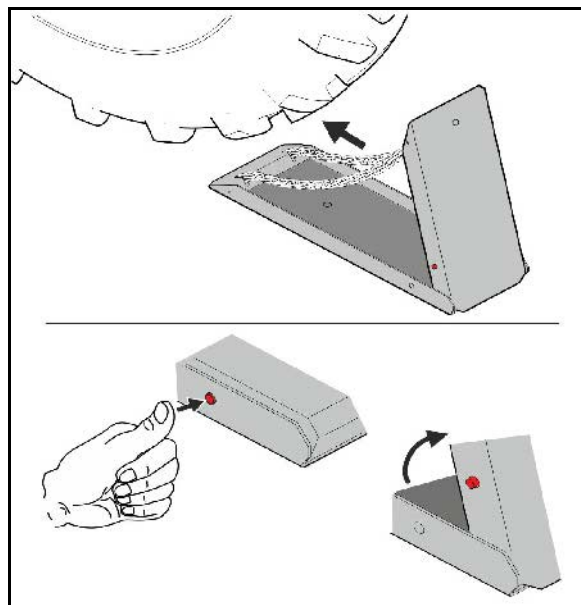
- Correct the setting of the parking brake if the spindle's tension is no longer sufficient.
- Ensure that the cable pull is not lying or rubbing against other vehicle parts.
- When the parking brake is released, the cable pull must be slightly slack.

5.9 Foldable wheel chocks

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



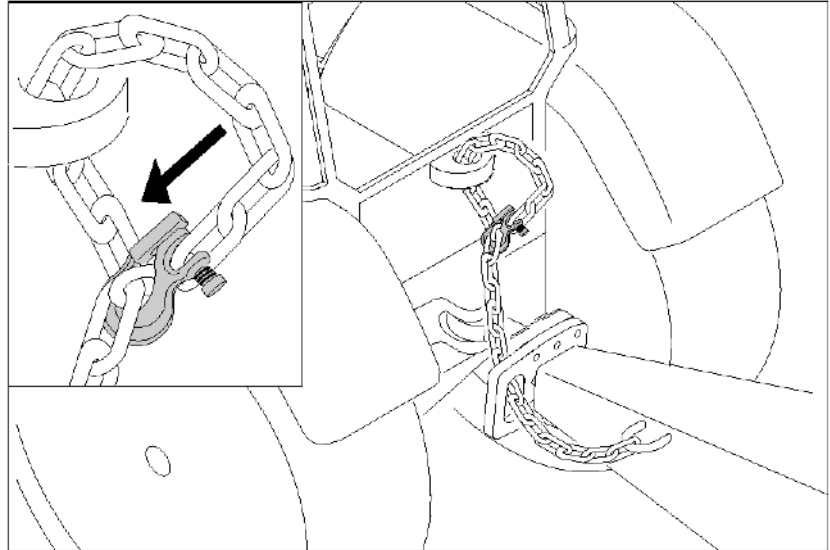
Put the foldable wheel chocks into operating position by pressing the button and apply directly on the wheels before uncoupling.



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 AutoTrail steering axle

The AutoTrail tracking control serves for precise tracking of the implement behind the tractor.



See operating manual for software ISOBUS.

Transportation



DANGER

Risk of accident caused by turning the machine over !

- For road transport, set the steering axle to transport position!
- It is forbidden to transport the implement with AutoTrail switched on.

On the control terminal, for this purpose:

1. Set the steering axle to centre position

On the control terminal, for this purpose:



- 1.1 Put AutoTrail in manual operation.



- 1.2 Move to the middle position.

- 1.3 Move the machine until the centre position is reached.

AutoTrail stops automatically when it reaches the centre position.

2. Switch off the control terminal.
 3. Actuate tractor control unit *red*.
- Switch off oil circulation.

5.12 Hydraulic jack

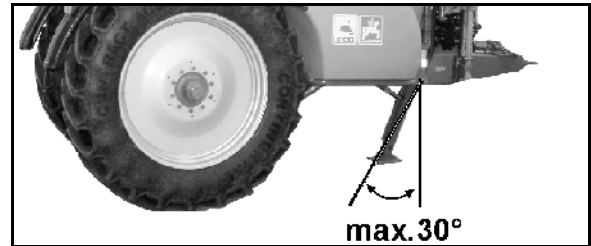
The hydraulically actuated jack supports the uncoupled trailed sprayer. It is actuated using a double-acting control valve.

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.



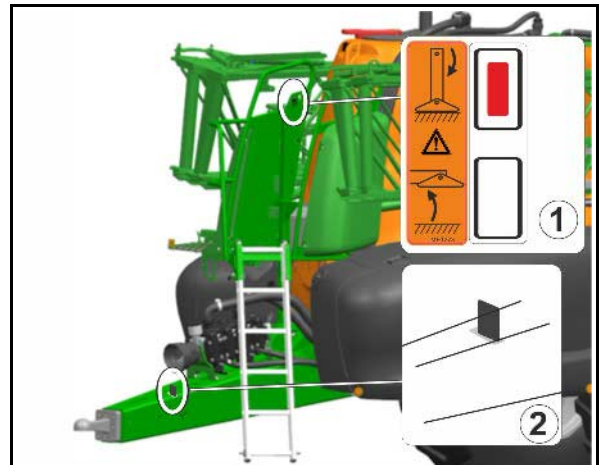
- When actuating the jack, step on the tractor clutch to relieve the pin of the trailer coupling / hitch.



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

Depending on the implement, the position of the jack is shown in 2 versions:

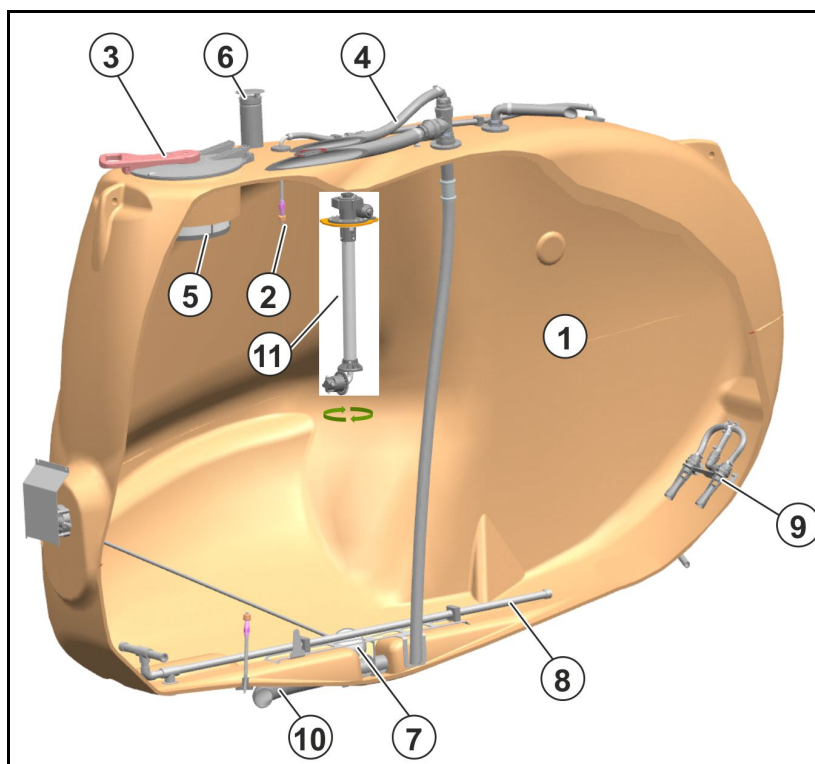
- (1) Red marking:
 - o Jack lowered
→ Red marking at the top
 - o Jack raised
→ Red marking at the bottom
- (2) Indicator is visible on the drawbar when the jack is raised



5.13 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.

5.13.1 Agitators

The field sprayer has a main agitator and an additional agitator. Both agitators are designed as hydraulic agitators. The additional agitator is also combined with pressure filter rinsing for the self cleaning pressure filter.

The main agitator has its own agitator pump. The additional agitator is supplied by the operation pump.

When the agitators are switched on, they mix the spray liquid in the spray liquid tank and therefore ensure that the spray liquid is homogeneous.

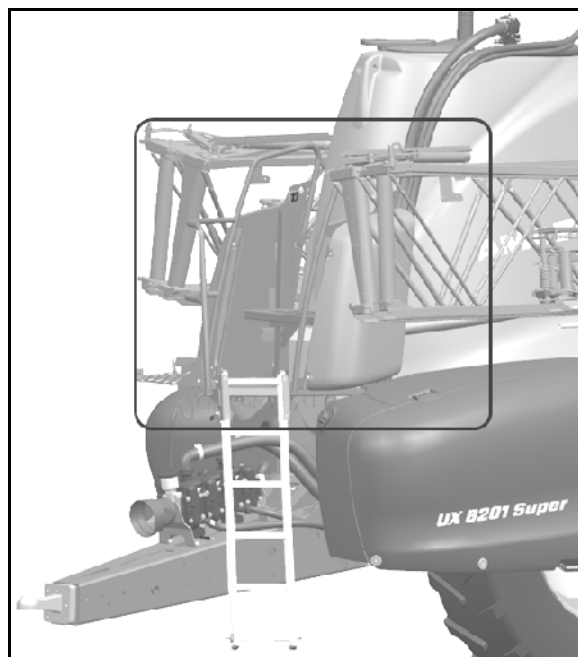
The main agitator can be adjusted at 4 levels. In doing so, the intensity is regulated according to the fill level.

The additional agitator is switched off

- when the tank fill level is low,
- to achieve high application rates.

5.13.2 Maintenance platform with ladder

Maintenance platform with ladder to reach to filling dome.



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



5.14 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.

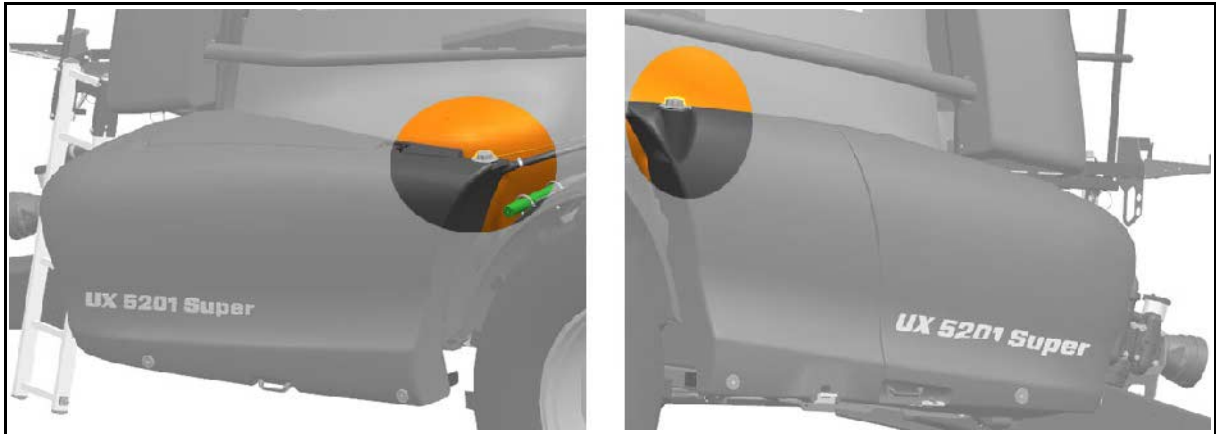


Fill only clear fresh water in the flushing water tank.

Each side of the two-part flushing water tank has its own filling opening at the rear.

It is best to fill the tank via the connections on the control panel.

Total content: 580 l



5.15 Hand wash unit

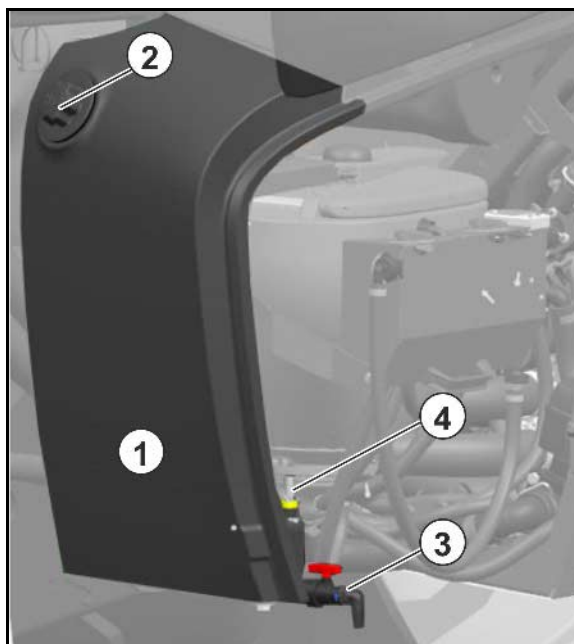
- (1) Hand wash tank (tank content: 22l)
- (2) Filling opening with lid
- (3) Stop tap for clear fresh water
 - o for hand washing or
 - o for cleaning the spray nozzles.
- (4) Soap dispenser



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.

5.16 Hydro-pneumatic spring suspension (optional)

The hydro-pneumatic spring suspension contains an automatic level regulation device independent of the load status.

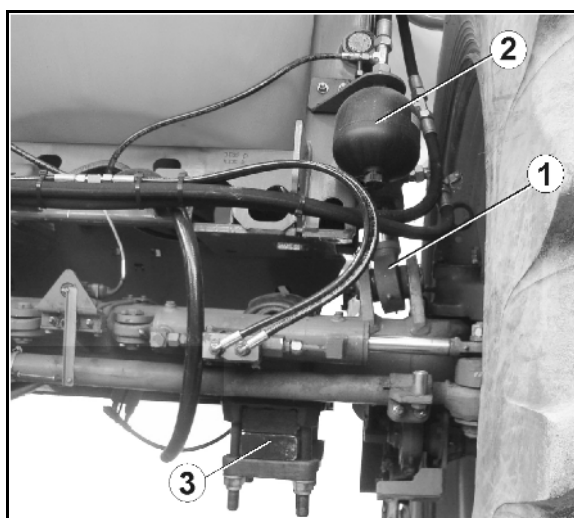
In manual mode, the implement can be lowered

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

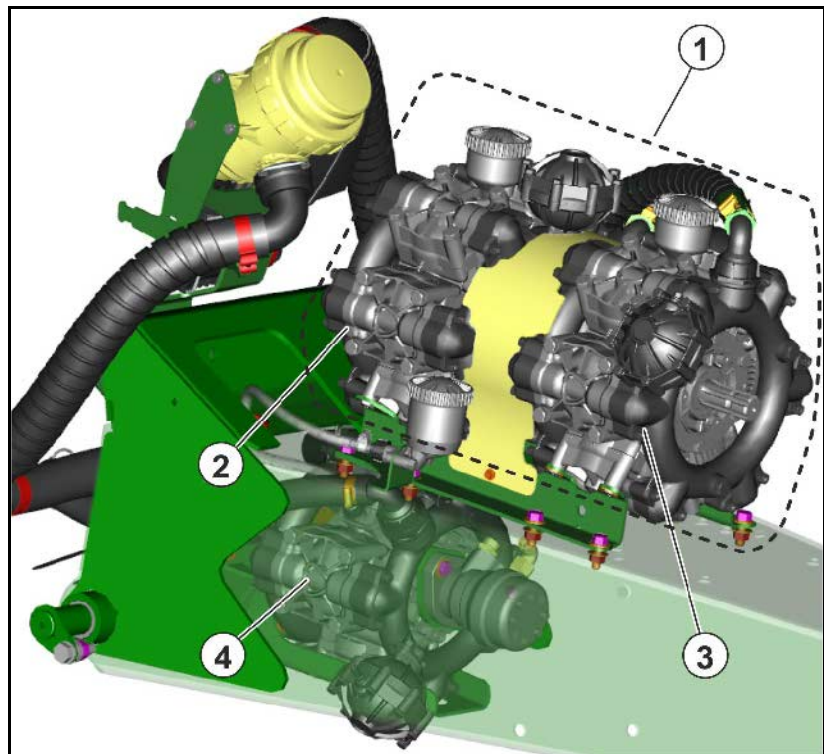
- (1) Hydraulic cylinder
- (2) Pressure accumulator
- (3) Axle clamps



See operating manual for software ISOBUS.



5.17 Pump equipment



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

- (1) Spray liquid pump equipment with universal joint shaft drive or hydraulic drive
- (2) Spray liquid pump
- (3) Agitator pump

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

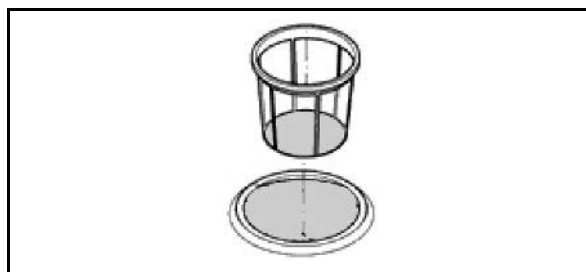


- Use all the filters provided with the filter equipment. Clean the filters regularly (refer to the "Cleaning" section, page 188). Fault-free field sprayer operation can only be achieved by correct filtering of the spray liquid. Correct filtering has a significant effect on the success of the crop protection 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.

5.18.1 Filling sieve

The filling sieve prevents contamination of the spray liquid when filling the spray liquid tank via the filling dome.

Mesh size: 1.00 mm



5.18.2 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: 0.60 mm

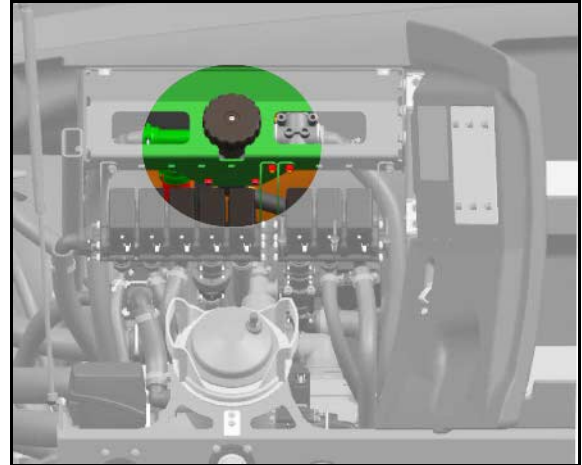


5.18.3 Self-cleaning pressure filter

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

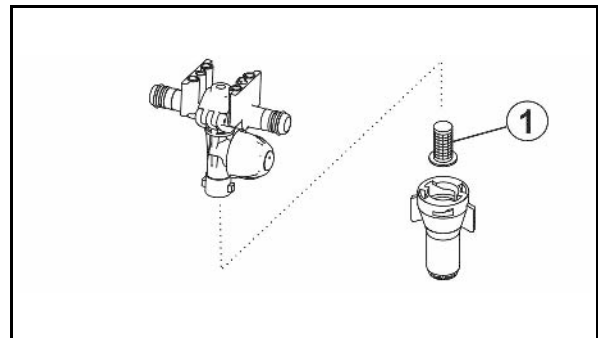
- 50 mesh/inch (standard), blue
for nozzle size '03' and larger
Filter area: 216 mm²
Mesh size: 0.35 mm
- 80 mesh/inch, yellow
for nozzle size '02'
Filter area: 216 mm²
Mesh size: 0.20 mm
- 100 mesh/inch, green
for nozzle size '015' and smaller
Filter area: 216 mm²
Mesh size: 0.15 mm

5.18.4 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: 5.00 mm²
Mesh size: 0.50 mm
- 50 mesh/inch (standard),
for nozzle size '02' to '05'
Filter area: 5.07 mm²
Mesh size: 0.35 mm
- 100 mesh/inch,
for nozzle size '015' and smaller
Filter area: 5.07 mm²
Mesh size: 0.15 mm





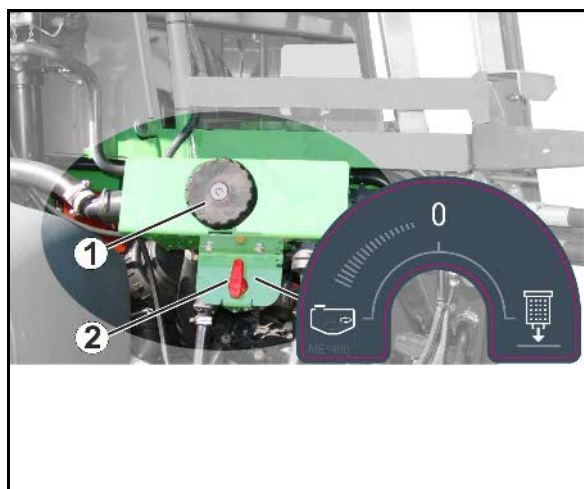
5.19 Application rate increase with HighFlow

- Optional application rate increase for applying liquid fertiliser.
The maximum application rate is increased to up to max. 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

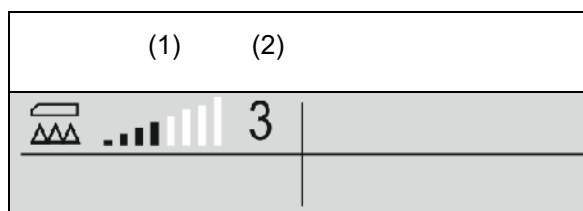


Control terminal: Multi-function display

- (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)

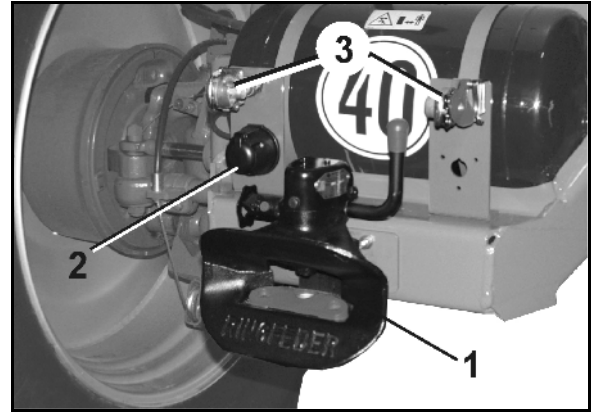
The automatic drawbar is used to pull braked trailers

- with a permissible total weight of 12000 kg and pneumatic brake.
- with a permissible total weight of 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

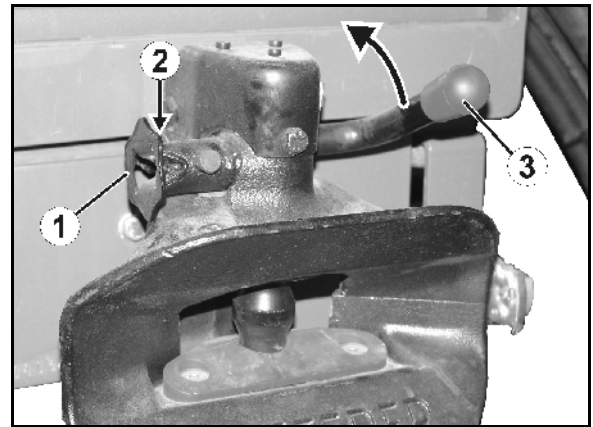
(3) Brake connection



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.

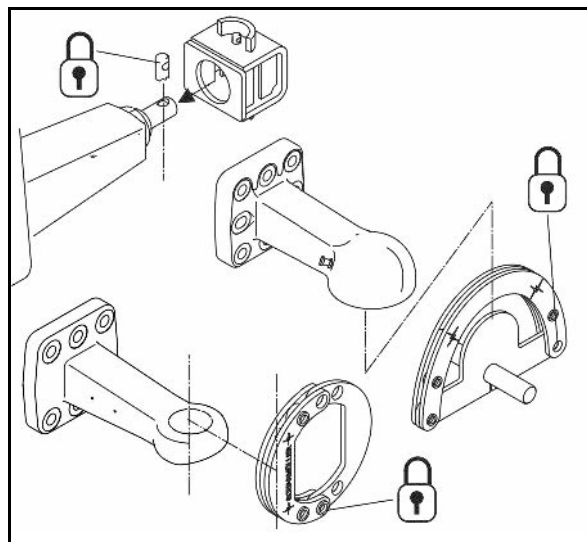


WARNING

When coupling and uncoupling trailers, observe the safety instructions in the section about coupling and uncoupling the implement, page 146.

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.



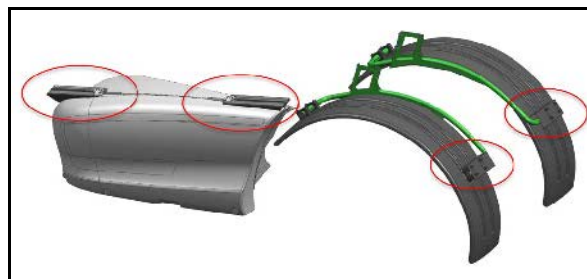
5.22 Underbody panelling

The underbody panelling ensures a smooth underside of the implement that protect the plants.



5.23 Drag hose pre-equipment

700 mm-wide mudguards and deflector plates on the hood, flushing water tank, and mudguards prevent damage to the drag hoses.



5.24 Transport and safety container (optional)

Transport and safety container for storing protective clothing and accessories.



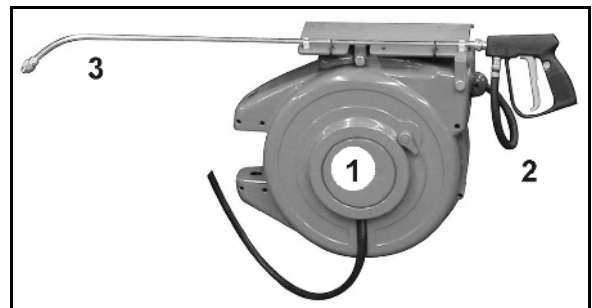
5.25 Exterior wash down kit (optional)

Exterior wash down kit for cleaning the field sprayer, includes

- (1) Hose coiler,
- (2) 20 m pressure hose,
- (3) Spray gun

Operating pressure: 10 bar

Water output: 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.



5.26 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.

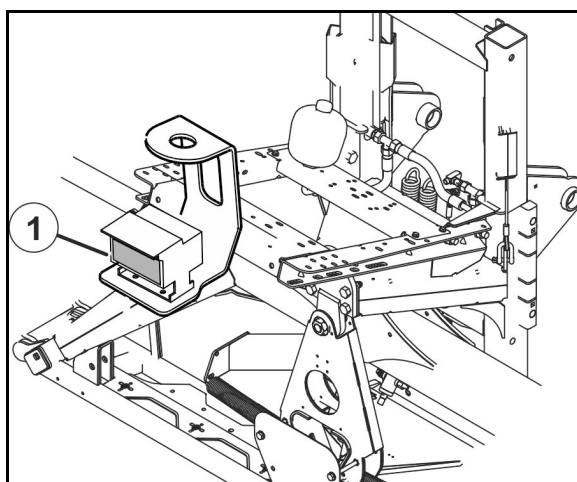
- **Before manoeuvring, ensure that there are no people or objects in the manoeuvring area by taking a direct look**

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



5.27 Work lights (optional)

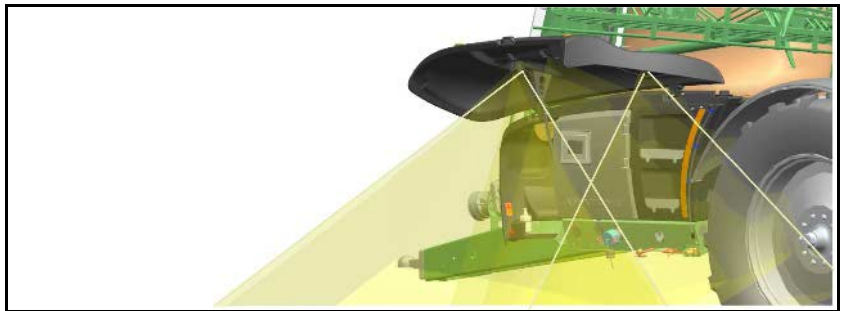
2 work floodlights on the sprayer boom and 2 work floodlights on the platform.



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.

5.28 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



Control terminal Comfort-Package plus on the control panel

The following are performed via the control terminal:

- filling
- quick emptying
- special functions



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.

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.

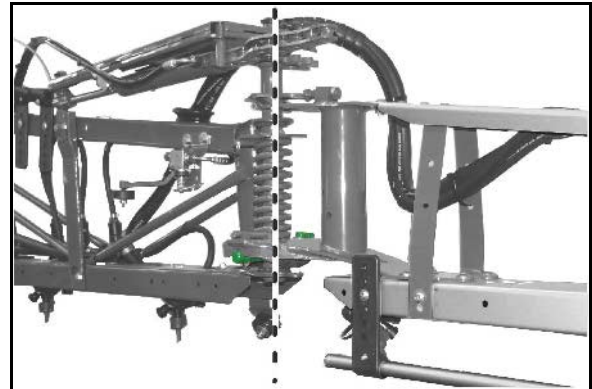
- Instruct personnel to leave the swivel range of the boom before you fold the boom out or in.
- Release the control for folding the boom out and in immediately if someone enters the swivel range.

Outer boom locking

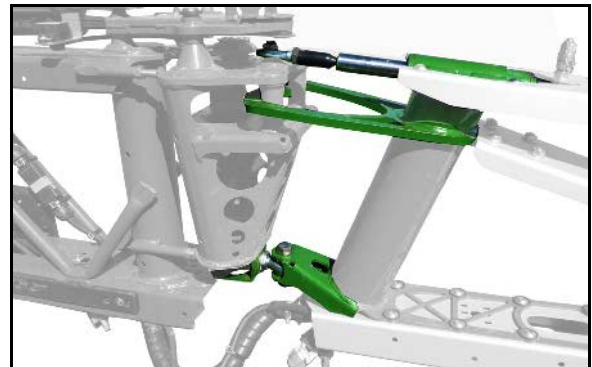
Outer boom sections

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:



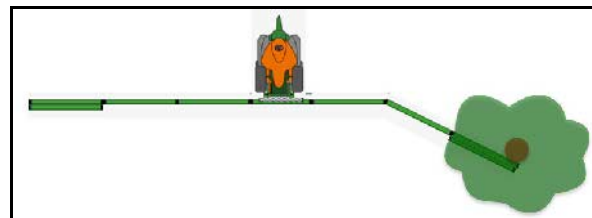
Centre boom section

Flex-folding

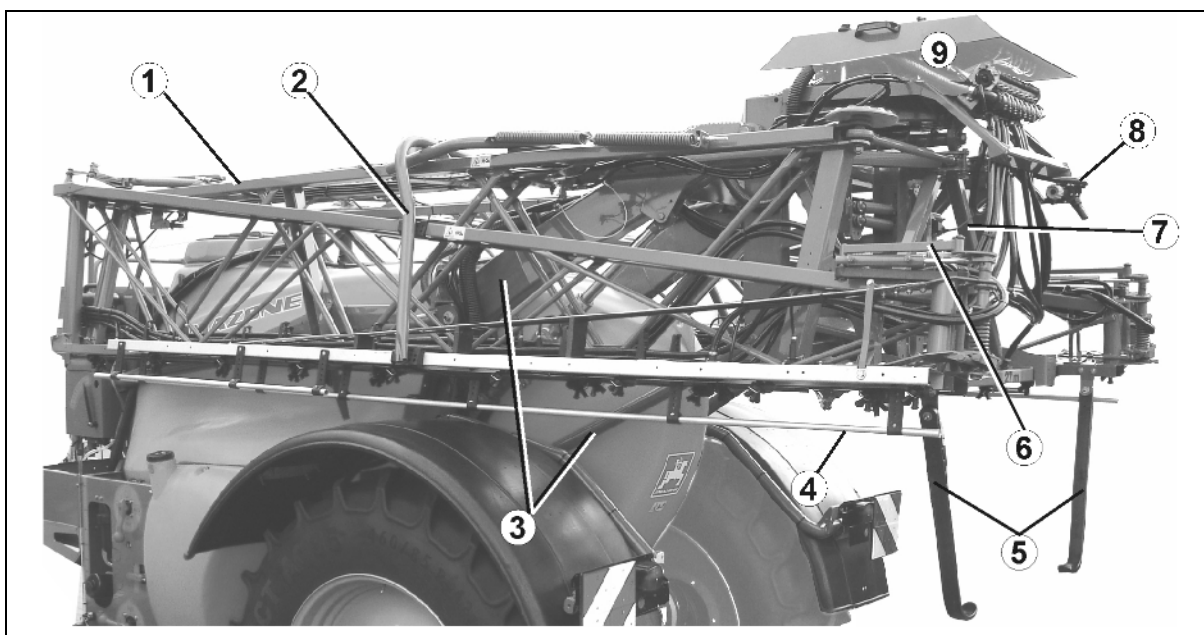
The centre boom section locking mechanisms protect the boom from damage when the centre boom section hits solid obstacles. The locking mechanism enables deflection opposite to the direction of travel when driving forward.

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

Before moving off again, check the boom for damage.



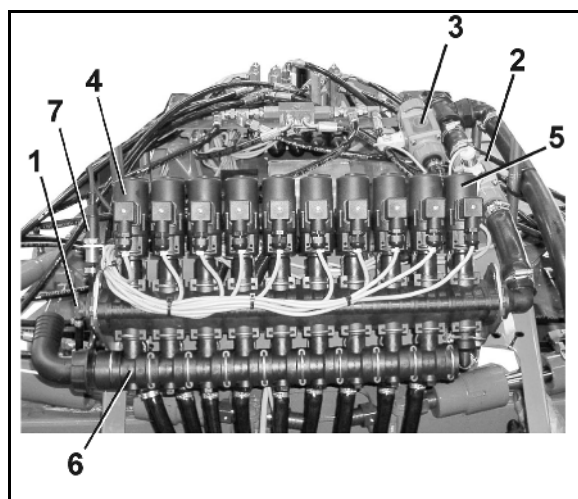
6.1 Super-L boom



- | | |
|--|---|
| (1) Sprayer boom with spray lines | (6) Outer boom locking, see on page 98 |
| (2) Transport safety bow | (7) Vibration compensation |
| (3) Parallelogram frame for adjusting the height of the sprayer boom | (8) Valve and switch tap for DUS system |
| (4) Nozzle protection tube | (9) Boom equipment |
| (5) Spacer | |

Boom valve chest with part-width section control

- | |
|--|
| (1) Pressure connection for the spraying-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 (only with control terminal) |
| (4) Motor valves for switching the boom part-width sections on and off (not with 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.

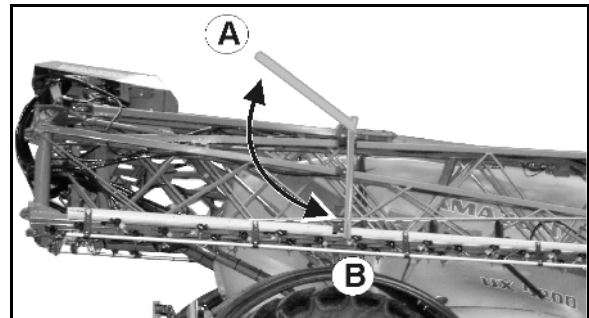


Locking and unlocking the transport locking mechanism

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 6 km/h

The sprayer boom is completely unfolded!

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

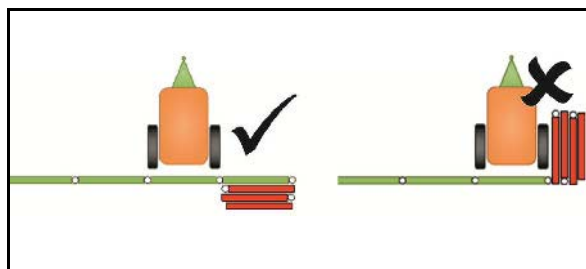


It is forbidden to work with the boom folded into transport position on one side.

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 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.

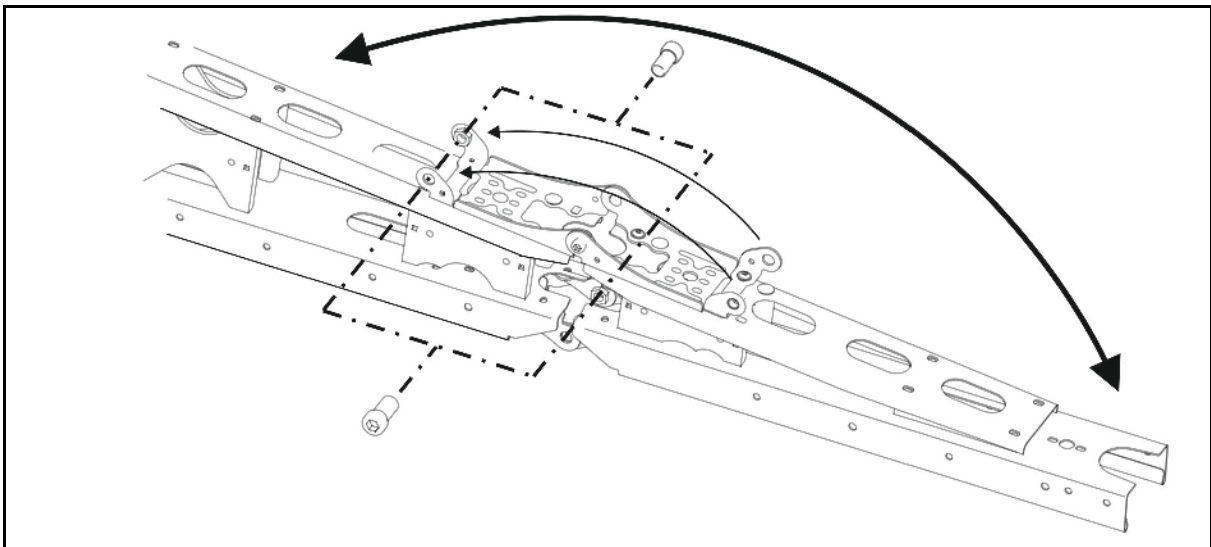
Case 2:

| | | |
|---|---|--|
| 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.

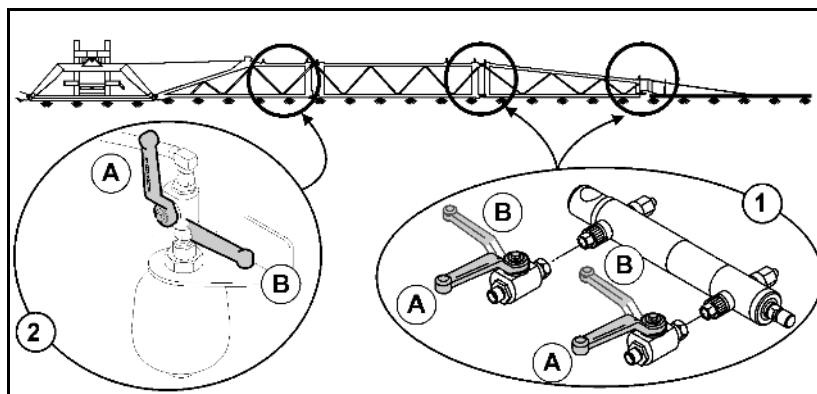
6.3 Boom width reduction (option)

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

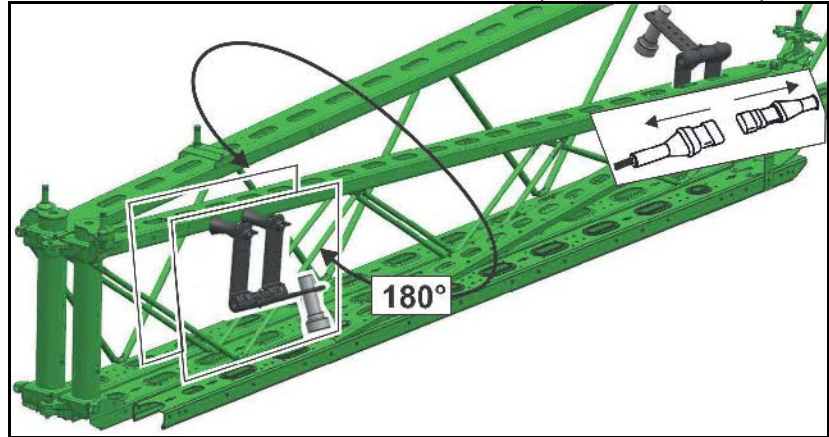


Sensors on the boom:

With reduced working width, install each outer sensor rotated by 180°.

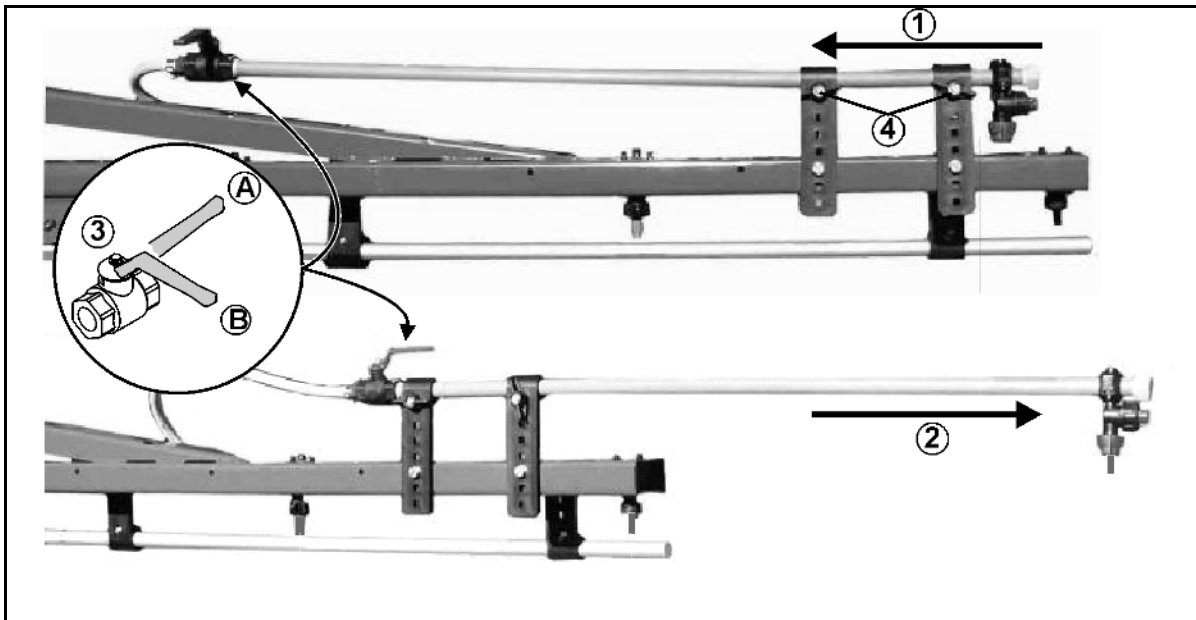
DistanceControl plus: Disconnect the inner sensor.

ContourControl: Deactivate the inner sensor (ISOBUS-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)

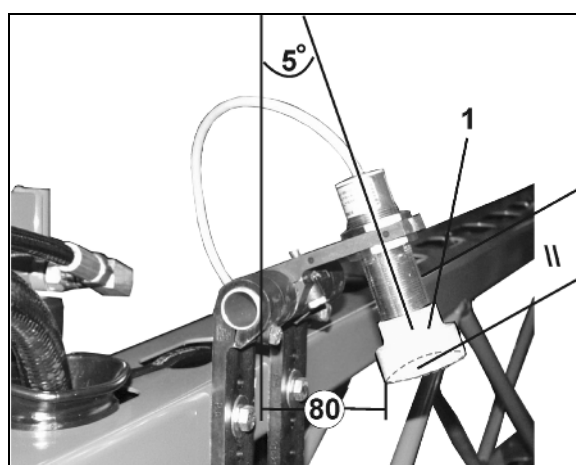
The sprayer boom regulating device DistanceControl automatically keeps the sprayer boom parallel at the desired distance from the target surface.

Ultrasonic sensors (1) 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.

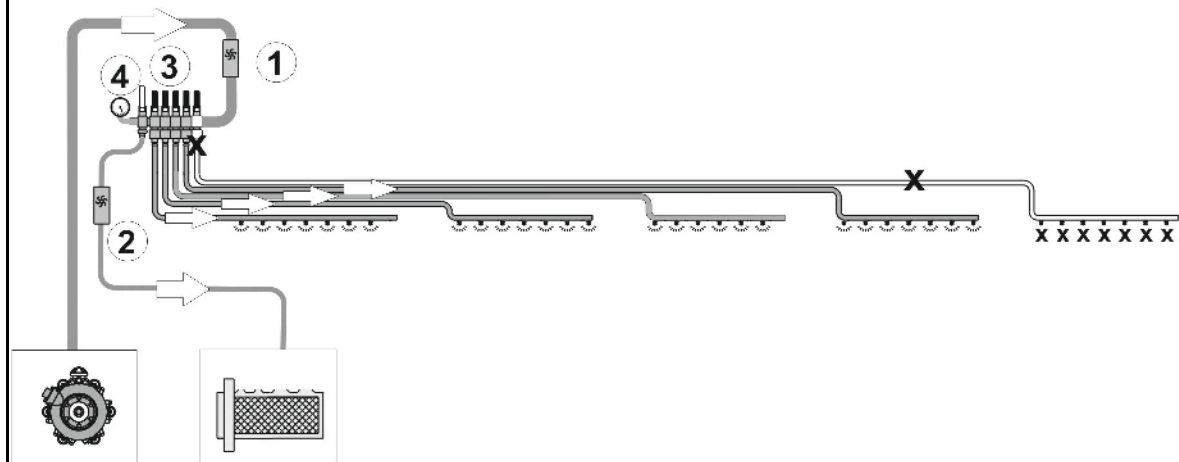


- Setting the ultrasound sensors:

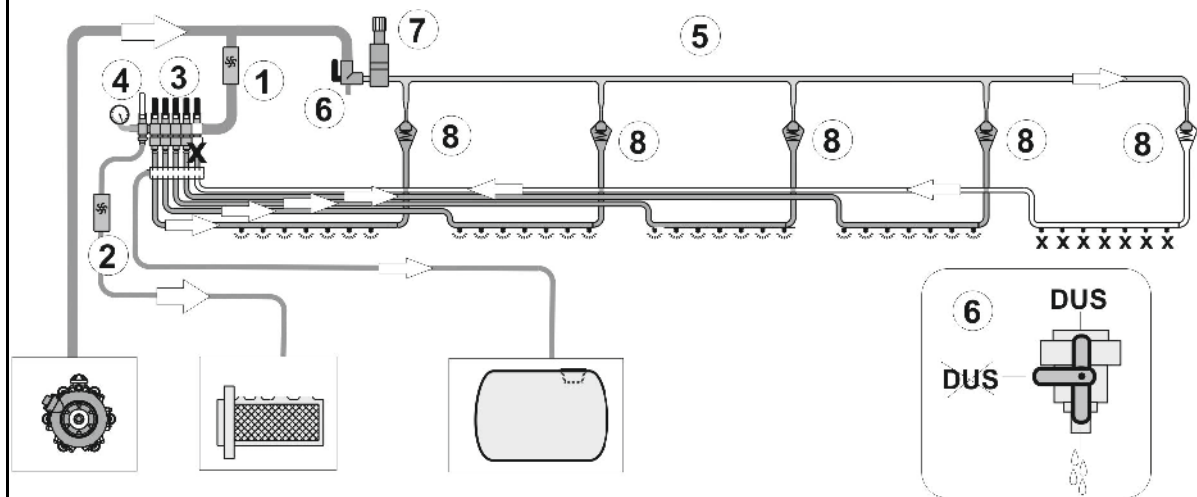
→ See figure

6.7 Spray lines

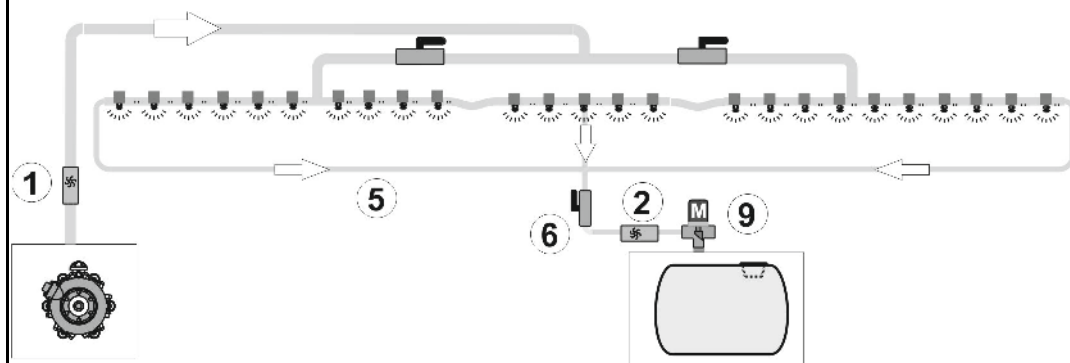
Spray lines with part-width section valves



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

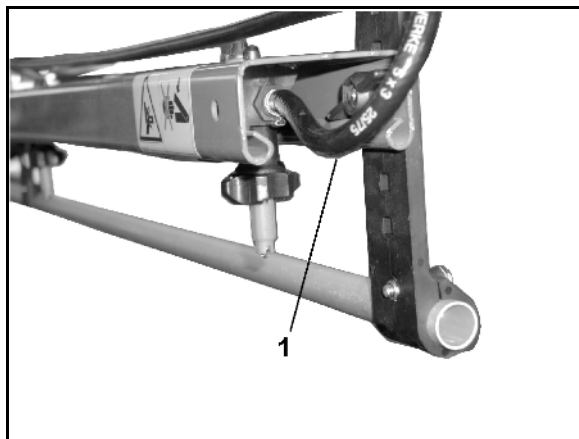
Pressure circulating system (DUS)



- 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.



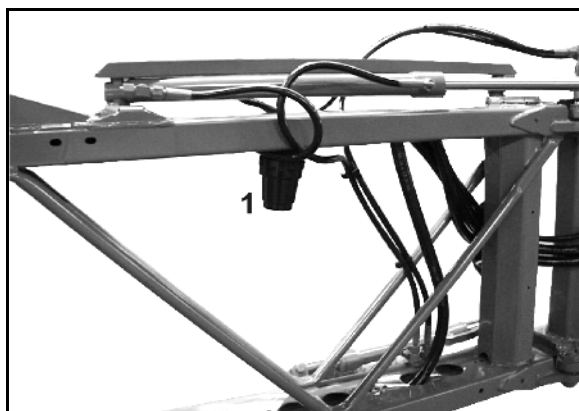
The constant circulation of liquid

- 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.

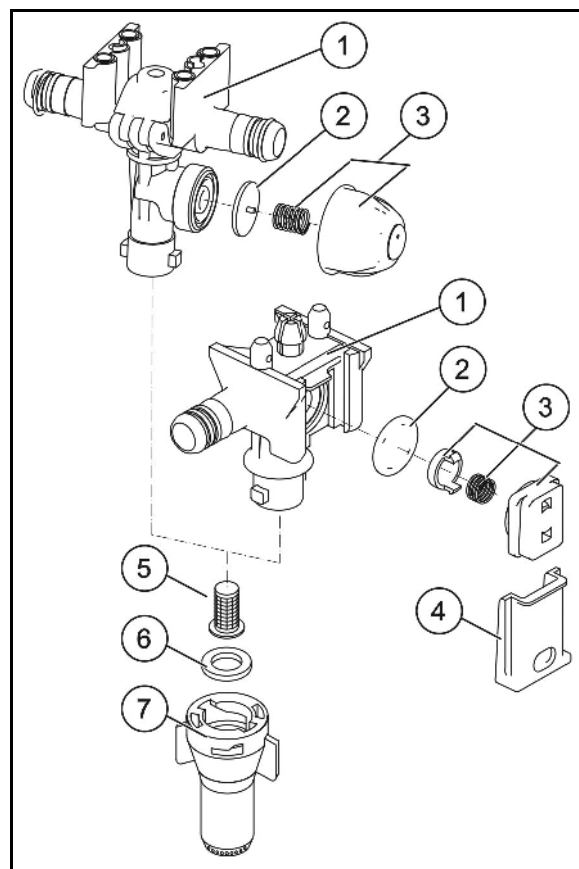


Overview of the filter inserts

- 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.

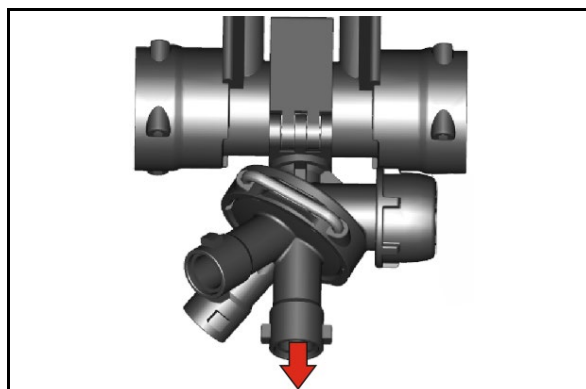


Flush the spray lines before twisting the multiple nozzle head to another nozzle type.

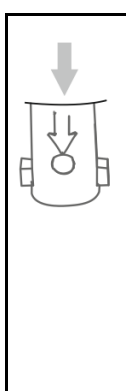
Layout and function of the sprayer boom

Triple nozzles (optional)

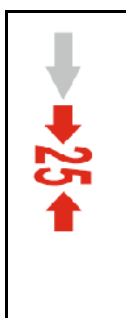
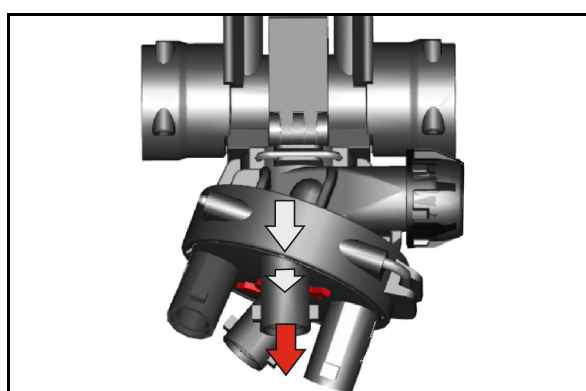
The vertically positioned nozzle is supplied.



Quadruple nozzles (optional)

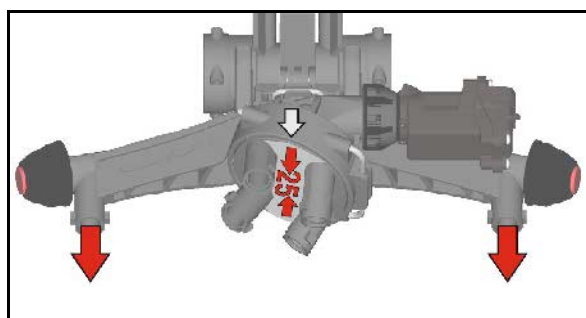


The arrow indicates the vertical nozzle that is being supplied.



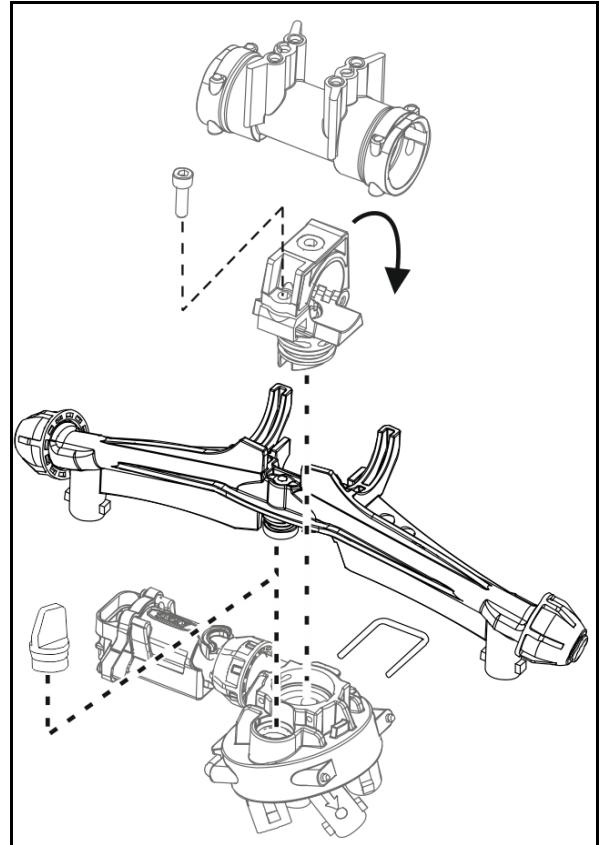
The quadruple nozzle body can be equipped with a 25-cm nozzle holder. This results in a nozzle spacing of 25 cm.

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



Install the 25 cm nozzle holder.

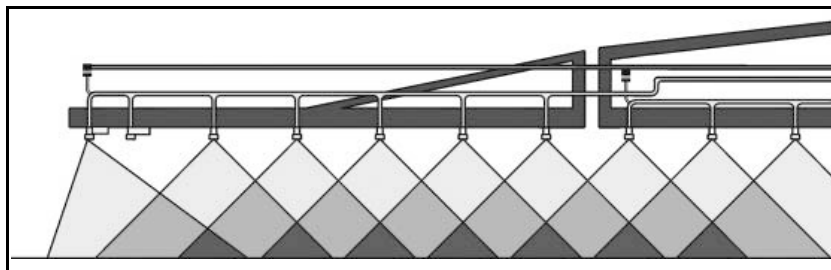
If the 25 cm nozzle holder is not used, close the supply with plugs.



6.8.2 Edge nozzles

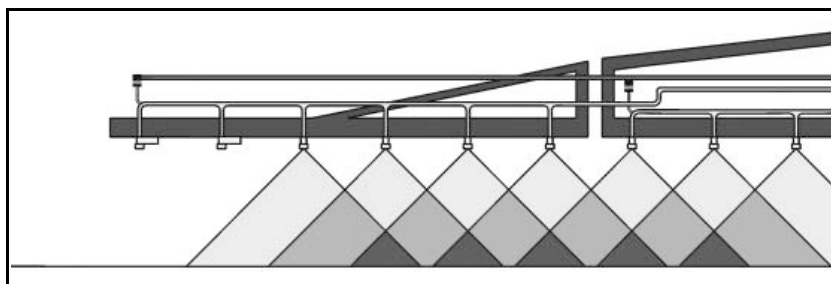
Boundary nozzles, electric or manual

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.



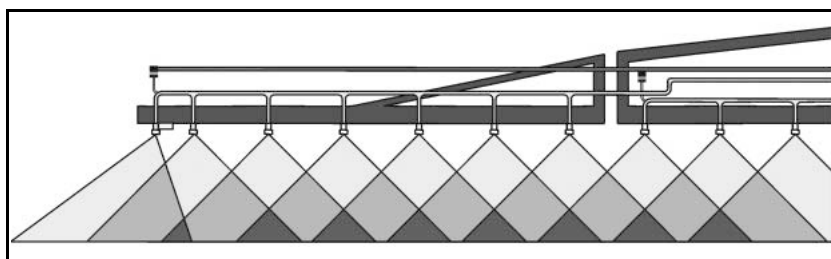
Electric end nozzle switching

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

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



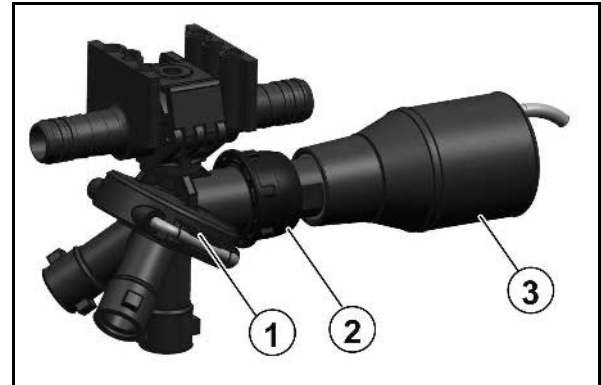
6.9 Automatic single nozzle control (optional)

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.

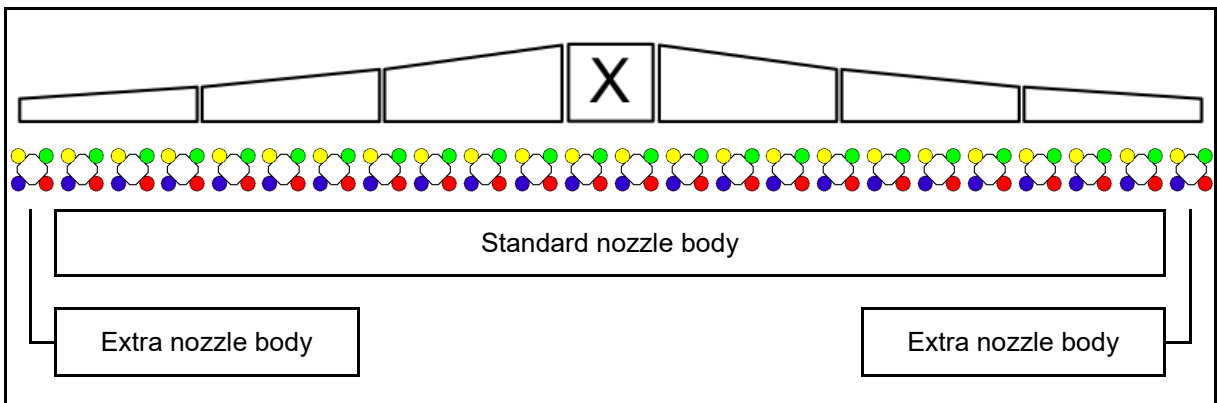
6.9.1 Single nozzle control AmaSwitch

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

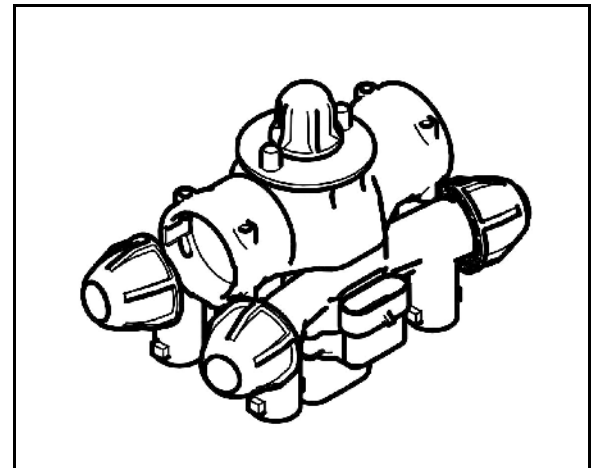
- (1) Nozzle body
- (2) Union nut with diaphragm seal
- (3) Motor valve



6.9.2 4-way AmaSelect single nozzle control

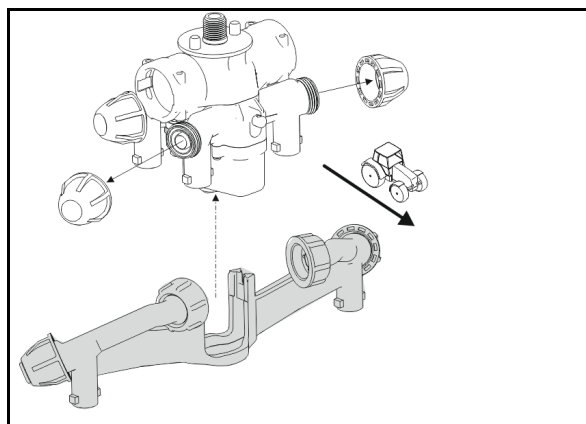


- The sprayer boom is fitted with 4-way nozzle bodies. Each of them is operated by an electric motor.
- The nozzles can be switched on or off as desired (depending on Section Control).
- Due to the 4-way nozzle bodies, several nozzles can be simultaneously active in a nozzle body.
- For boundary treatment,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



Layout and function of the sprayer boom

- 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.

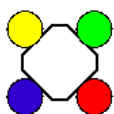


Manual nozzle selection:

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 P₂O₅ 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)

The use of three-ray nozzles for applying liquid fertiliser is beneficial if the liquid fertiliser 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-dropped, almost depressurised distribution of the liquid fertiliser. This prevents an undesirable spray mist and the formation of smaller drops. The coarse drops produced by the three-ray nozzle hit the plants with little force and roll off their surface. **Although this avoids 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 three-ray nozzles listed in the following, only use the black bayonet nut.

Different three-ray nozzles and their operational areas (at 8 km/h)

- yellow 50 - 80 l UAN/ha
- red 80 - 126l UAN / ha
- blue 115 - 180l UAN / ha
- white 155 - 267l UAN / ha

6.10.2 7-hole nozzles / FD nozzles (optional)

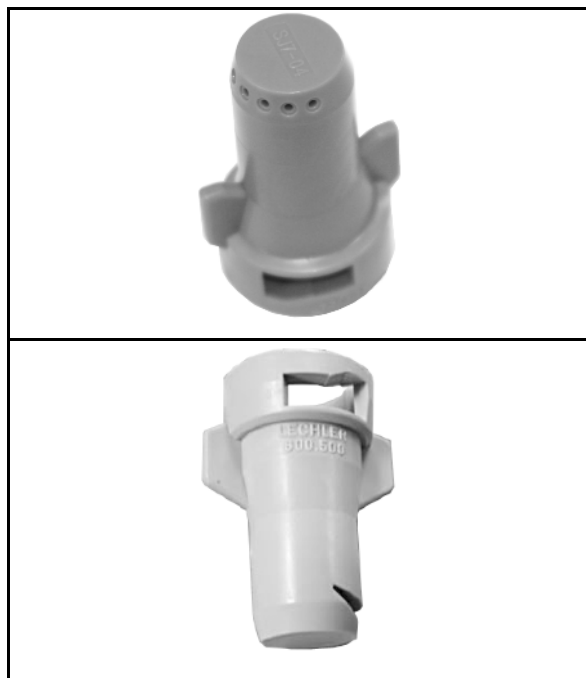
The same conditions apply for using 7-hole nozzles / FD nozzles as for the 3-ray nozzles. In contrast to the three-ray nozzle, in the case of the 7 hole nozzle / FD nozzles, the outlets are not oriented downwards, but instead point to the side. This allows very large drops to be produced on the plants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

The following 7-hole nozzles are available:

- SJ7-02-CE 74 – 120l UAN (at 8 km/h)
- SJ7-03-CE 110 – 180l AUS
- SJ7-04-CE 148 – 240l AUS
- SJ7-05-CE 184 – 300l AUS
- SJ7-06-CE 222 – 411l AUS
- SJ7-08-CE 295 – 480l AUS

The following FD nozzles are available:

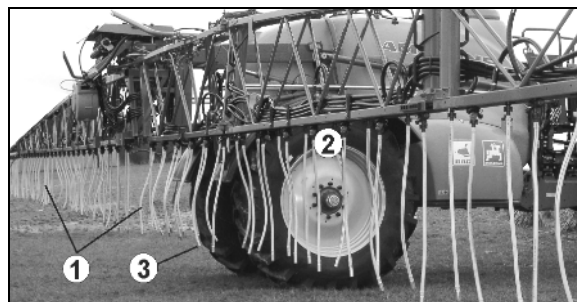
- FD 04 150 - 240 l UAN/ha (at 8 km/h)
- FD 05 190 - 300 l AUS/ha
- FD 06 230 - 360 l AUS/ha
- FD 08 300 - 480 l AUS/ha
- FD 10 370 - 600 l UAN/ha*



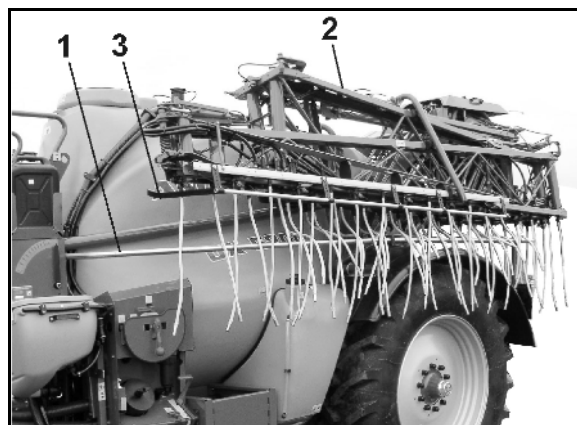
6.10.3 Drag hose equipment for Super-L boom (optional)

- with metering discs for late top dressing with liquid fertiliser

- (1) Drag hoses at 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.

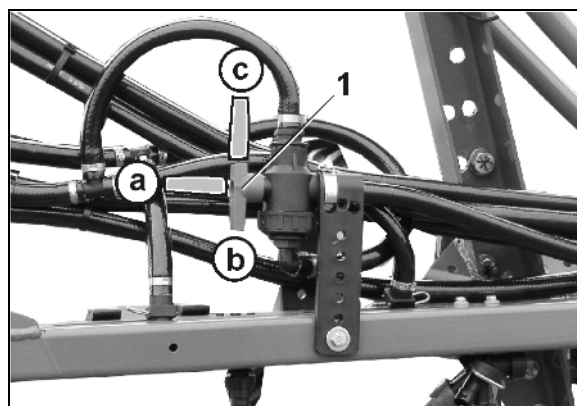


- (1) Deflector hoop for the transport position.
- (2) Transport position raised by lowering the transport hook
- (3) Spacing runners



Remove 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



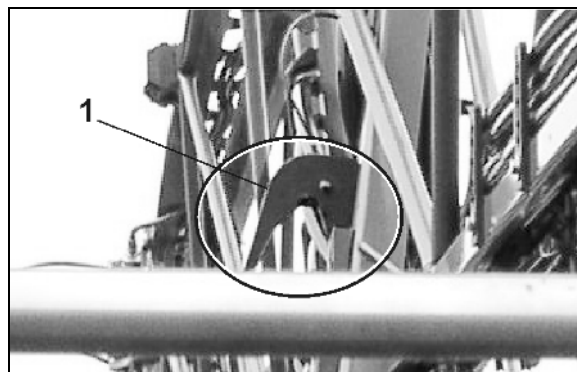
Remove drag hoses for normal spraying operation.

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

- (1) Transport hooks



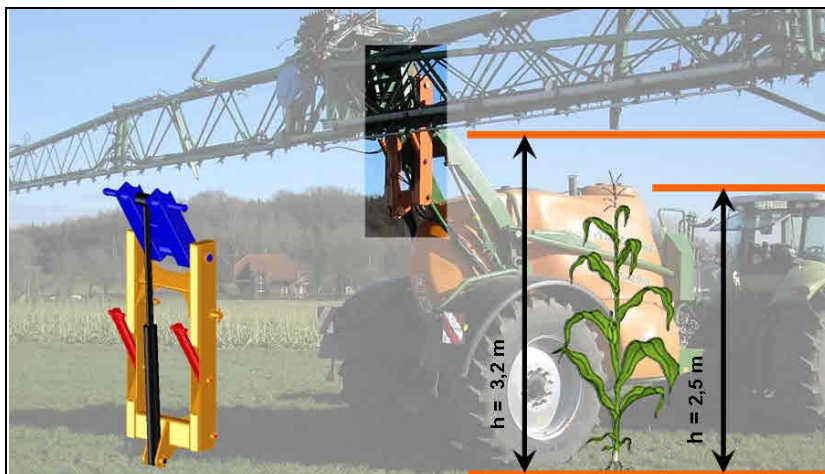
When working with drag hoses, the two transport hooks must be screwed on lower down. In transport position, the distance between the nozzle and the mudguard should be 20 cm! For normal spraying operation, the two transport hooks should be screwed back on in the original position!



6.11 Lifting module

(option)

The lifting module allows the sprayer boom to be raised by an additional 70 cm to a nozzle height of 3.20 m.



DANGER

Risk of accidents and danger of damaging the implement.

- When driving on the roads, the sprayer boom must not be raised above the lifting module.
- The total height of the implement with lifting module can be considerably higher than 4 m.
- Use the lifting module only when the sprayer boom is folded out.
- Lower the lifting module again before folding in the sprayer boom. The sprayer boom can otherwise not be put into the transport lock.
- Always lift or lower the lifting module to the end position!

7 Comfort Package Plus

7.1 General

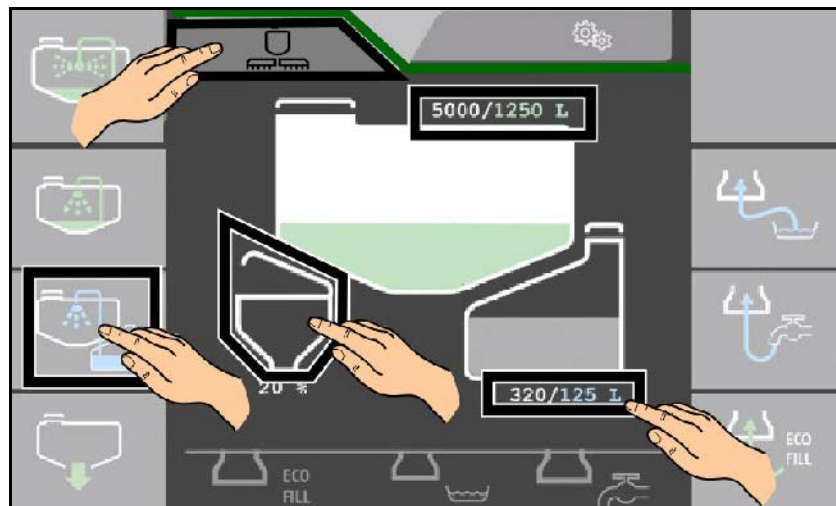
The Comfort Package Plus enables operation and control of several work processes of the field sprayer from the implement control panel.

7.1.1 TwinTerminal

The surface of the touchscreen terminal consists of touch-sensitive fields. By tapping the touch-sensitive fields,

- you can navigate through the menu
- you can start functions.

The touch-sensitive fields are marked with icons that represent functions that are activated by touch.



7.1.2 Software version

This operating manual is valid from software version:

01.09.02c



7.1.3 Entering numerical values



Delete entry



Delete last digit



Close input window

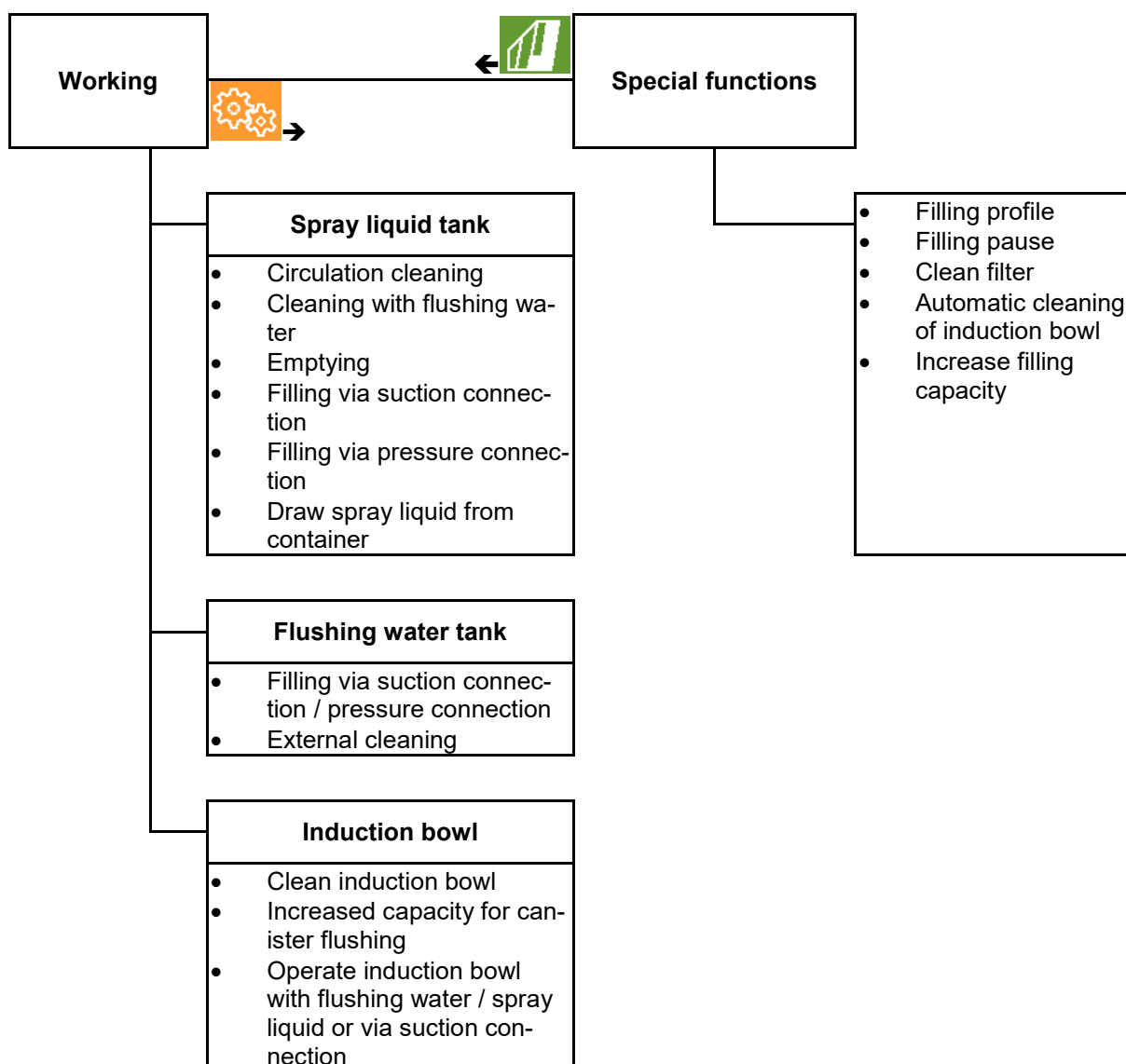


Confirm entry

| Limit values | | | | Input window |
|--------------|---|---|---|--------------|
| [0;0] | | | | 5480 L C |
| 0 | 1 | 2 | 3 | ← |
| | 4 | 5 | 6 | × |
| | 7 | 8 | 9 | ✓ |

Input values 0-9

7.1.4 Hierarchy of the software



7.1.5 Work / Special functions menu

The Work menu is active after switching on the terminal

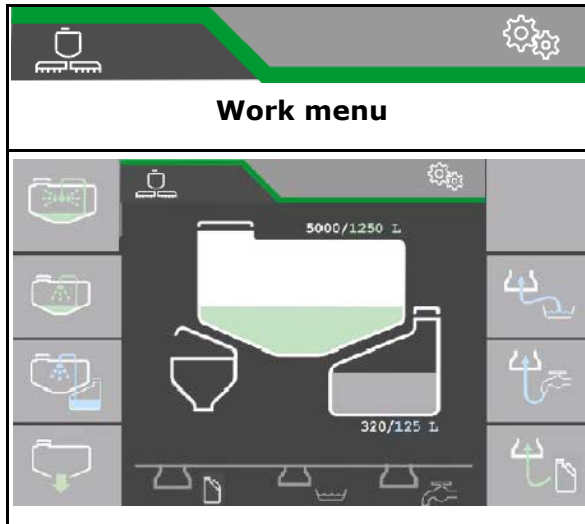


Switch to the Work menu



Switch to the Special functions menu

Work menu:



Special functions menu:



7.2 Work menu



With the Work menu, the submenu with the functions for the respective tank is opened by selecting the tank.

- Spray liquid tank menu
- Flushing water tank menu
- Induction bowl menu

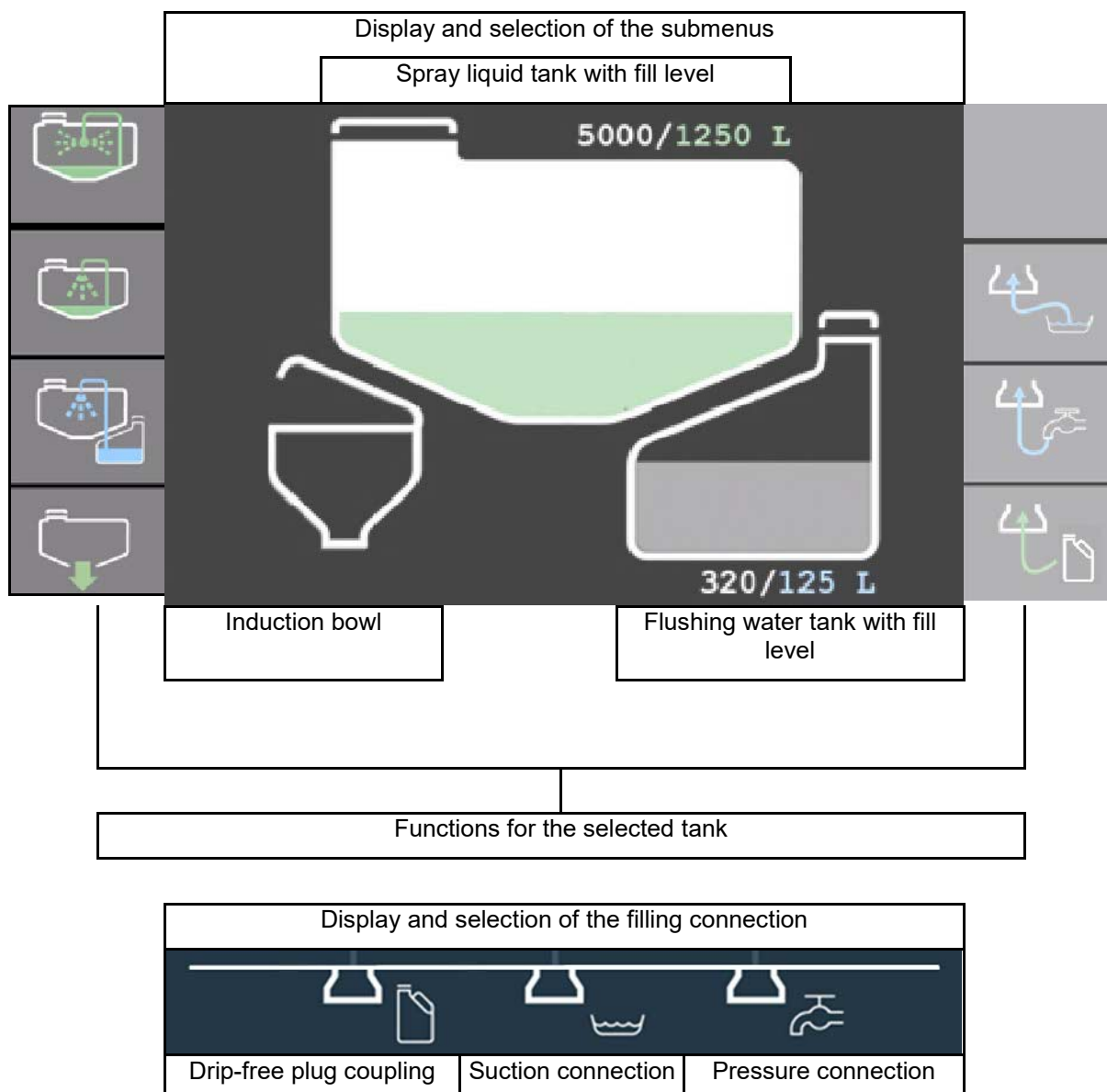


The active menu is shown with a white background.

In the 3 menus, each function can be started and can run simultaneously.

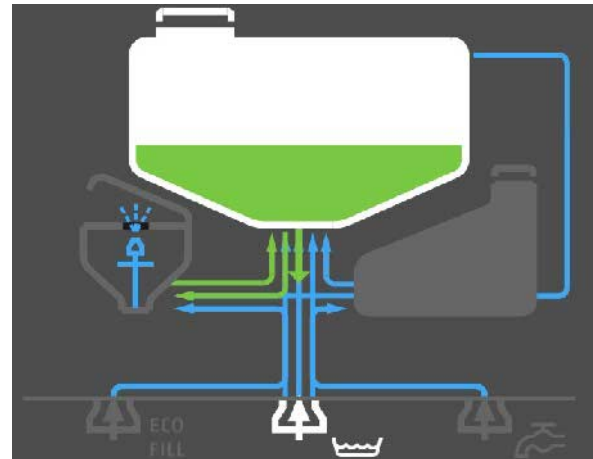


Stop all active functions.



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

- Green – Spray liquid
- Blue – Flushing water
- Grey - Function selected, but not active



7.2.1 Status displays in the Work menu



Filling pause function is set



Active filling profile



Foam prevention is active



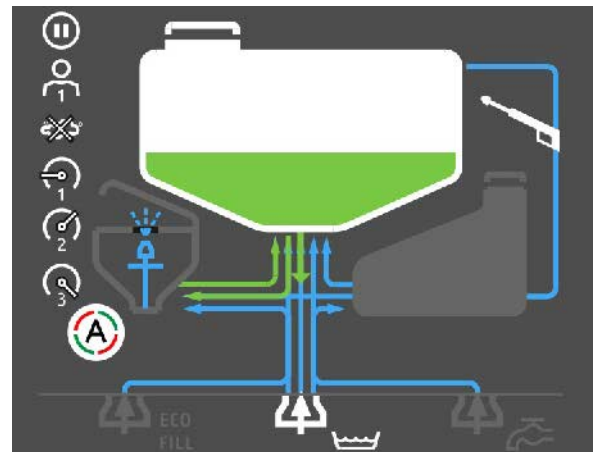
Filling capacity at level 1, 2 or 3



External wash-down device active

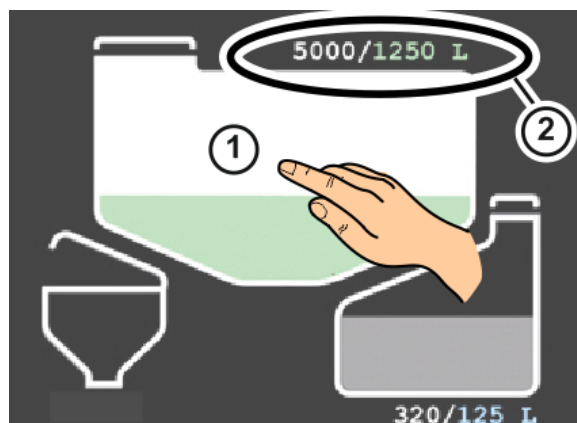


Automatic cleaning of the induction bowl after folding up in transport position.



7.2.2 Spray liquid tank menu

- (1) Open the Spray liquid tank menu by tapping.
- (2) Entry of the target fill level
Display of the target fill level / current fill level



Filling



Before filling:

- Enter the target fill level
- Connect the hose to the correct suction connection

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



Start / stop filling via suction connection



Start / stop filling via pressure connection

Spray agent suction from container



Start / stop suction of spray agent from container

Cleaning



Start / stop circulation cleaning with spray liquid



Start / stop cleaning with flushing water

Emptying



Start / stop quick emptying

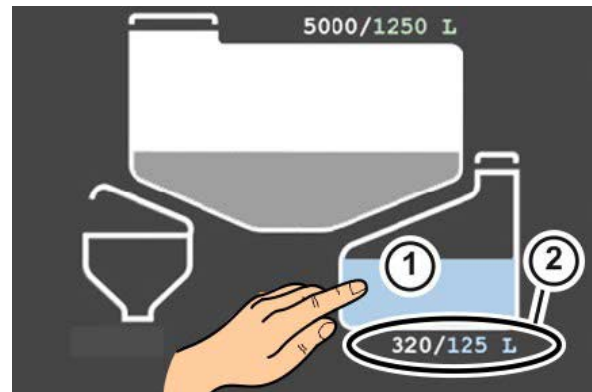
Emptying with spraying pump via quick emptying connection

✓ Acknowledge notification that the implement-side connection for the quick emptying is correctly connected to the external tank and can draw liquid volumes.

→ Then the quick emptying starts until the spray liquid tank is empty.

7.2.3 Flushing water tank menu

- (1) Open the Flushing water tank menu by tapping.
- (2) Entry of the target fill level
Display of the target fill level / current fill level



Filling



Before filling:

- Enter the target fill level
- Connect the hose to the correct suction connection

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



Start / stop filling via suction connection.



Start / stop filling via pressure connection.

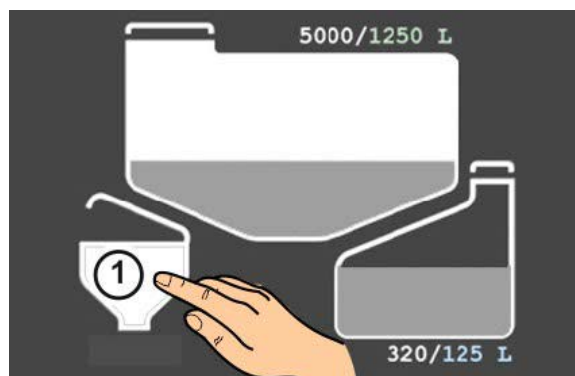
External cleaning



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

7.2.4 Induction bowl menu

- (1) Open the Induction bowl menu by tapping.



Start cleaning of the induction bowl.

The cleaning consists of suction, cleaning and suction!



Canister flushing, ring line and spray pistol are not cleaned.

(Alternative: select automatic cleaning after raising the induction bowl in the Special functions menu)



Increased capacity for the canister flushing nozzle.

Increased water pressure to optimise the cleaning of empty agent containers.



Selection: operate induction bowl with flushing water.



Selection: operate induction bowl with water through the suction connection.



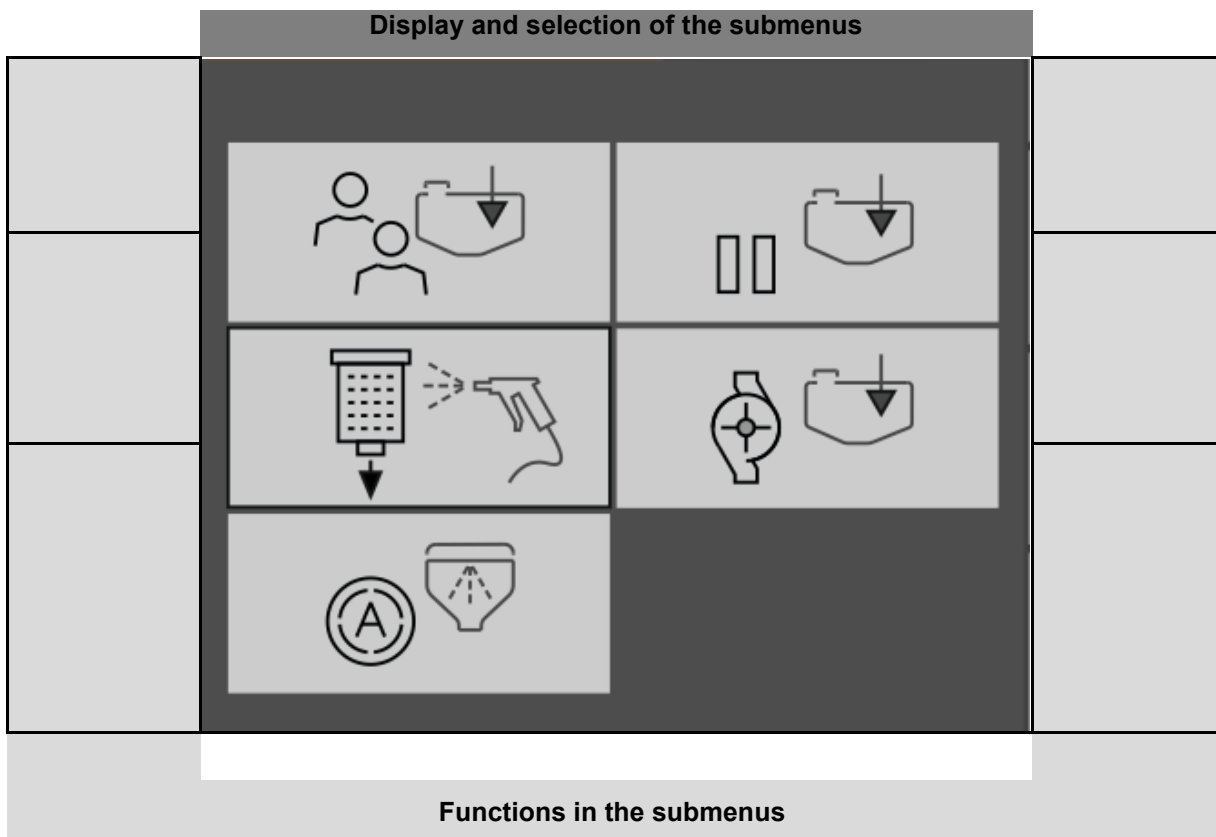
Selection: Operate induction bowl with spray liquid.



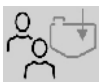
Canister flushing, ring line and spray pistol are contaminated after use.

→ We recommend operating the induction bowl with flushing water.

7.3 Special functions menu



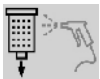
Submenus



Select the filling profile



Filling pause



Clean filter / residual emptying / wintering



Filling capacity



Automatic cleaning of induction bowl




Back to the Main menu Settings / Special functions.



Immediate stop of all active functions.

7.3.1 Selecting the filling profile

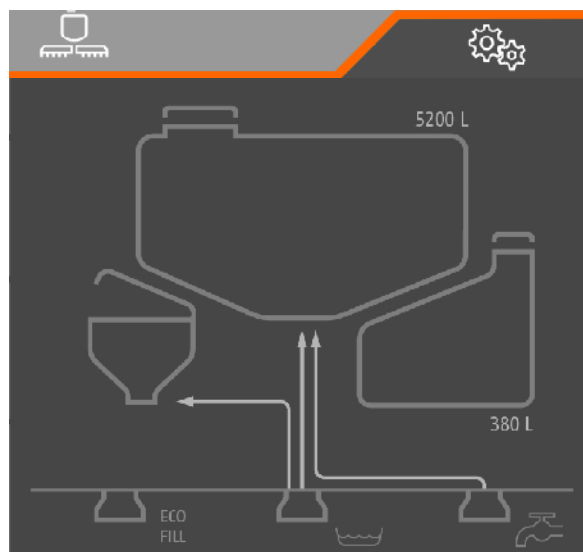
Die Befüllung startet entsprechend der Auswahl des Befüllprofils

- beim Herunterklappen des Einspülbehälters.
-  beim Betätigen des Startbuttons

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

The filling profiles are created in the ISOBUS software.

Before starting, check that the required filling connections are properly coupled.



Select filling profile 1



Select filling profile 2

- The selected filling profile is shown with arrows.
- Die gewählten Füllstände werden angezeigt.




Die Konfiguration des Befüllprofils kann vor dem Start der Befüllung im Menü Arbeit geändert werden.


Die geänderte Konfiguration bleibt bis zum Neustart erhalten.

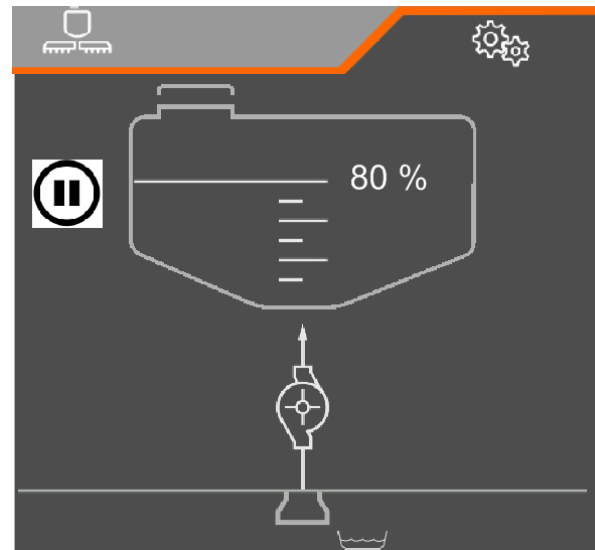
7.3.2 Filling pause

The filling pause enables automatic pausing of the filling procedure. This is sensible if the induction procedure would not be complete before the filling procedure is finished.

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

1.  Activate automatic pausing.

-  Display for activated filling pause.
- Percent fill level value for filling pause is shown.
- 2. Enter the percent fill level value for the filling pause.
- The filling procedure is paused if the induction bowl has not been folded up until the fill level has been reached.



7.3.3 Automatic cleaning of induction bowl

Bei der automatischen Reinigung wird der hochgeklappte Einspülbehälter automatisch nach der Befüllung gereinigt.

As a result, this function does not need to be performed manually through the Induction bowl menu.



Automatic cleaning of induction bowl

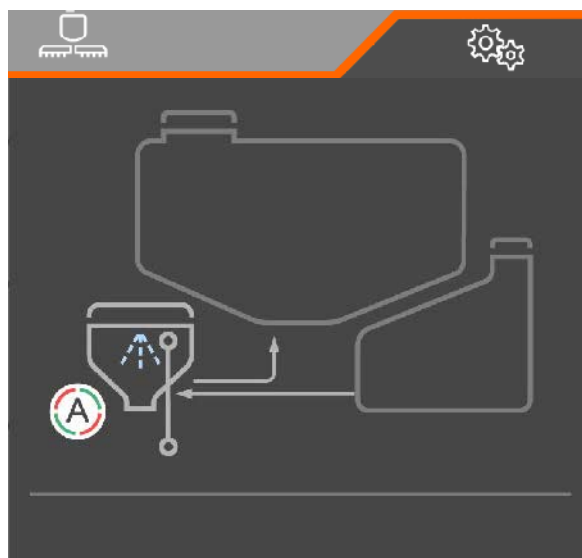
Automatic cleaning is shown with an A (automatic).



Kanisterspülung, Ringleitung, Spritzpistole und Mischdüse müssen separat gereinigt werden, falls der Einspülbehälter mit Spritzflüssigkeit betrieben wurde.



Wenn die automatische Reinigung aktiv ist, wird die Befüllung 20 l vor Erreichen des Sollfüllstands unterbrochen.



7.3.4 Increasing the filling capacity



1 Befüllleistung Standard mit geringem Rührdruck für minimale Schaumbildung.



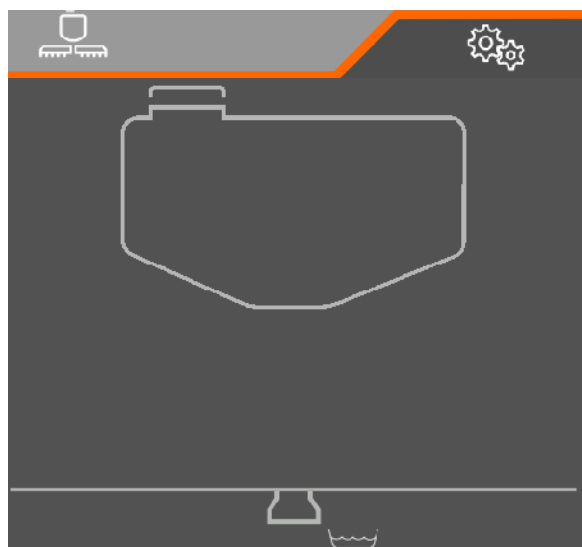
2 Erhöhung der Befüllleistung über erhöhten Rührdruck.



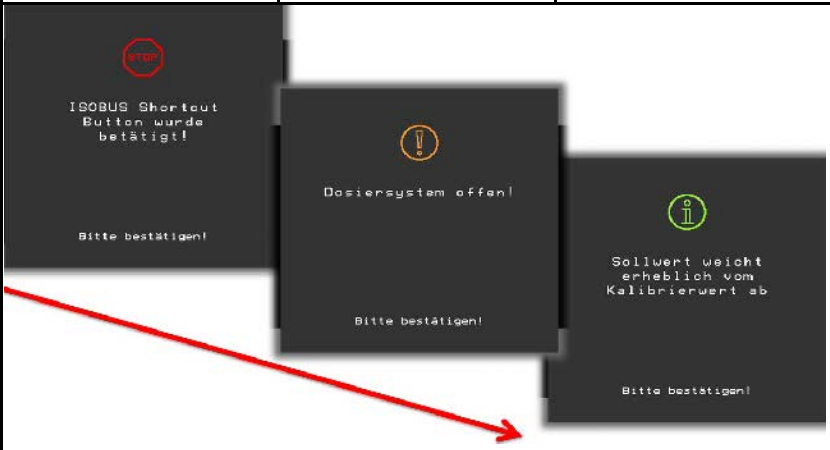
3 Erhöhung der Befüllleistung über den Injektor.



Schaumbildung durch aktive Innenreinigung reduzieren.



7.4 Alarm / warning and notification

| Alarm | Warning | Note |
|--|---------|------|
|  | | |
| → Full-screen messages must always be acknowledged! | | |

8 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 30 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

8.1 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.

8.1.1 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

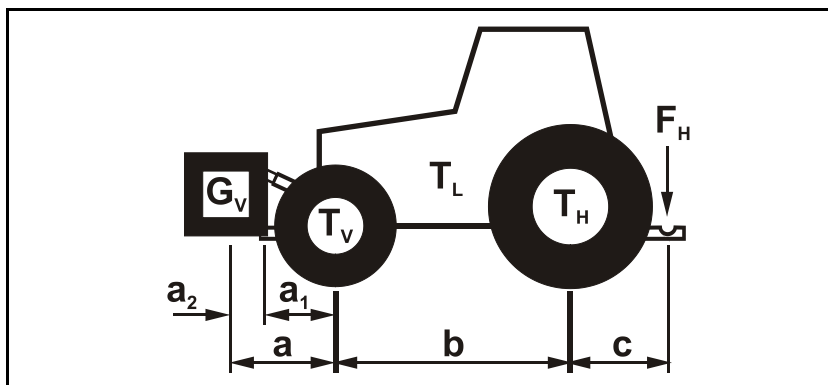
- tractor empty weight
- ballast weight and
- total weight of the attached implement or drawbar load of the hitched implement.



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.

8.1.1.1 Data required for the calculation



| | | | |
|-------|------|---|---|
| T_L | [kg] | Tractor empty weight | See tractor operating manual or vehicle documentation |
| T_V | [kg] | Front axle load of the empty tractor | |
| T_H | [kg] | Rear axle load of the empty tractor | |
| G_V | [kg] | Front weight (if available) | See front weight in technical data, or weigh |
| F_H | [kg] | Actual drawbar load | determining |
| a | [m] | Distance between the centre of gravity of the front mounting implement or the front weight and the centre of the front axle (total $a_1 + a_2$) | See technical data of tractor and front implement mounting or front weight or measurement |
| a_1 | [m] | Distance from the centre of the front axle to the centre of the lower link connection | See tractor operating manual or measurement |
| a_2 | [m] | Distance between the centre of the lower link connection point and the centre of gravity of the front-mounted implement or front ballast (centre of gravity distance) | See technical data of front implement mounting or front weight or measurement |
| b | [m] | Tractor wheel base | See tractor operating manual or vehicle documents or measurement |
| c | [m] | Distance between the centre of the rear axle and the centre of the lower link connection | See tractor operating manual or vehicle documents or measurement |

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

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

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).

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

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

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).

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

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

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).

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

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

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).

8.1.1.6 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).

Start-up

8.1.1.7 Table

| | Actual value according to calculation | Approved value according to tractor operating manual | Double approved load capacity (two tyres) |
|----------------------------|--|--|--|
| Minimum ballast front/rear | <div style="border: 1px solid black; padding: 10px; display: inline-block;">/ kg</div> | -- | -- |
| Total weight | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> | -- |
| Front axle load | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> |
| Rear axle load | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> | <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div> |



- 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 (\leq) 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 ($G_{V \min}$)!

8.1.2 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.

8.1.2.1 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 \varnothing 40 mm (ISO 5692-2) |
| | Drawbar eye | \varnothing 40 mm (ISO 8755) |
| | Drawbar eye | \varnothing 50 mm, only compatible with form A (ISO 1102) |
| Upper / lower hitch | | |
| Ball head coupling \varnothing 80 mm (ISO 24347) | Ball coupling | \varnothing 80 mm (ISO 24347) |
| Lower hitch | | |
| Towing hooks / hitch hooks (ISO 6489-19) | Drawbar eye | Centre bore \varnothing 50 mm Eyelet \varnothing 30 mm (ISO 5692-1) |
| | Swivel drawbar eye | compatible only with form Y, hole \varnothing 50 mm, (ISO 5692-3) |
| | Drawbar eye | Centre bore \varnothing 50 mm Eyelet \varnothing 30 - 41 mm (ISO 20019) |
| Drawbar - Category 2 (ISO 6489-3) | Drawbar eye | Centre bore \varnothing 50 mm Eyelet \varnothing 30 mm (ISO 5692-1) |
| | | Socket \varnothing 40 mm (ISO 5692-2) |
| | | \varnothing 40 mm (ISO 8755) |
| Drawbar (ISO 6489-3) | | \varnothing 50 mm (ISO 1102) |
| | | (ISO 21244) |
| Drawbar / Piton-fix (ISO 6489-4) | Drawbar eye | Centre bore \varnothing 50 mm Eyelet \varnothing 30 mm (ISO 5692-1) |
| | Swivel drawbar eye | compatible only with form Y, hole \varnothing 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) | |

8.1.2.2 Compare the permissible D_C value with actual D_C value



WARNING

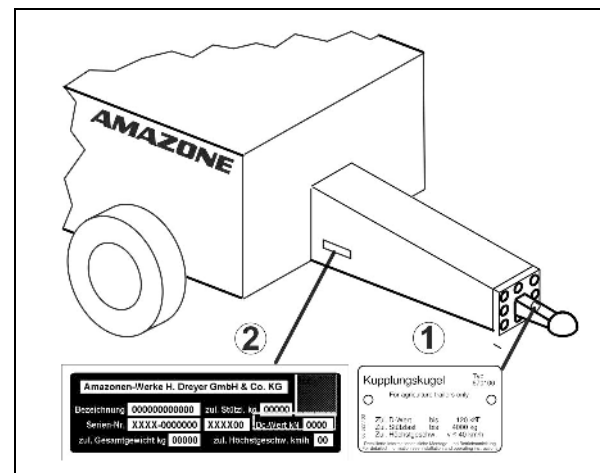
Danger from breaking the coupling devices between the tractor and the implement when the tractor is not used for its intended purpose!

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 (\leq) 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**

| |
|----|
| kN |
|----|

specified D_C value

| | |
|----------------------------------|----|
| Coupling device on the tractor | kN |
| Coupling device of the implement | 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:

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

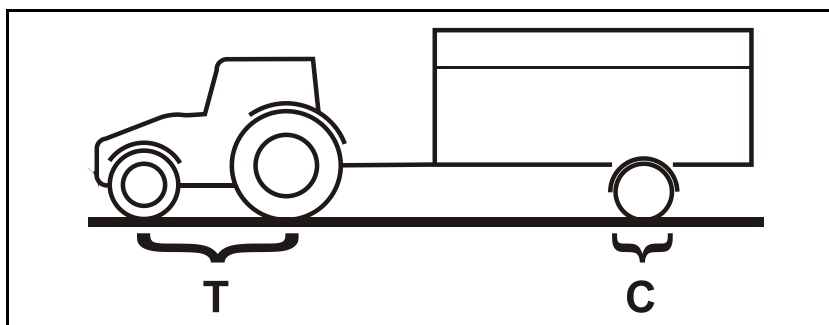


Fig. 1

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)

8.2 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 upended 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

Danger of crushing between the rear of the tractor and the implement when raising and lowering the implement to determine the shortest and longest operating position of the universal joint shaft.

Actuate the operating controls for the tractor's three-point hydraulic system

- only from the intended workplace.
- if you are outside of the danger area between the tractor and the implement.



WARNING

Danger of crushing from unintentional

- **Rolling of the tractor and the coupled implement!**
- **Lowering of the lifted implement!**

Secure the tractor and implement from unintentional starting and unintentional rolling and secure the implement from unintentional lowering before entering the danger zone between the tractor and lifted implement in order to adjust the universal joint shaft.



The shortest length of the universal joint shaft is when the universal joint shaft is positioned horizontally. The longest length of the universal joint shaft is when the implement is completely raised.

1. Couple the tractor to the implement (do not connect the universal joint shaft).
2. Apply the tractor parking brake.
3. Determine the lifting height of the implement with the shortest and the longest operating position for the universal joint shaft.
 - 3.1 To do so, raise and lower the implement using the tractor's three-point hydraulic system.
In doing so, actuate the operating controls for the tractor's three-point hydraulic system at the rear of the tractor from the designated workstation.
4. Secure the raised implement at the determined lifting height against unintentional lowering (e.g. by supporting it or hooking it to a crane).
5. Secure the tractor against unintentional starting before entering the danger area between the tractor and implement.
6. When determining the length and when shortening the universal joint shaft, observe the operating manual provided by the universal joint shaft manufacturer.
7. Reconnect the shortened halves of the universal joint shaft.
8. Grease the PTO shaft of the tractor and the input shaft of the gearbox before connecting the universal joint shaft.
The tractor symbol on the protective tube identifies the tractor-side connection of the universal joint shaft.

8.3 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 via 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.

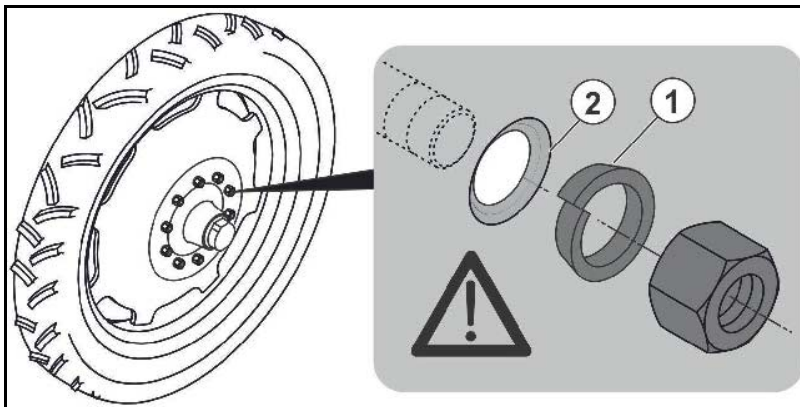
1. Lower any raised, unsecured implement/raised, unsecured implement parts.
- This prevents parts from being lowered unintentionally.
2. Shut down the tractor engine.
3. Remove the ignition key.
4. Apply the tractor parking brake.
5. Secure the implement against unintentional rolling away (only if the implement is hitched)
 - On level terrain, by using the parking brake (if fitted) or wheel chocks.
 - On uneven terrain or on slopes, by using the parking brake and wheel chocks.

8.4 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 40.

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: 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.

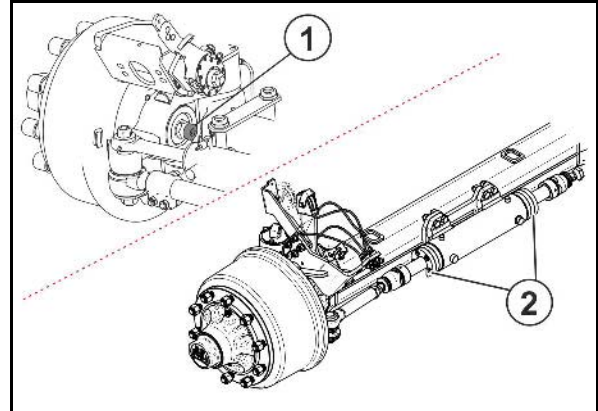
Steering axle



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.



8.5 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 202).

8.6 Adjusting the hydraulic system with the system setting screw

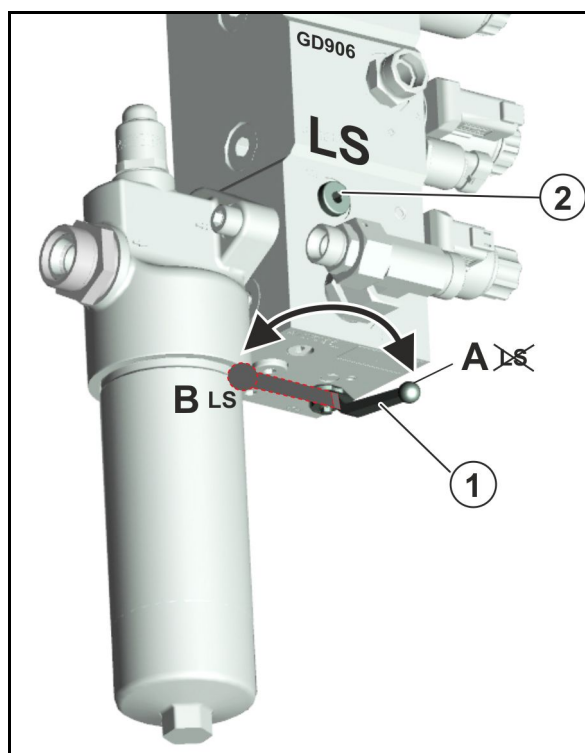


The hydraulic block is located at the front right on the implement behind the cover plate.



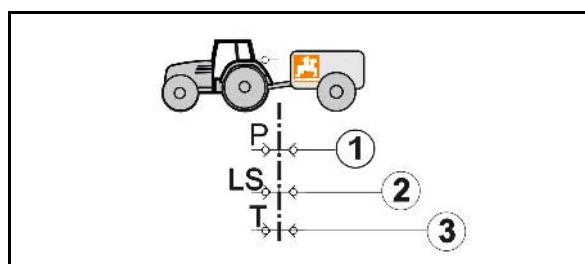
- Be sure to match the hydraulic systems of the tractor and the implement.
- The implement hydraulic system is adjusted using the system setting screw on the hydraulic block of the implement.
- Elevated hydraulic oil temperatures are the result of incorrect adjustment of the system setting screw, caused 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) System setting screw can be adjusted in 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.

→ Put the system setting screw in position A.



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.

→ Put the system setting screw in position B.

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

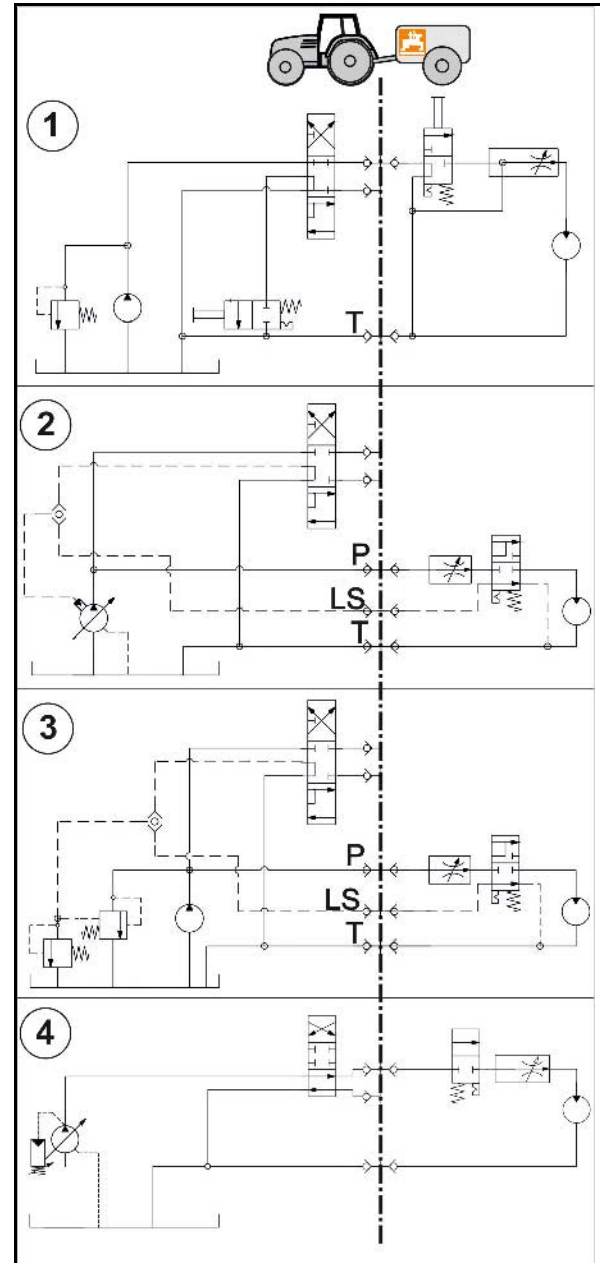
→ Put the system setting screw in position B.

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

→ Put the system setting screw in position B.



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



9 Coupling and uncoupling the implement



When coupling and uncoupling machines, follow the instructions given in the section "Safety instructions for the operator" page 30.



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 141 for more information.

9.1 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 131.



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 stay out of the danger area between the tractor and the implement before you drive up to the implement.
2. First couple the supply lines before coupling the implement to the tractor.
 - 2.1 Drive tractor up to the implement in such a manner that a free space (approx. 25 cm) remains between tractor and implement.
 - 2.2 Secure the tractor against unintentional starting and rolling away.
 - 2.3 Check that the tractor's PTO shaft is switched off.
 - 2.4 Couple the universal joint shaft and supply lines to the tractor.
 - 2.5 Hydraulic brake: Fasten the ripcord for the parking brake to the tractor.
3. Drive the tractor in reverse to the implement so that the coupling device can be coupled.
4. Couple the coupling device.
5. Lift the stand into transport position.
6. Remove the wheel chocks, release the 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.

9.2 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.



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 141.
 - 2.1 Lower the jack into parking position.
 - 2.2 **Uncouple** 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.
 - 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.

9.2.1 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 69).
- This releases the service brake system so that the implement can be manoeuvred.
 - 4.2 When manoeuvring is finished, 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.

10 Road transport



- During transportation, follow the instructions given in the section "Safety instructions for the operator", page 32.
- 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 32.
- 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.

11 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 30 ff.

Observing this information is important for your safety.



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



WARNING

DistanceControl, ContourControl

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.



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 141.

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,
 - when preparing the spray liquid.
 - when cleaning / replacing the spraying nozzles during spraying operation.
 - 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.:
 - Chemical-resistant gloves
 - Chemical-resistant overalls
 - Water-resistant footwear
 - Face mask
 - Breathing protection
 - Safety glasses
 - Skin protection agents, etc.

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

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

11.1 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 191
- 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.

11.2 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 physical protective equipment and breathing protection 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 | AUS | NP solution |
|----------------|-------|------|------|-------------|
| Density [kg/l] | 1 | 1.11 | 1.28 | 1.38 |



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.

11.2.1 Calculating the filling and re-fill quantity



To calculate the required refill quantity for the last filling of the spray liquid tank, use the "Filling table for remaining spray area", page 52.

Example 1:

The following are given:

| | |
|-----------------------|----------|
| Tank nominal volume | 1000 l |
| Residue in the tank | 0 l |
| Water consumption | 400 l/ha |
| Agent required per ha | |
| Agent A | 1.5 kg |
| Agent B | 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: | 400 l/ha | x | 2.5 ha | = | 1000 l |
| Agent A | 1.5 kg/ha | x | 2.5 ha | = | 3.75 kg |
| Agent B | 1.0 l/ha | x | 2.5 ha | = | 2.5 l |

Example 2:

The following are given:

| | |
|---------------------------|----------|
| Tank nominal volume | 1000 l |
| Residue in the tank | 200 l |
| Water consumption | 500 l/ha |
| Recommended concentration | 0.15 % |

Question 1:

How many litres or 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 20 l remains in the tank after spraying?

Formula and answer to Question 1:

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

$$\frac{(1000 - 200) \text{ [l]} \times 0.15 \text{ [\%]}}{100} = 1.2 \text{ [l or kg]}$$

Formula and answer to Question 2:

$$\frac{\text{Available spray liquid quantity [l]} - \text{remaining quantity [l]}}{\text{Water consumption [l/ha]}} = \text{Area to be treated [ha]}$$

$$\frac{1000 \text{ [l]} (\text{tank nominal volume}) - 20 \text{ [l]} (\text{residue})}{500 \text{ [l/ha]} \text{ Water consumption}} = 1.96 \text{ [ha]}$$

11.2.2 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".



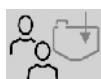
The specified re-fill quantities apply for a application rate of 100 l/ha. For other application rates, the re-fill quantity increases by a multiple.

| Travel 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 |

11.2.3 Filling the spray liquid tank

Perform the action through the TwinTerminal.

- Fill the spray liquid tank with water.
- It is preferable to fill the flushing water tank with water at the same time.
- While filling the tank, flush in the agents through the induction bowl.
- Interrupt the filling process if flushing is not possible before the target fill level is reached.



When a filling profile has been selected, the filling starts automatically after the induction bowl is swivelled down.

11.2.3.1 Filling the spray liquid 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.



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. Drive the pump (at least 400 rpm).
3. TwinTerminal:

Enter the target fill level.



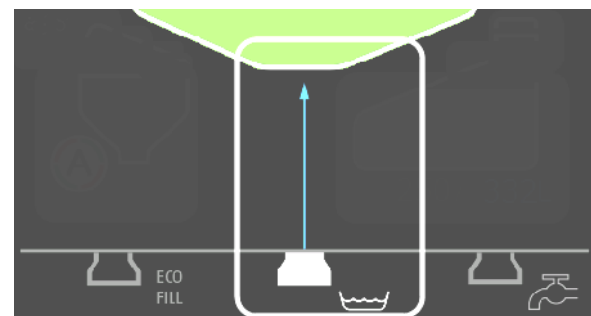
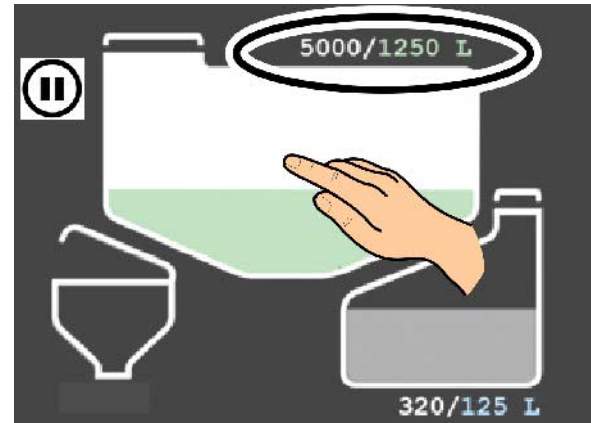
Start / stop filling via suction connection.

4. If necessary, fill the flushing water tank at the same time.
5. Start blending in the agent when more than 20% of the tank filling level has been reached.



You can set an automatic filling pause on the TwinTerminal to have enough time for flushing.

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



During the filling pause,

- the spray liquid tank will continue to be filled with flushing water through induction bowl!
- or
- the induction bowl will be contaminated with spray liquid!



The hose is still filled with water.

After suction filling:

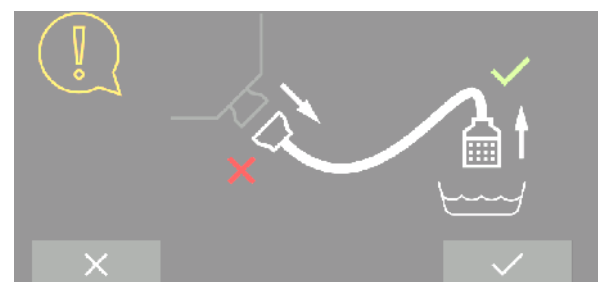
6. Take the suction hose from the withdrawal point and confirm on the TwinTerminal.



7. Actuate the pressure relief.

→ The hose will be emptied by suction.

8. Uncouple the hose from the filling connection.



You can set the filling capacity at 3 levels.

11.2.3.2 Filling the spray liquid tank through the pressure connection



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.

1. Couple the pressure hose with the pressure connection and the hydrant.

2. TwinTerminal:

Enter the target fill level.



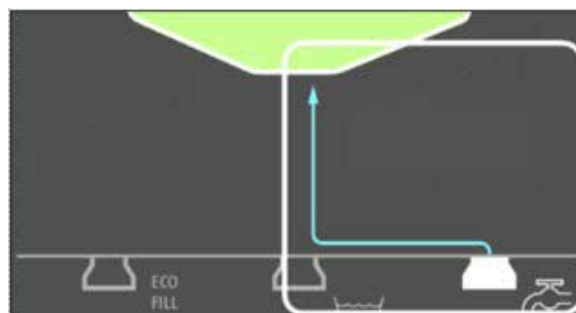
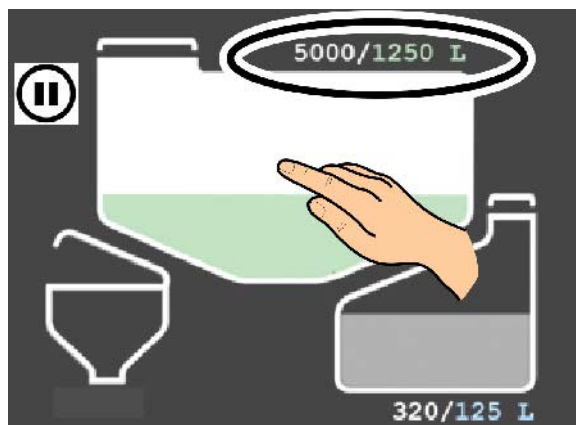
Start / stop filling via pressure connection.

3. If necessary, fill the flushing water tank at the same time.
4. Start blending in the agent when more than 20% of the tank filling level has been reached.



You can set an automatic filling pause on the TwinTerminal to have enough time for flushing.

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



The hose is still filled with water.

After pressure filling:

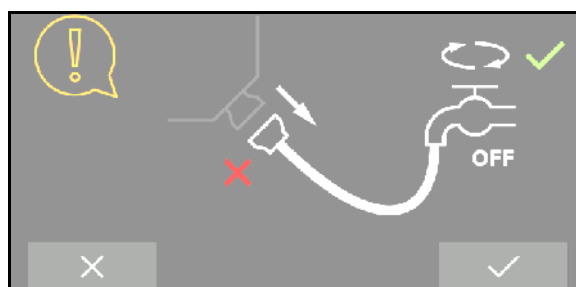
5. Close the supply-side stop tap and confirm on the TwinTerminal.



6. Actuate the pressure relief.

→ The hose will be emptied by suction.

7. Uncouple the hose from the filling connection.



11.2.4 Flushing in the agent through the induction bowl





The induction bowl can be supplied with water from the suction connection, flushing water or spray liquid.

Make a selection through the TwinTerminal.

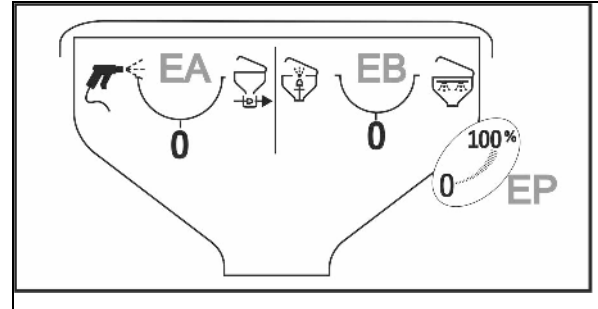
Flush in the agents during the filling procedure.

1. Drive the pump (at least 400 rpm).
2. Lower the induction bowl.
3. Open the induction bowl cover.

4. Switch tap **EB** in position  for liquid agents.

Switch tap **EA** in position  for powder-form agents.

5. Switch on the **EP** injector for suction from the induction bowl (0 – 100%).



During flushing, the intensity of the suction can be adjusted.

6. 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.

7. Close the cover of the induction bowl.
8. 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 of the implement

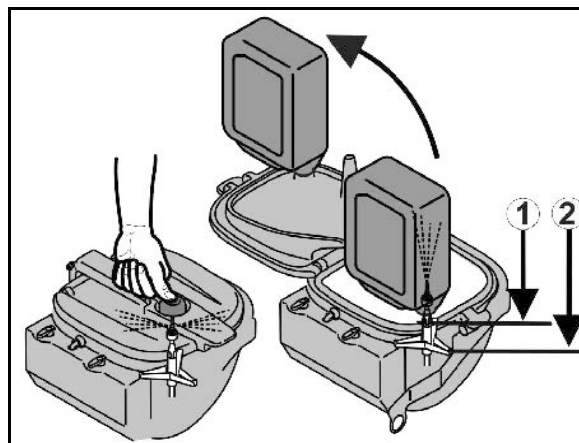
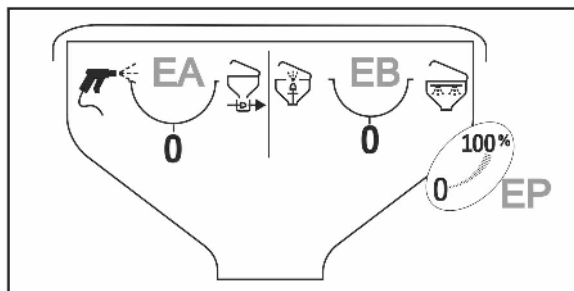
TwinTerminal, menu induction bowl:





we recommend operating the induction bowl with flushing water.

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.



Cleaning the induction bowl:

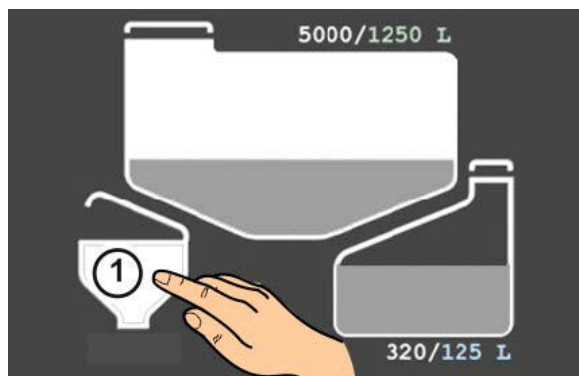
4. Switch tap **EA** in position .
5. Clean the surrounding area with the spray pistol.
6. Close switch tap **EA**.
7. TwinTerminal:  Start the cleaning of the induction bowl.



Canister flushing, ring line, spray pistol and mixing nozzle must be cleaned separately if the induction bowl was operated with spray liquid.



→ Setting on the TwinTerminal:
Select flushing water for the induction bowl.



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

11.2.5 Spray agent suction from containers

Flush in the agents during the filling procedure.

1. Run the pump.
2. Couple the spray agent container with a drip-free plug coupling.



3. TwinTerminal: Start the filling procedure.

→ Spray agent suction from container.

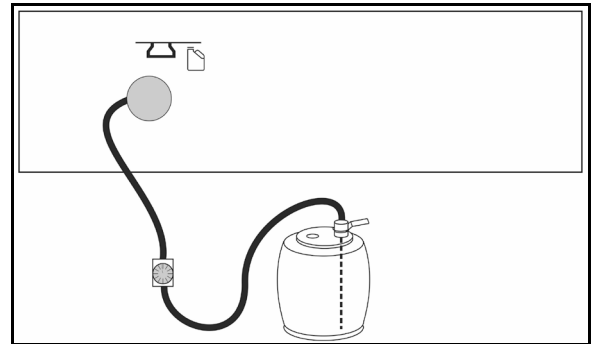


4. TwinTerminal: Stop the filling procedure when the desired quantity has been drawn from the container.
5. Clean the drip-free plug coupling with flushing water, including the entire injector path.

→ Supply the drip-free plug coupling from an external water source.



→ Draw water.



11.2.6 Filling the flushing water tank



Suction filling for implements without flushing water pump:

WARNING

Damage to crops and soils.

Suction filling of the flushing water tank in case of contamination of the valve chest with critical agents:

- Clean the implement thoroughly beforehand.
- Suction filling is forbidden if contamination of the flushing water tank with critical agents is to be expected.



Suction filling for implements without flushing water pump:

To avoid contamination of the flushing water tank with spray agent residues, the spray liquid tank must first be filled with 600 l of water before the flushing water tank (flushing of the valve chest).

TwinTerminal:

It is preferable to fill the flushing water tank while you are filling the spray liquid tank.

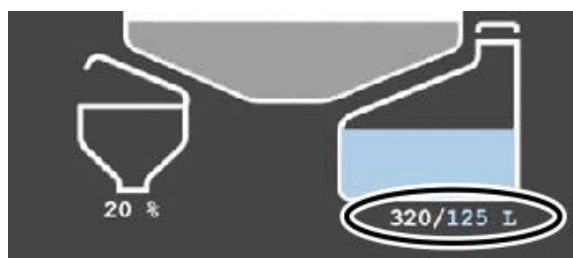
Suction filling without the flushing water pump

1. Drive the pump (at least 400 rpm).
2. Enter the target fill level for the spray liquid tank (at least + 600 l).
3. Enter the target fill level for the flushing water tank.



4. Start filling both tanks.

→ (first flushing in the spray liquid tank, then filling the flushing water tank).



Suction filling with the flushing water pump

1. Enter the target fill level for the flushing water tank.



2. Start the filling procedure.



The flushing water pump starts automatically.

Pressure filling

1. Enter the target fill level for the flushing water tank.



2. Start the filling procedure.

11.3 Spraying operation

Special instructions for spraying operation



- Test the field sprayer by metering
 - before the start of the season.
 - 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]
 - in order to achieve the best possible results from your crop protection measure.
 - to avoid unnecessary pollution of the environment.
- Select the required nozzle type from the spray table before spraying starts, taking account of
 - 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.

Refer to the section "Spray tables for flat-fan, anti-drift, injector and airmix nozzles", Seite 242.
- Select the required nozzle size from the spray table before spraying starts, taking account of
 - the intended forward speed,
 - the required application rate and
 - the target spray pressure.

Refer to the section "Spray tables for flat-fan, anti-drift, injector and airmix nozzles", Seite 242.
- 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", Seite 242.
- At wind speeds of 3 m/s, take additional drift reduction measures (refer to the section "Measures for drift reduction", page 173)!



- 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.

11.3.1 Applying the spray liquid



- Before starting spraying operation, check the following implement data on the control terminal
 - The values for the permitted spray pressure range of the spraying nozzles installed in the sprayer boom.
 - The value for "pulses per 100m".
- Take appropriate measures if an error message appears on the display during spraying operation.
- Check the indicated spray pressure during spraying operation.

Ensure that the indicated spray pressure never deviates by more than $\pm 25\%$ from the target spray pressure given in the spray table, e.g. by changing the application rate using the plus/minus buttons. Greater deviations from the target spray pressure do not achieve optimal treatment success for your crop protection measures and cause environmental pollution.

Reduce or increase the forward speed until you return to the permitted spray pressure range for the target spray pressure.

Use of the implement

Example:

| | |
|--|---|
| Required application rate: | 200 l/ha |
| Intended operational speed: | 8 km/h |
| Nozzle type: | LU/XR |
| Nozzle size: | '05' |
| Permissible pressure range for the spraying nozzle when fitted | min. pressure 1 bar max. pressure 5 bar |
| Target spray pressure: | 3.7 bar |
| Permissible spray pressure: | min. 2.8 bar and max. 4.6 bar 3.7 bar $\pm 25\%$ |



Observe the ISOBUS software operating manual!

1. Prepare and stir the spray liquid correctly in accordance with the instructions from the crop protection product manufacturer.
2. Switch on the control terminal and check the settings.

→ Operate the field sprayer through the Work menu.

3. Fold out the sprayer boom.



4. Switch on the boom ride

or

Control the boom manually.

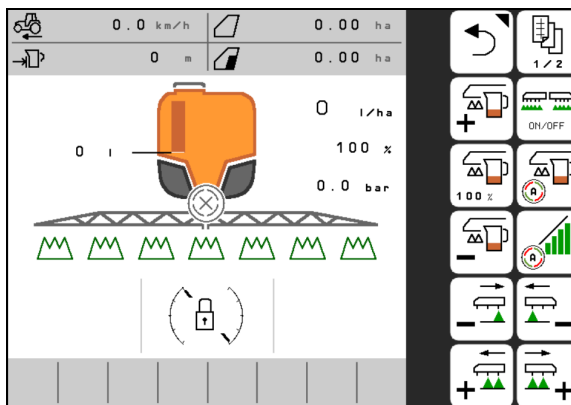
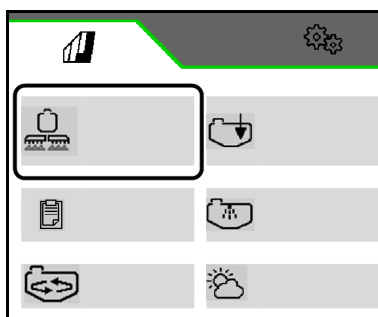
5. Drive the pump at the pump operating speed.



At low application rates, the pump speed can be reduced to save energy.



6. Switch on spraying operation through the control terminal.



Driving to the field with the agitator switched on

1. Switch off spraying.
2. Switch on the PTO shaft.
3. Control terminal: Select the desired intensity for the agitator.




11.3.2 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

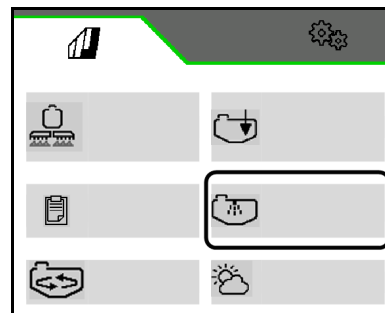
11.3.3 Diluting the spray liquid with flushing water

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 re-starting the spraying, two to five minutes will elapse until concentrated spray liquid can be applied.

11.3.4 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 105.
- 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 105. 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. With the agitator switched on, the technical residue increases in comparison to the specified values.

Formula for calculating the required distance in [m] for spraying out the undiluted residue in the spray line:

$$\text{Required distance [m]} = \frac{\text{Undilutable residue [l]} \times 10,000 \text{ [m}^2\text{/ha]}}{\text{Application rate [l/ha]} \times \text{working width [m]}}$$

11.3.5 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.

11.3.6 Emptying the spray liquid tank using the pump

1. Couple a suitable emptying hose to the implement-side emptying connection.
2. Run the pump.

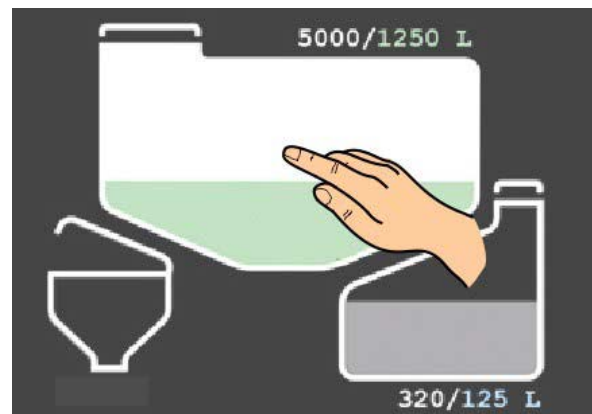


3. TwinTerminal: Start / stop the quick emptying

✓ Confirm that the implement-side connection for the quick emptying is correctly connected to the external tank and can draw liquid volumes.



4. Terminate quick emptying, the valve is closed
5. Interrupt the pump drive.
6. Uncouple the hose.



12 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).

12.1 Quick 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.

| QUICK CLEANING | | | |
|---|--|------|-------|
| The following conditions must be fulfilled: | | | |
| ✗ | Maximalfüllstand Spritzflüssigkeitstank: | 2303 | l |
| | | 42 | l |
| ✗ | Mindest-Füllstand Spülwassertank: | 0 | l |
| | | 450 | l |
| ✓ | Gestänge ausgeklappt | | |
| ✗ | Drehzahl Spritzflüssigkeitspumpe: | 123 | 1/min |
| | | >500 | 1/min |

3. > Start the quick cleaning.



200 litres of flushing water are required

- Main and secondary agitator are flushed, tank internal cleaning switched on.

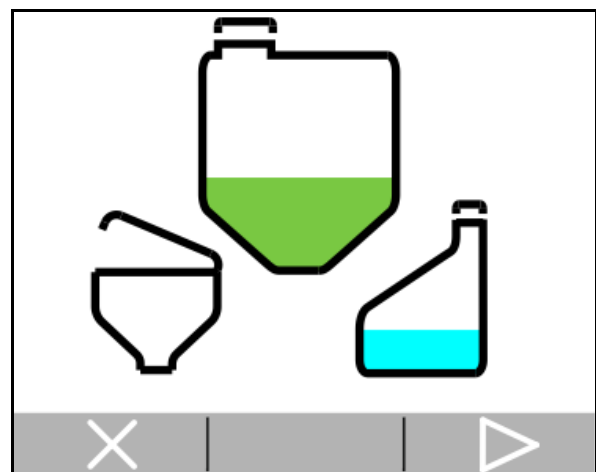
Implements with DUS: the spray line is cleaned.

4. > 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.



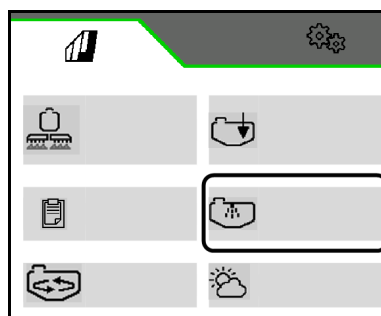
If necessary, also switch the boundary nozzles.

5. > Residue will be drained.
 - ✗ Do not drain residue (residue will be drained and collected later).
6. TwinTerminal: Clean the suction filter and pressure filter, see section on cleaning the suction filter / pressure filter.

12.2 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

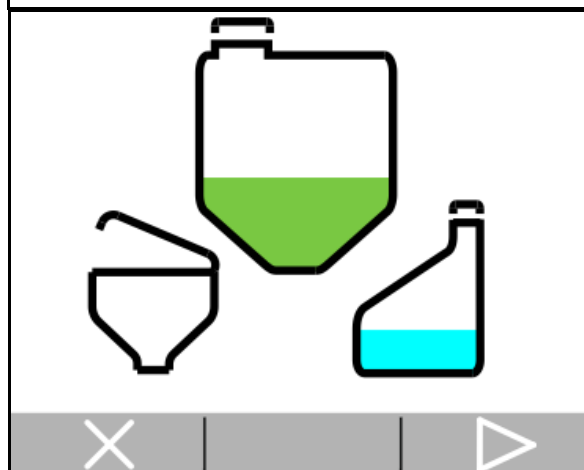
| QUICK CLEANING | | | |
|---|---|-------|-------|
| The following conditions must be fulfilled: | | | |
| ✗ | Maximalfüllstand Spritze-Flüssigkeitstank: | 2303 | l |
| | | 42 | l |
| ✗ | Mindest-Füllstand Spülwassertank: | 0 | l |
| | | 450 | l |
| ✓ | Gestänge ausgeklappt | | |
| ✗ | Drehzahl Spritz- flüssigkeitspumpe: | 123 | 1/min |
| | | > 500 | 1/min |

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.



i If necessary, also switch the boundary nozzles.

6. > Residue will be drained.
 - ✗ 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. TwinTerminal: Clean the suction filter and pressure filter, see section on cleaning the suction filter / pressure filter.

12.3 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.

12.4 XtremeClean high-pressure cleaning

- Execute XtremeClean via the ISOBUS control terminal.
- XtremeClean is high-pressure cleaning of the spray liquid tank.
- XtremeClean serves to loosen deposits on the tank interior wall and must be used particularly before a critical agent change.
- Execute XtremeClean after intensive cleaning.
- Perform XtremeClean on the farmyard.
- During the procedure, the cleaning water must be applied in several steps.

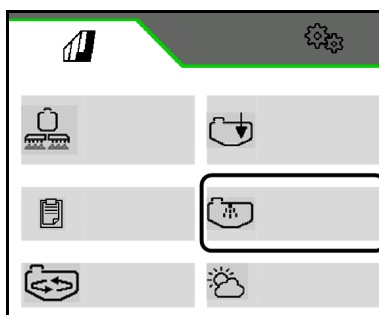


Duration of the entire procedure: 25 minutes

Duration of high-pressure cleaning of the spray liquid tank: at least 15 minutes / until it is stopped manually.

Water consumption: 560 litres

1. Run the pump.
2. Control terminal: Select XtremeClean.

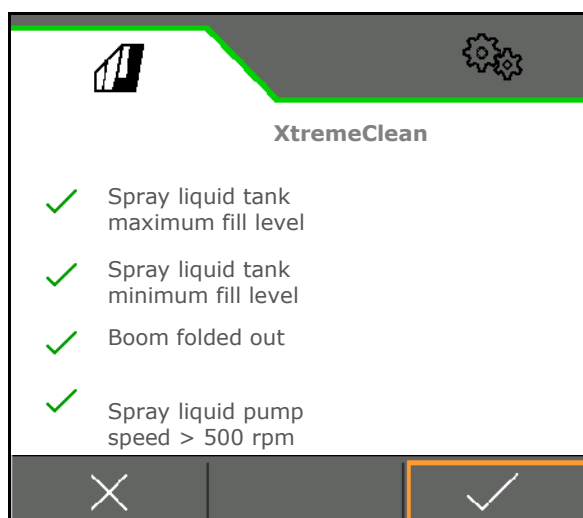


1. > Start cleaning when the conditions are fulfilled.

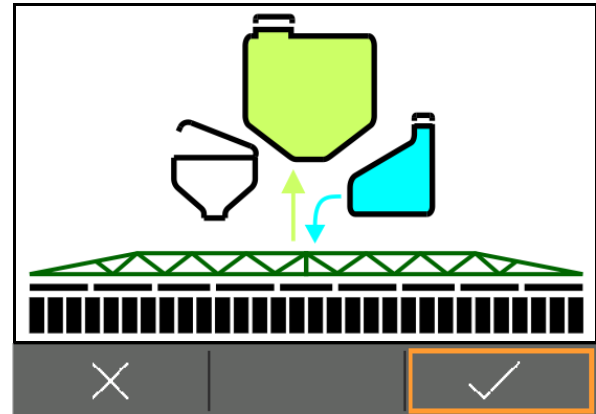
The following conditions must be fulfilled:

- ☒ Maximum fill level of the spray liquid tank is lower than 1%
- ☒ Minimum fill level of the spray liquid tank
- ☒ Boom is unfolded
- ☒ Spray liquid pump speed > 500 rpm

The cleaning steps are shown in the diagram!



2. Apply the cleaning water in an environmentally friendly manner.
- Cleaning phase 1
3. Apply the cleaning water in an environmentally friendly manner.
 - ✓ Start application
- Cleaning phase 2
4. Flush in cleaning agent if necessary, see page 173.
5. High-pressure cleaning starts.
 - ✓ Stop high-pressure cleaning.
The high-pressure cleaning takes at least 15 minutes.
 - ✗ Abort the high-pressure cleaning prematurely, the spray liquid tank is filled with cleaning water.
6. Apply the cleaning water in an environmentally friendly manner.
 - ✓ Start application.
- Cleaning phase 3
7. Apply the cleaning water in an environmentally friendly manner.
 - ✓ Start application.
8. ✓ Cleaning is complete.



12.5 Performing chemical cleaning



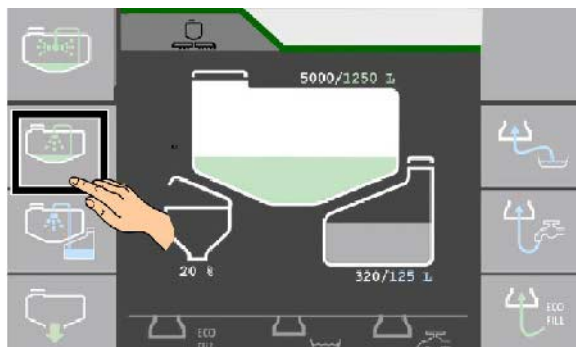
- Chemical cleaning is recommended before critical agent changes and before the implement is decommissioned for a longer period of time.
- Perform the chemical cleaning after the intensive cleaning.


1. Clean the implement.
2. Fill the spray liquid tank with 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 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. Control terminal: Select the agitator and operate at maximum intensity for one minute.



6. TwinTerminal:  Stop the circulation cleaning.
7. Spray out the mixture on the previously treated field.

List of available cleaning agents

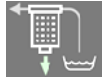
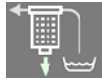
| Product | Manufacturer |
|--------------------------|--------------|
| Agro-Quick | Adama |
| JET CLEAR | Sudau agro |
| Proagro Spritzenreiniger | proagro GmbH |

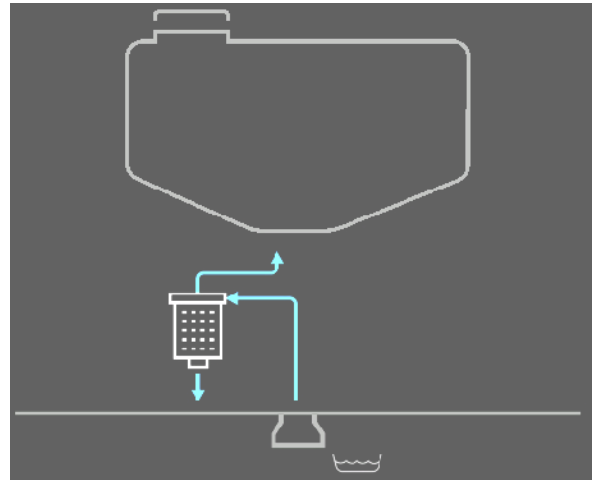
12.6 Cleaning the suction filter and pressure filter



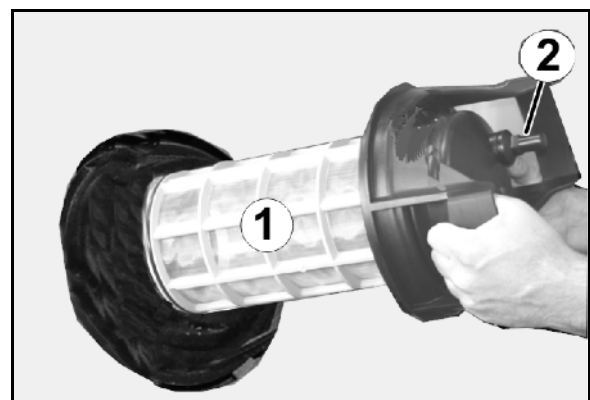
- Clean the suction filter on a daily basis after cleaning the field sprayer.
- Grease the O-rings.
Make sure that the O-ring seals are correctly fitted.
- Ensure that there are no leaks after installation
- HighFlow: Also clean the separate HighFlow pressure filter.

Cleaning the suction filter when tank is full

1. Run the pumps.
2. Attach the sealing cap to the suction coupling.
3. TwinTerminal:  Start suction filter cleaning.
4. Bleed the suction filter through the venting valve (20 seconds).
→ The contents of the filter cup are sucked out.
5. ✓ Confirm.
6. Remove the suction filter, clean and re-install.
7. ✓ Confirm.
8. TwinTerminal:  Stop suction filter cleaning.
9. Interrupt the pump drive.



- (1) Suction filter
- (2) Venting valve



Cleaning the implement after operation

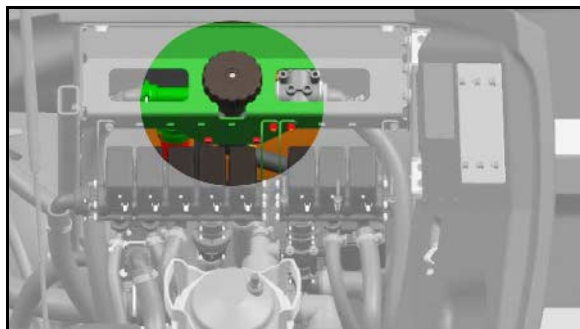
Cleaning the pressure filter when the spray liquid tank is full



HighFlow: Do not clean the separate HighFlow pressure filter when the spray liquid tank is full.



1. TwinTerminal: Start the pressure filter cleaning.
2. The spraying pump may not be driven!

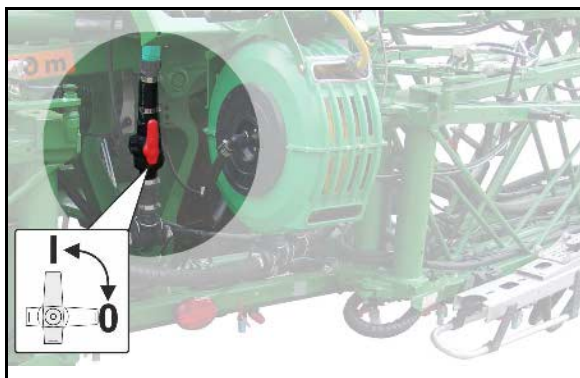


WARNING
Unwanted emptying of the spray liquid tank via quick emptying!

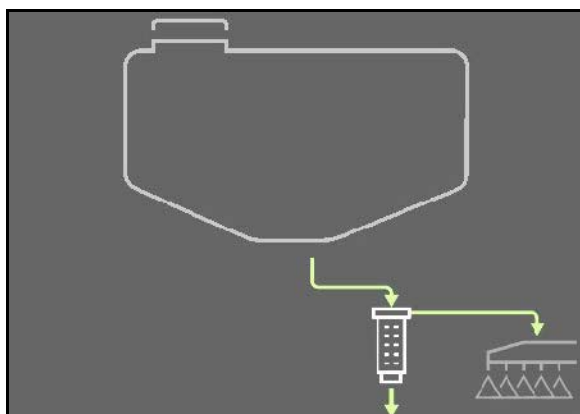
Never run the pump.



Single nozzle control:
Close the return flow stop tap on the sprayer boom (Position 0).



3. ✓ Confirm.
4. Place a collecting bucket under the outlet.
5. ✓ Confirm.
6. Wait until the pressure filter is drained (5 seconds).
7. ✓ Confirm.
8. Remove the pressure filter, clean and reinstall.
9. ✓ Confirm.
10. TwinTerminal: Stop the pressure filter cleaning.



Residual emptying

1. TwinTerminal:  Start the residual emptying.



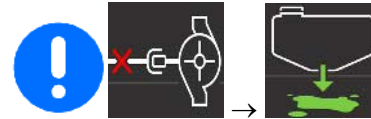
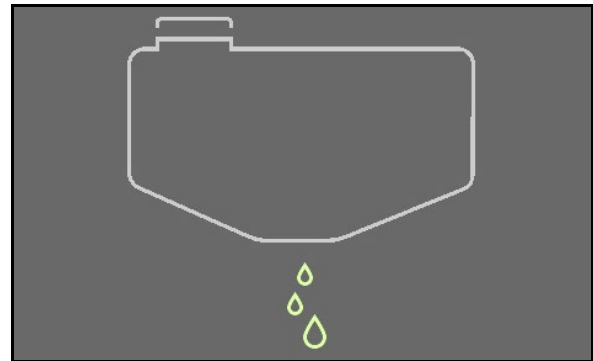
The spraying pump may not be driven!

2. ✓ Confirm.
3. Place a collecting bucket under the outlet.
4. ✓ Confirm.

5. TwinTerminal:  Stop the residual emptying.



Stop the residual emptying early if the collection bucket is full.



12.7 Cleaning the sprayer with a full tank (work interruption)

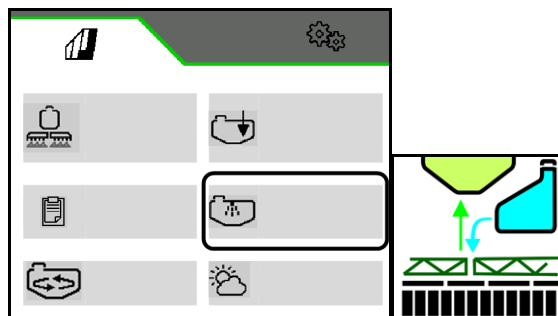
1. Control terminal: Flush the boom while driving on the field.

✓ Mark the application of spray liquid.

> Start flushing the boom.

✗ Stop flushing the boom.

2. TwinTerminal: Clean the suction filter, see section on cleaning the suction filter.
3. Interrupt the pump drive.



Without nozzle control:

Flush the boom and apply at least 50 litres of flushing water while driving on an untreated area.


With nozzle control:

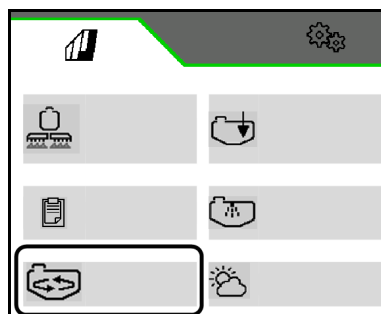
Only flush the boom with 50 litres of water, and then flush the nozzles and apply the flushing water on an untreated area.




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.



12.8 External cleaning

1. Run the pumps.
2. TwinTerminal:  Start / stop External cleaning.
3. Clean the field sprayer and the sprayer boom with the spray gun.

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 141.

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

Faults

| Malfunction | Cause | Remedy |
|---|--|--|
| 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 Seite 221). |
| Oil/spray liquid mixture in the oil filler neck or clearly visible oil consumption | Pump diaphragm defective. | Change all six piston diaphragms (see 222). |
| 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 |
| Failure of the sprayer boom Flex-folding | Wiring harness is defective | Fold the boom manually, see page 219, contact a specialist workshop. |

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 141.



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, Seite 38.
- 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 or longer periods out of operation



To prevent frost damage when overwintering, the remaining water / spray liquid in the entire liquid circuit is diluted with sufficient anti-freeze.


Liquid fertiliser is not suitable as frost protection and can damage the implement.


- Thoroughly clean the implement before winter storage.
 - Perform intensive cleaning on the control terminal when the tank is empty.
 - Activate draining of the final residual quantity during the intensive cleaning.
- Winter storage is a partially automated procedure that is performed via the CP Plus control terminal.



Actions of the user must be **confirmed with**.

1. Fold out the sprayer boom.

2.  Select "Winter storage" from the Special functions menu.

3.  Start winter storage.

4. Implements with HighFlow: Switch on the secondary agitator to maximum capacity.



5. Run the pump.



6. Fill at least 80 l of antifreeze into the flushing water tank.

- a) Via suction hose: connect the suction hose and put in in the container with antifreeze.

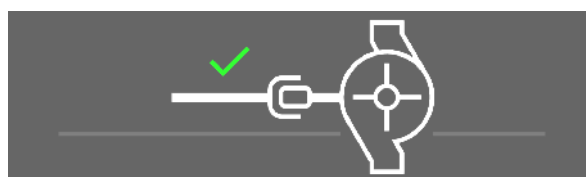


Select the filling option (only for UX01 with flushing water pump).

- b) Fill manually via the filling opening

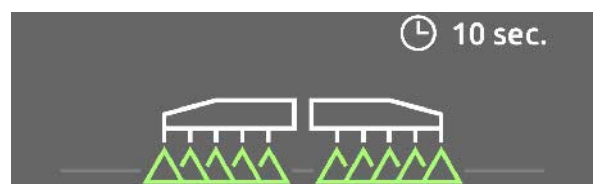
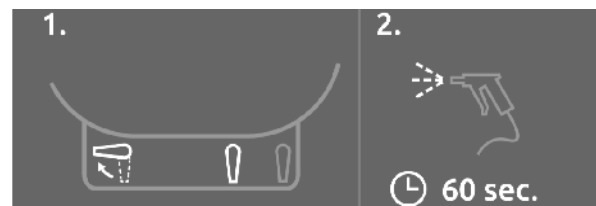


Select the filling option.



→ A message appears when 80 l of antifreeze have been filled.

7. Lower the induction bowl.
8. Move the switch taps on the induction bowl to the indicated position.
9. For wintering of the external cleaning: Flush the spray lance over the induction bowl.
10. Move the switch taps on the induction bowl to the indicated position.
11. For winter storage of the spray pistol on the induction bowl: Flush the spray pistol for 60 seconds over the induction bowl.
12. Move the switch taps on the induction bowl to the indicated position.
13. Run the internal cleaning of the induction bowl for 60 seconds.
14. Lift the induction bowl.
15. Drain the pressure filling.
16. Remove the suction hose or cap from the suction connection.

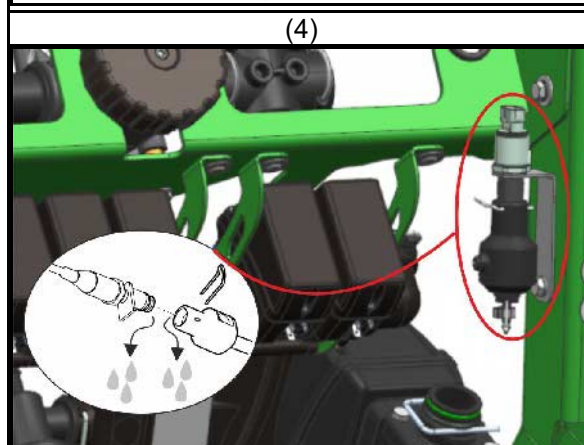
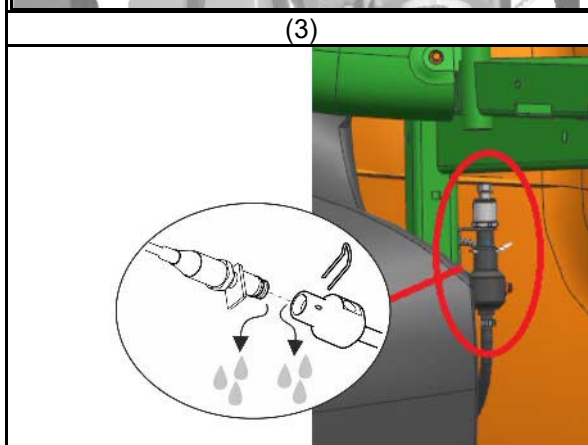
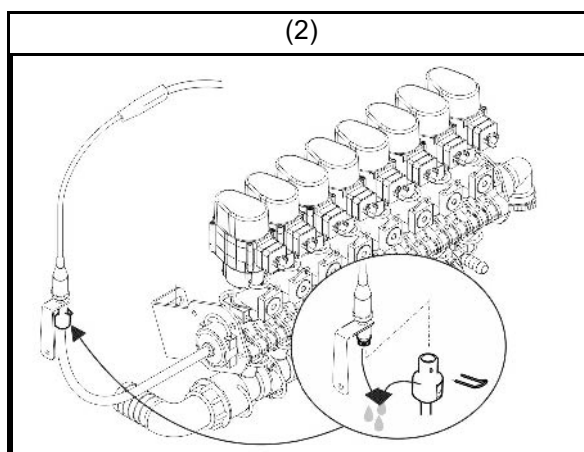
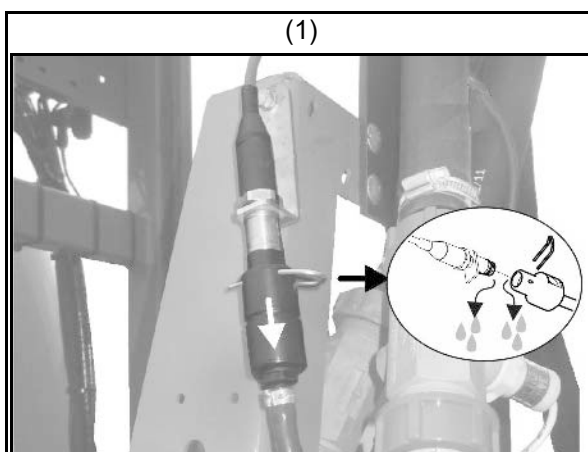
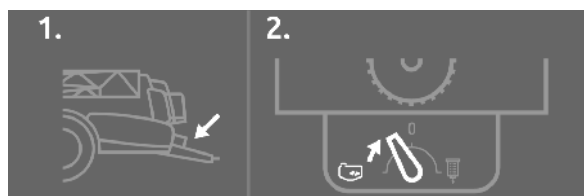
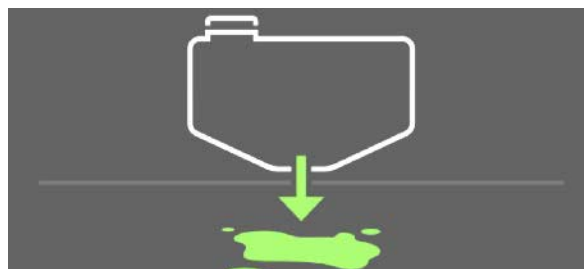


Exit the spraying range of the implement!

The nozzles are automatically flushed after 10 seconds.

Cleaning, maintenance and repairs

17. Before the automatic draining of the tank emptying, place a suitable container underneath.
18. HighFlow: Set the secondary agitator back to the previous position.
19. Switch off the pump.
20. Drain the pressure sensors by loosening the hose from the pressure sensor.
 - (1) Super-S boom
 - (2) Super-L boom
 - (3) Main agitator
 - (4) Flushing water tank



14.3 Lubrication specifications

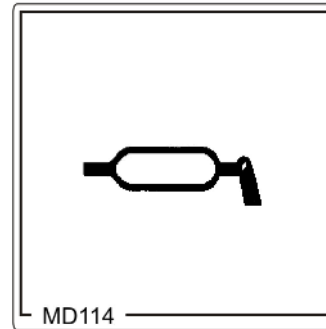


Grease all lubricating nipples (keep seals clean).

Lubricate / grease the implement at the specified intervals.

Lubrication points on the machine are indicated with a sticker.

Carefully clean the lubrication points and grease gun before lubrication so that no dirt is pressed into the bearings. Press the dirty grease completely out of the bearings and replace with new grease!



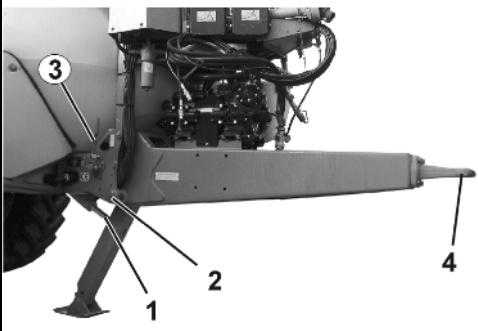
Lubricants




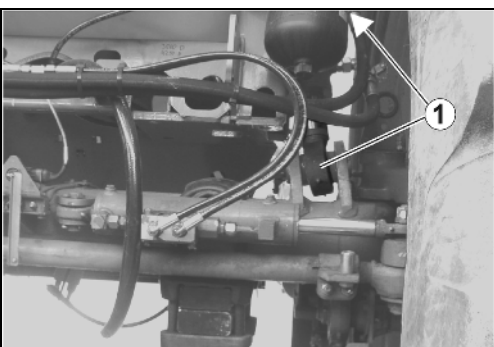
For lubrication work use a lithium saponified multipurpose grease with EP additives:

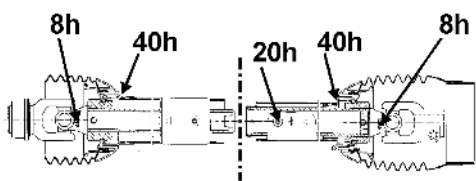
| Company | Lubricant designation | |
|---------|-----------------------------|------------------------------|
| | Normal operating conditions | Extreme operating conditions |
| ARAL | Aralub HL 2 | Aralub HLP 2 |
| FINA | Marson L2 | Marson EPL-2 |
| ESSO | Beacon 2 | Beacon EP 2 |
| SHELL | Retinax A | Tetinax AM |

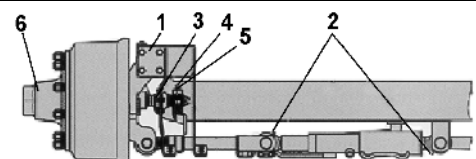
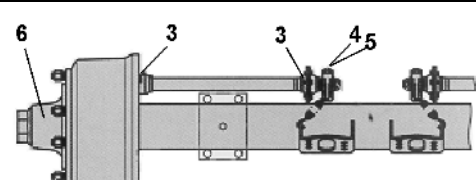
14.3.1 Lubrication point overview

| | 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 |



- 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 on to 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 | 209 | |
| Hydropneumatic sprung suspension | • Check the bolts for tight fit. | 212 | |
| Trailer hitch | • Check the bolts for tight fit. | 212 | |
| Hydraulic system | • Check leak tightness | 213 | |
| Spraying pump | • Check the oil level | 219 | |

Daily

| Component | Servicing work | see page | Workshop work |
|--|-------------------------------------|----------|---------------|
| Whole implement | • Check for visible defects | | |
| Oil filter (for Profi-folding) | • Check the contamination indicator | 216 | |
| | Replace if necessary | | X |
| Spraying pump | • Clean, flush | 219 | |
| Spray liquid tank | | 176 | |
| Line filters in the nozzle lines (if equipped) | | 228 | |
| Spraying nozzles | | 225 | |
| Brake | • Draining the air reservoir | 205 | |

Weekly / 50 operating hours

| Component | Servicing work | see page | Workshop work |
|------------------|--|----------|---------------|
| Hydraulic system | • Check leak tightness | 213 | X |
| Wheels | • Check the air pressure. | 209 | |
| Coupling device | • Check for damage, deformation and cracks | 211 | |

Every three months / 200 operating hours

| Component | Servicing work | see page | Workshop work |
|---|--|----------|---------------|
| Brake | <ul style="list-style-type: none"> • 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 | 206 | X |
| | <ul style="list-style-type: none"> • Brake adjustments on the slack adjuster | 204 | X |
| | <ul style="list-style-type: none"> • Brake pad check | | |
| | <ul style="list-style-type: none"> • Automatic load-dependent braking force regulator (ALB) | 207 | X |
| Wheels | <ul style="list-style-type: none"> • Check the bearing clearance on the wheel hubs | 203 | X |
| Line filter | <ul style="list-style-type: none"> • Clean • Replace damaged filter inserts | 228 | |
| Hydropneumatic sprung suspension | <ul style="list-style-type: none"> • Check the bolts for tight fit. | 212 | |
| Parking brake | <ul style="list-style-type: none"> • Check the braking effect when the parking brake is applied | 208 | |
| Gestänge | <ul style="list-style-type: none"> • Ausleger prüfen auf Risse oder beginnende Rissbildung | | |
| Coupling device | <ul style="list-style-type: none"> • Check the fastening bolts for wear and tight fit | 211 | |

Annually / 1000 operating hours

| Component | Servicing work | see page | Workshop work |
|---|--|----------|---------------|
| Spraying pump | • Oil change | 220 | X |
| | • Check valves, replace as necessary | 220 | X |
| | • Check the piston diaphragm and replace if necessary | 220 | X |
| Flow meter and return flow meter | <ul style="list-style-type: none"> • Calibrate flow meters • Calibrate the return flow meter | 223 | |
| Nozzles | • Meter the field sprayer and check the lateral distribution; if necessary, replace worn nozzles | 225 | |
| Brake drum | • Check for soiling | 203 | X |
| Wheels | • Check the wheel nuts | 209 | |
| Brake | Automatic slack adjuster: <ul style="list-style-type: none"> • Functional check • Brake settings | 204 | X |

As required

| Component | Servicing work | see page | Workshop work |
|---|---|----------|---------------|
| Super-L boom | • Correct the settings | 216 | X |
| Hydraulic throttle valves | • Adjust the actuation speed | 216 | |
| Drawbar | • Replace worn parts | 211 | |
| Hydraulic brakes | <ul style="list-style-type: none"> • Check all brake hoses for wear • check all screw unions for seal tightness • renew any worn or damaged parts. | 207 | |
| Spray liquid circuit and nozzles | • Eliminate scale deposits | 224 | |
| Electro hydraulic boom | • Functional check | 219 | 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
 - o Must be properly run.
 - o May not have any visible cracks.
 - o may not be knotted.
- Check the piston stroke on the brake cylinders, and adjust as necessary.
- The air reservoir must not
 - o move around in the tensioning belts.
 - o be damaged.
 - o 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.



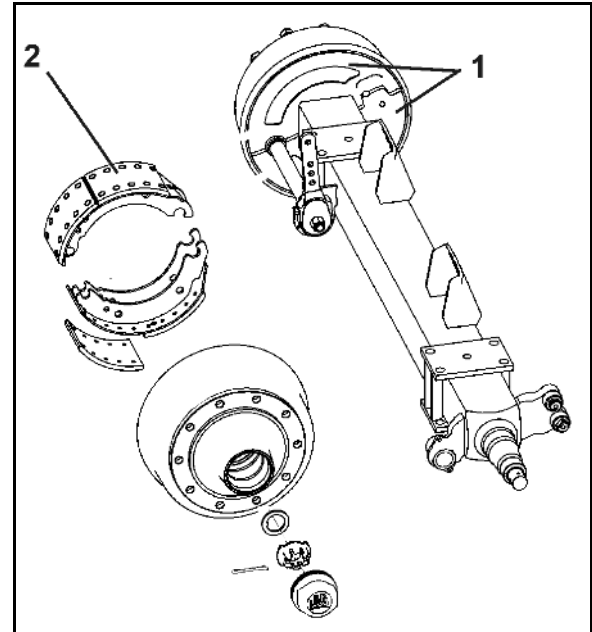
CAUTION

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.



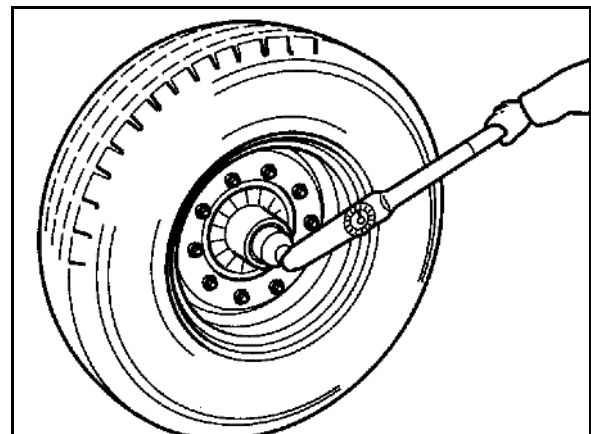
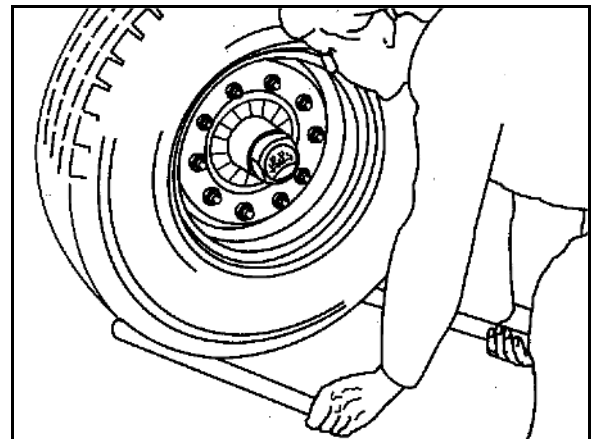
Check bearing clearance on wheel hubs (workshop work)

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 the wheel hub.



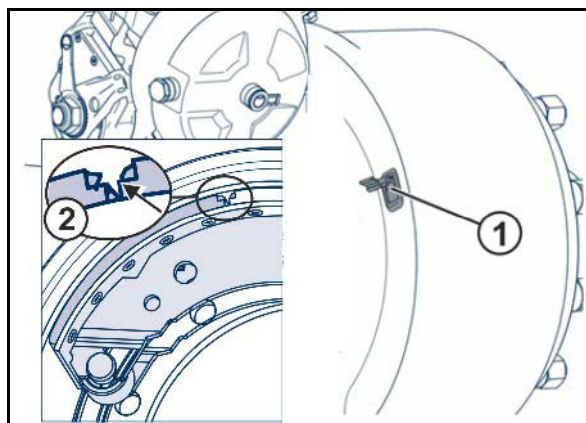
Brake pad check

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:

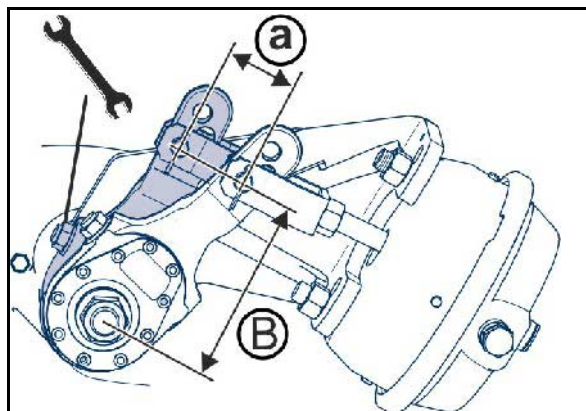
- Minimum pad thickness of 5 mm was reached.
- Wear edge (2) was reached.



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.

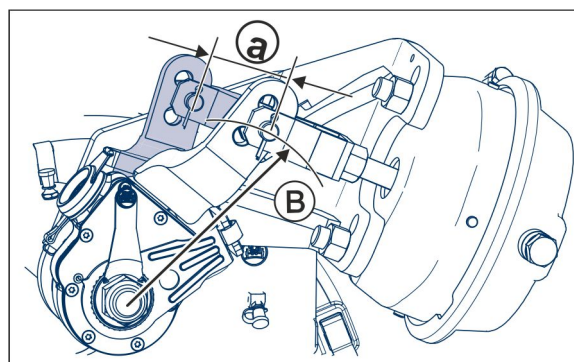


Checking the function of the automatic slack adjuster

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

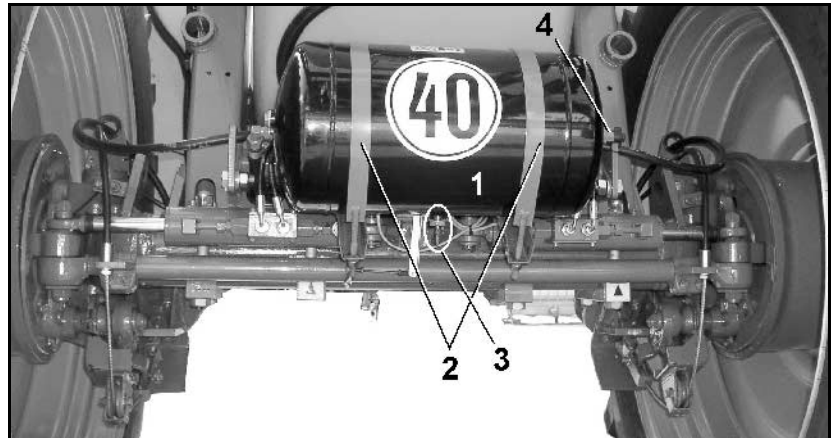


Air reservoir



Drain the air reservoir every day.

- (1) Air reservoir
- (2) Tensioning belts
- (3) Drainage valve
- (4) 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.

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.

14.5.1 Automatic load-dependent braking force regulator (ALB)

Check the brake pressure:

connect a pressure gauge to the test connection on the brake cylinder.

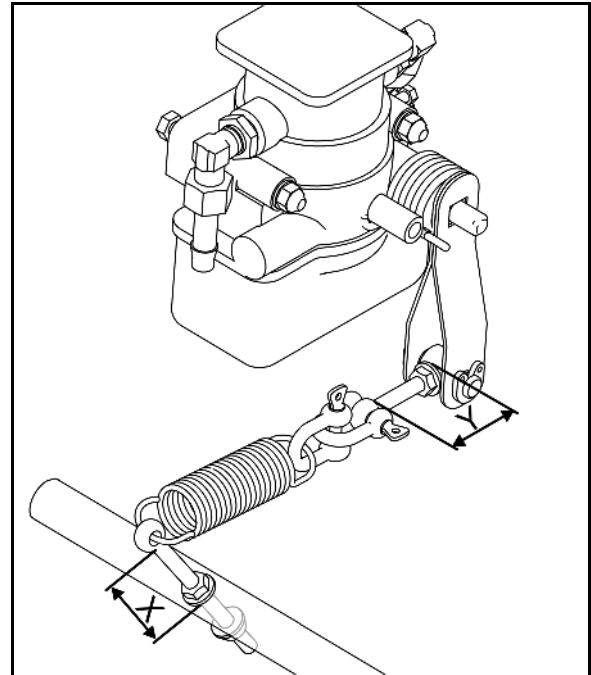
if the brake pressure deviates from the required values, set the brake pressure on the ALB via the eye bolts.

1. Container empty: set dimension X until the brake pressure of 3.5 bar is reached.

- Unscrew the eye bolt.
- The test pressure reduces
- Screw in the eye bolt.
- The test pressure increases

2. Container at nominal volume minus 10 to 15 %: set dimension Y until the brake pressure of 6.5 bar is reached.

- Unscrew the eye bolt
- The test pressure increases
- Screw the eye bolt in
- The test pressure reduces



14.5.2 Hydraulic brakes

Check of the hydraulic brake

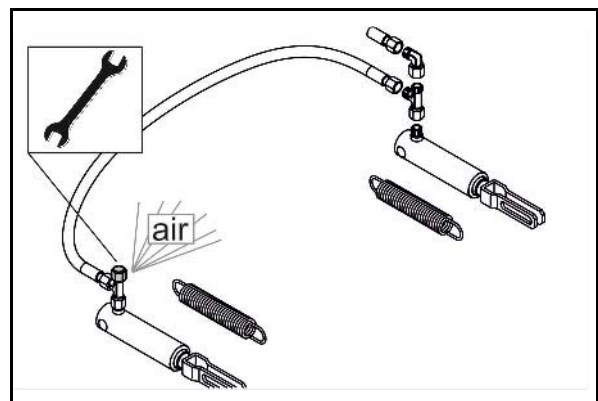
- Check all brake hoses for wear
- check all screw unions for seal tightness
- renew any worn or damaged parts.

Venting the brake system (workshop work)

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

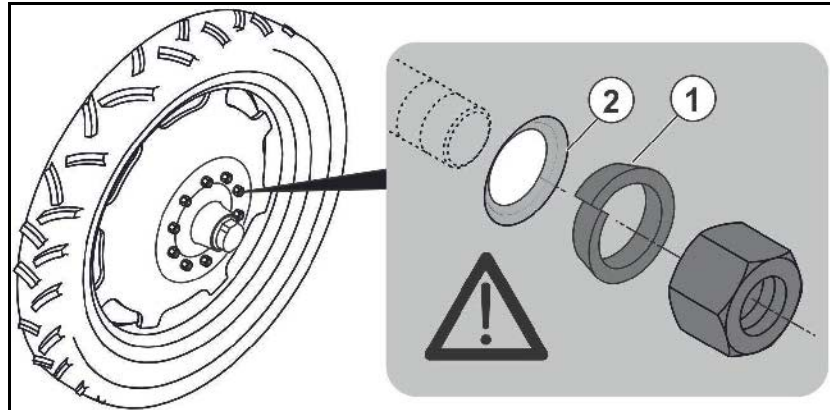


- **Required tightening torque for wheel nuts or bolts: 510 Nm**



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.



- Regularly check
 - that wheel nuts are firmly seated.
 - the tyre inflation pressure.
- 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 Tyre inflation pressure



Inflate the tyres with the indicated nominal pressure.

- The value for the nominal pressure can be read on the rim.
- The value for the nominal pressure can be obtained from the tyre manufacturer.



- Check the tyre pressure regularly when the tyres are cold, i.e. before starting to drive, see page 53.
- The difference in pressure between the tyres on one axle must be no greater than 0.1 bar.
- Tyre pressure can be raised by up to 1 bar after a fast run or in warm weather. Tyre pressure should never be reduced in this case, as it is then too low when the tyres cool down.

14.7.2 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:

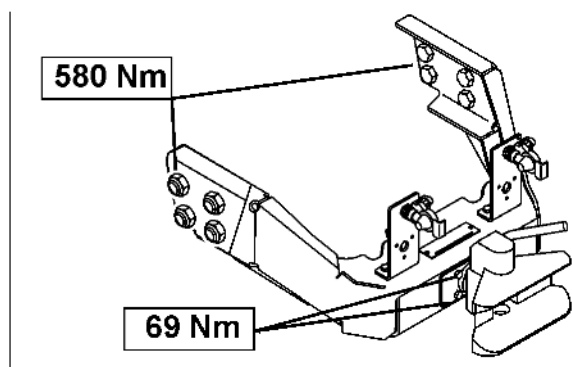
- damage, deformation, cracks
- wear
- tight fit of the fastening bolts

| Coupling device | Wear dimension | Fixing bolts | Number | Tightening torque |
|----------------------------|---|--------------|--------|-------------------|
| Lower link traverse | Cat. 3: 34.5 mm Cat. 4: 48.0 mm Cat. 5: 56.0 mm | M20 8.8 | 8 | 410 Nm |
| Ball coupling | | | | |
| K80 (LI009) | 82 mm | M16 10.9 | 8 | 300 Nm |
| K80 (LI040) | 82 mm | M20 10.9 | 8 | 560 Nm |
| K80 (LI015) | 82 mm | M20 10.9 | 12 | 560 Nm |
| Drawbar eye | | | | |
| D35 (LI038) | 42 mm | M16 12.9 | 6 | 340 Nm |
| D40 (LI017) | 41.5 mm | M16 10.9 | 6 | 300 Nm |
| D40 (LI006) | 42.5 mm | M20 8.8 | 8 | 395 Nm |
| D46(LI034) | 48 mm | M20 10.9 | 12 | 550 Nm |
| D50 (LI037) | 60 mm | M16 12.9 | 4 | 340 Nm |
| D50 (LI010) | 51.5 mm | M16 10.9 | 8 | 300 Nm |
| D50 (LI059) | 51,5 mm | M20 10.9 | 4 | 560 Nm |
| D50 (LI011) | 51,5 mm | M20 8.8 | 8 | 410 Nm |
| D50 LI060) | 52,5 mm | M20 10.9 | 8 | 560 Nm |
| D51 (LI039) | 53 mm | M20 10.9 | 12 | 600 Nm |
| D58 (LI031) | 60 mm | M20 10.9 | 12 | 550 Nm |
| D62 (LI007) | 63.5 mm | M20 10.9 | 8 | 590 Nm |
| D79 (LI021) | 81 mm | M20 10.9 | 12 | 550 Nm |

14.9 Towing device

Check the bolts for tight fit.

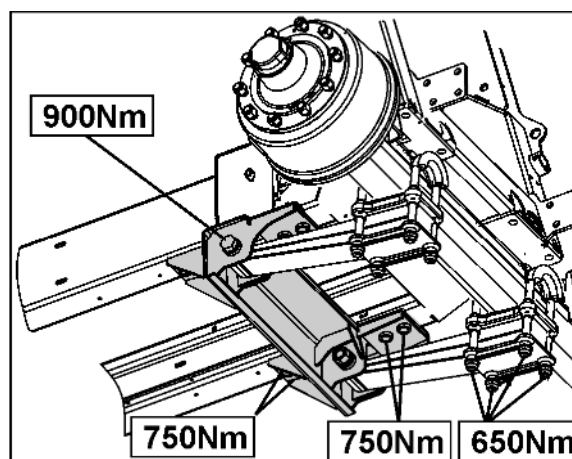
Observe the specified tightening torques.



14.10 Hydropneumatic spring suspension

Check the bolts for tight fit.

Observe the specified tightening torques.



14.11 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!

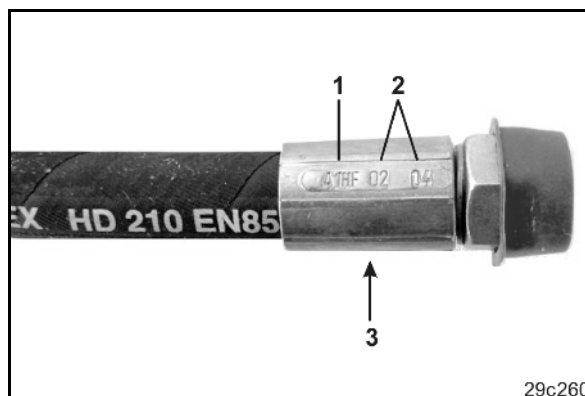


- When connecting the hydraulic hose lines to the hydraulic system of connected implements, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and 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.

14.11.1 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).



14.11.2 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.

14.11.3 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

14.11.4 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
 - There is no tension, apart from the hose's own weight.
 - There is no possibility of jolting on short lengths.
 - 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.

 - 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!

14.11.5 Oil filter

- Oil filter for Profi-folding
- Oil filter for hydraulic pump drive

Hydraulic oil filter (1) with contamination indicator (2).

- GreenFilter 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

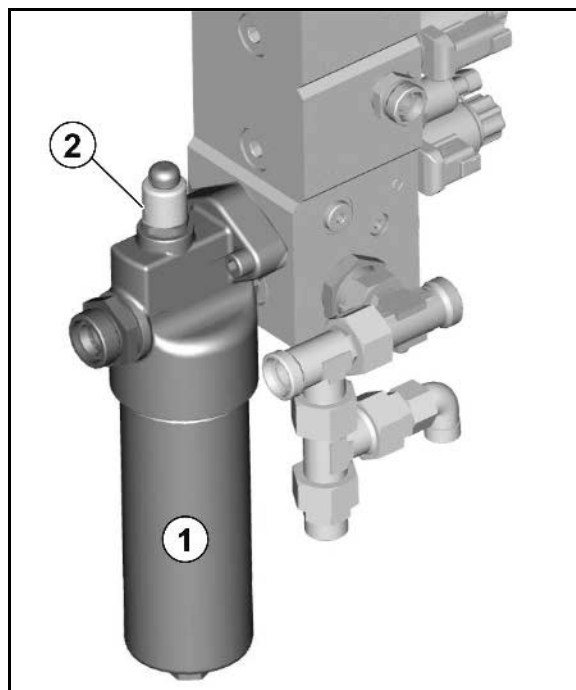
To dismantle the filter, unscrew the filter lid and remove the filter.



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.**

14.11.6 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.

14.11.7 Hydro-pneumatic pressure reservoir

**WARNING**

Risk of injury when working on the hydraulic system with pressure reservoir.

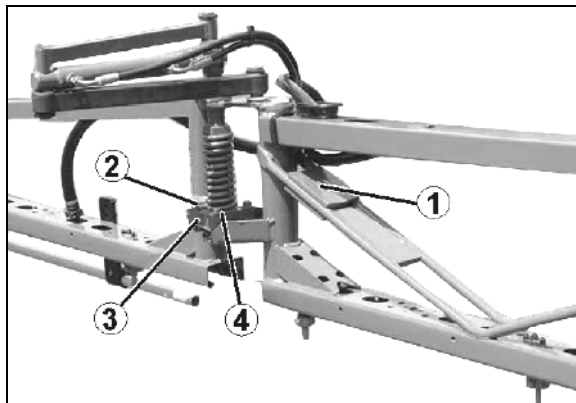
Work on the hydraulic block and hydraulic hoses with the pressure reservoir connected may only be performed by specialist personnel.

14.12 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.



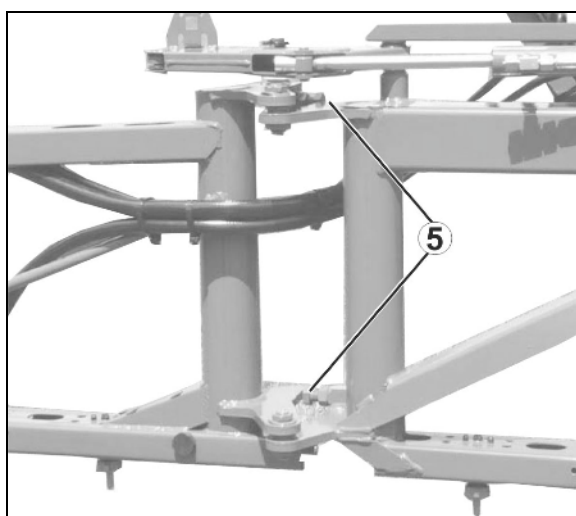
Horizontal alignment

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).

14.13 Electro hydraulic boom



WARNING

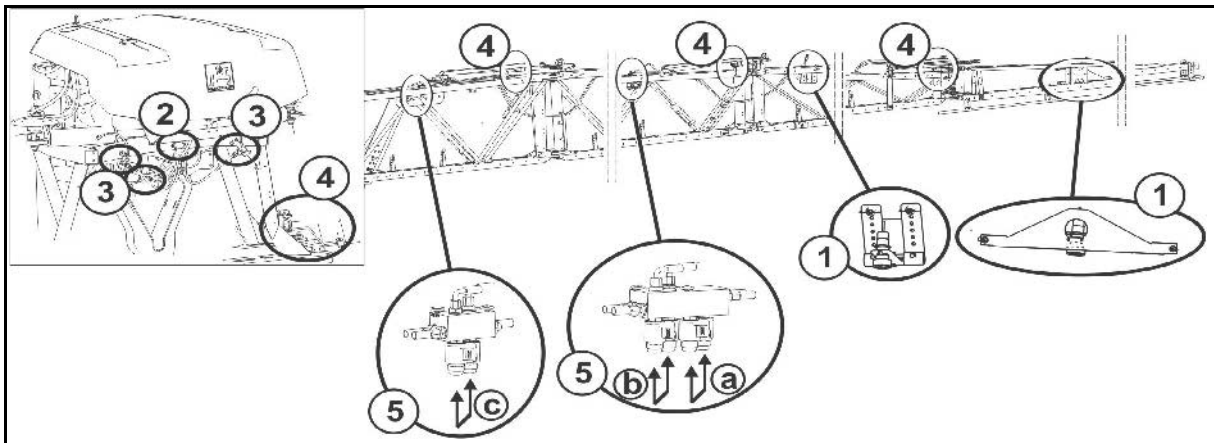
DistanceControl, ContourControl

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.



- (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:

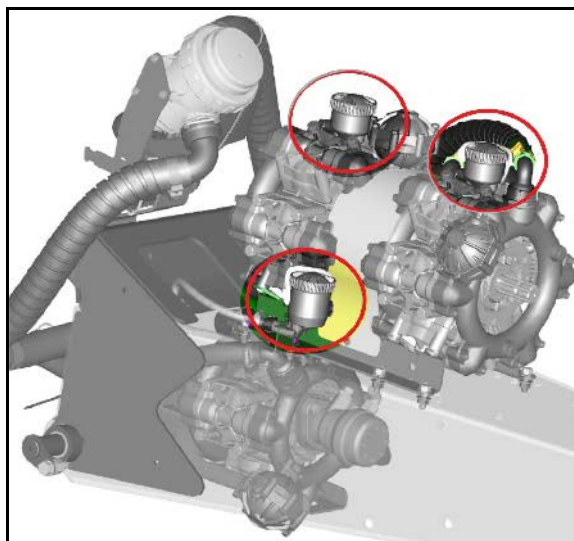
See ISOBUS operating manual / settings / implement.

14.14 Pump

14.14.1 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.



1. Check whether the oil level is visible at the mark with the pump not running and standing on a level surface.
2. If the oil level is not visible at the mark, remove the lid and top up with oil.

14.14.2 Changing the oil



- After a few operating hours, check the oil level; top up if necessary.

1. Remove the pump.
2. Remove the cover.
3. Drain the oil.
 - 3.1 Turn the pump on its head.
 - 3.2 Rotate the drive shaft by hand until the used oil has all run out.
The option also exists to drain the oil from the drain plug. However, with this procedure a slight oil residue remains in the pump; we therefore recommend the first approach.
4. Place the pump on an even surface.
5. Turn the drive shaft left and right alternately and slowly fill with new oil. The right quantity of oil has been reached when the oil is visible at the mark.

14.14.3 Cleaning

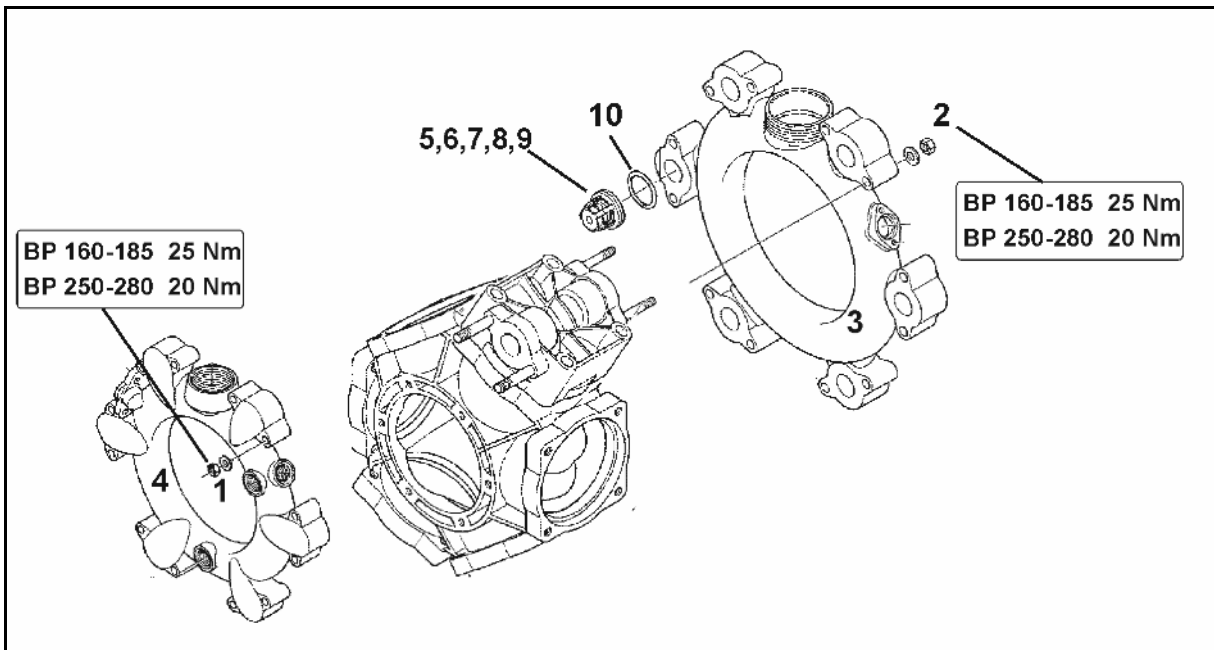


Thoroughly clean the pump after each operation by pumping clear fresh water for a few minutes.

14.14.4 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.

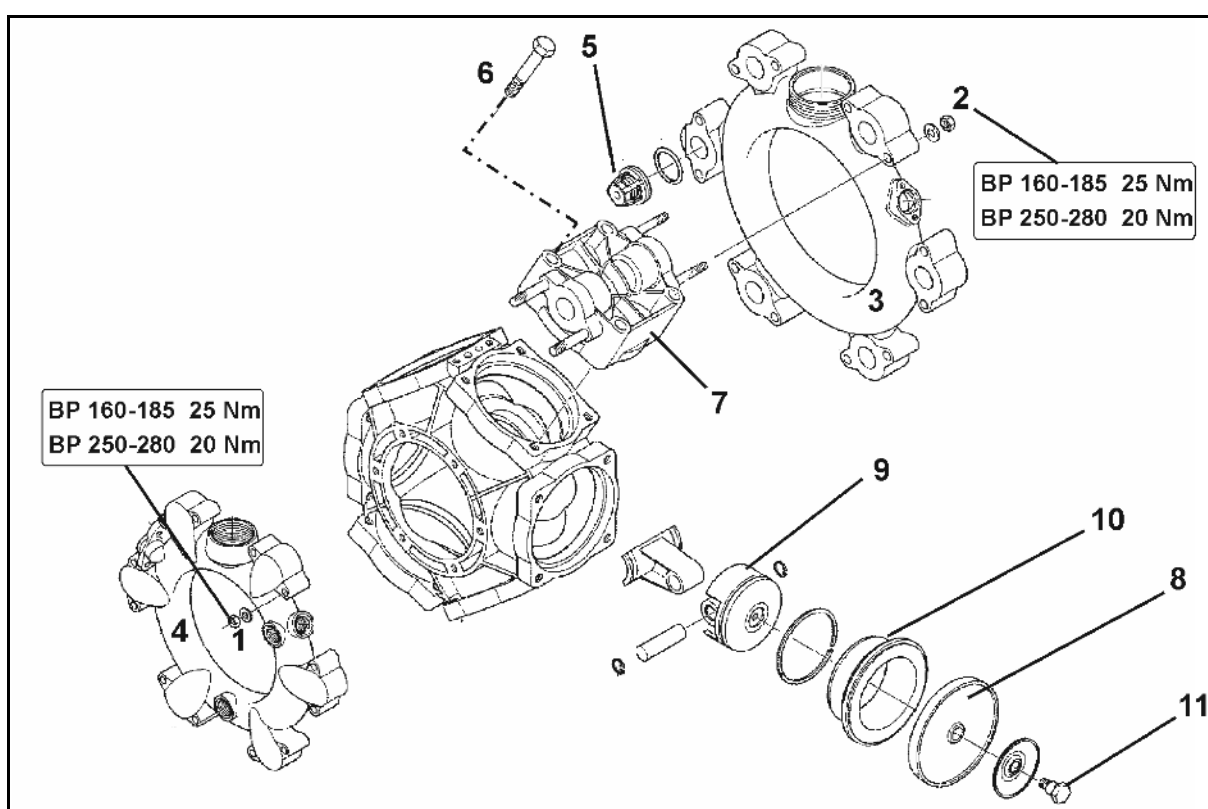


1. If necessary, remove the pump.
2. Remove the nuts (1,2).
3. Remove the suction and pressure port (3 and 4).
4. Remove the valve groups (5).
5. Check the valve seat (6), valve (7), valve spring (8) and valve guide (9) for damage or wear.
6. Remove the O-ring (10).
7. Replace defective parts.
8. Fit 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 **25 Nm (BP 160-185) / 20 Nm (AR 250-280)**.

14.14.5 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 **25 Nm (BP 160-185) / 20 Nm (AR 250-280)**.

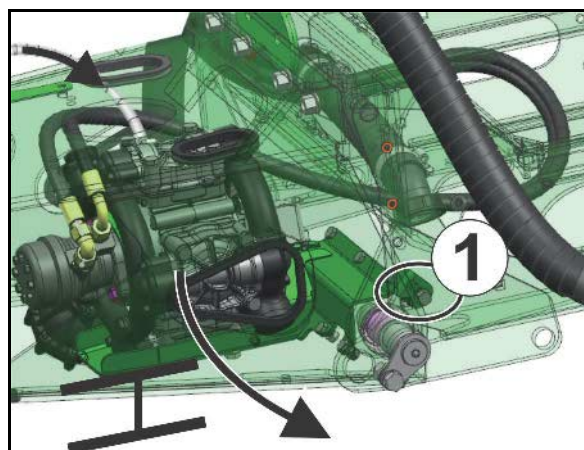
14.14.6 Swivelling flushing water pump

The flushing water pump is integrated in the drawbar.

For maintenance work, it may be necessary to pivot the pump down and out of the drawbar.

To do so, loosen the bolted connection (1).

Before: disconnect the hoses and put a support under the pump.



14.15 Calibrate the flow meter



Refer to the ISOBUS software operating manual; section "Pulses per litre".

14.16 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

To eliminate limescale, use special acidification agents (e.g. PH FIX 5 from Sudau Agro).



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. Fill acidification agent (3 l) into the spray liquid tank via the folding cover.
 5. Allow the mixture to circulate in the spray line for 10-15 minutes.
 6. Stop the pump drive and then allow the mixture to rest for 5 minutes.
 7. Dilute the mixture with fresh water until the colour changes to yellow.
- (pH 7 – yellow, pH 6 – orange, < pH 5 – pink)



8. AmaSelect: Without running the pump, use the manual nozzle selection to switch through all nozzle positions.
- The diluted mixture is harmless and can be used to prepare the spray liquid.

14.17 Metering the field sprayer

Test the field sprayer by metering

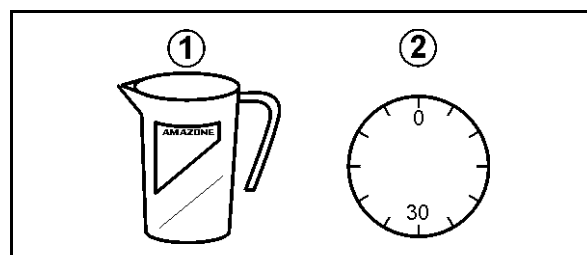
- before the start of the season.
- each time the nozzles are changed.
- to check the setting information in the spray tables.
- in the case of deviations between the actual and required application rate [l/ha].

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.

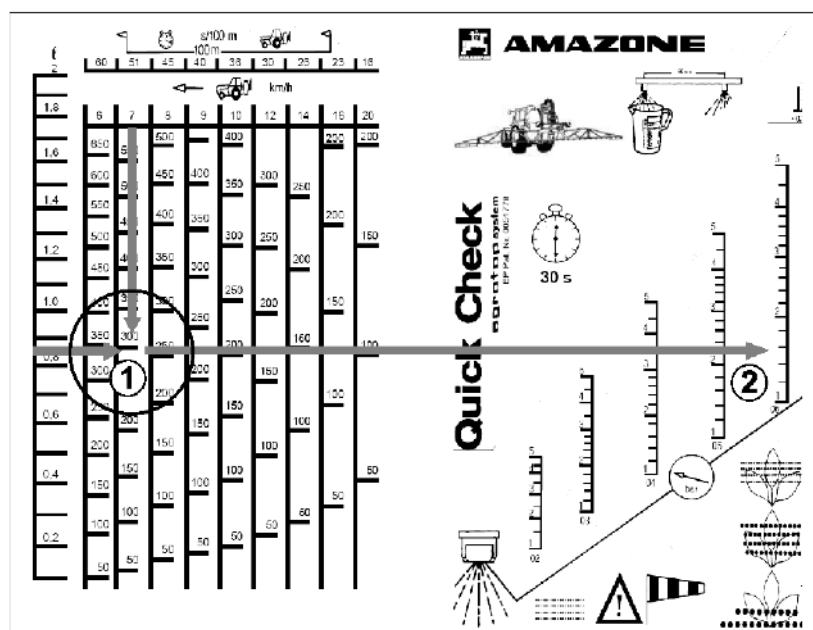
- Control terminal:
 - 1.1 Enter the value for the required application rate on the control terminal.
 - 1.4 Enter simulated speed.
- Fill the spray liquid tank with water (approx. 1000 l).
- Switch on the agitator.
- Switch on the sprayer and check that all of the nozzles work properly.
- Determine the individual nozzle output [l/min] on several nozzles.

To do so, hold the quick-check cup for exactly 30 seconds under a nozzle.
- Switch off the spraying.
- 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 290 l/ha
 (2) → Determined spray pressure 1.6 bar

2. Calculating the individual nozzle output [l/ha]

$$\frac{d \text{ [l/min]} \times 1200}{e \text{ [km/h]}} = \text{Application rate [l/ha]}$$

- o d: Nozzle output (calculated average value) [l/min]
- o e: Forward speed [km/h]

$$\frac{1.7 \text{ [l/min]} \times 1200}{7 \text{ [km/h]}} = 291 \text{ [l/ha]}$$

3. Reading the individual nozzle output [l/ha] from the spray table

From the spray table (see page 245):

- 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.

14.18 Nozzles

Fitting the nozzle



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

1. Insert the nozzle filter (5) into the nozzle body from below.



The nozzle is located in the bayonet nut

2. Press a rubber seal (6) above the nozzle into the seat for the bayonet nut.
3. Turn the bayonet nut on the bayonet connection up to the stop.

Removing the diaphragm valve if the nozzle is dripping

Deposits on the diaphragm seat in the nozzle body cause dripping after the nozzle has been switched off.

1. Remove the spring element (3).
2. Take out the diaphragm (2).
3. Clean the diaphragm seat.
4. Check the diaphragm for cracks.
5. Reinstall the diaphragm and spring element.

Checking the nozzle shutter

From time to time, check the seating of the shutter (4).

To do this, insert the shutter into the nozzle body as far as possible using moderate thumb pressure.

Do not insert the shutter up to the stop when in a new condition under any circumstances.

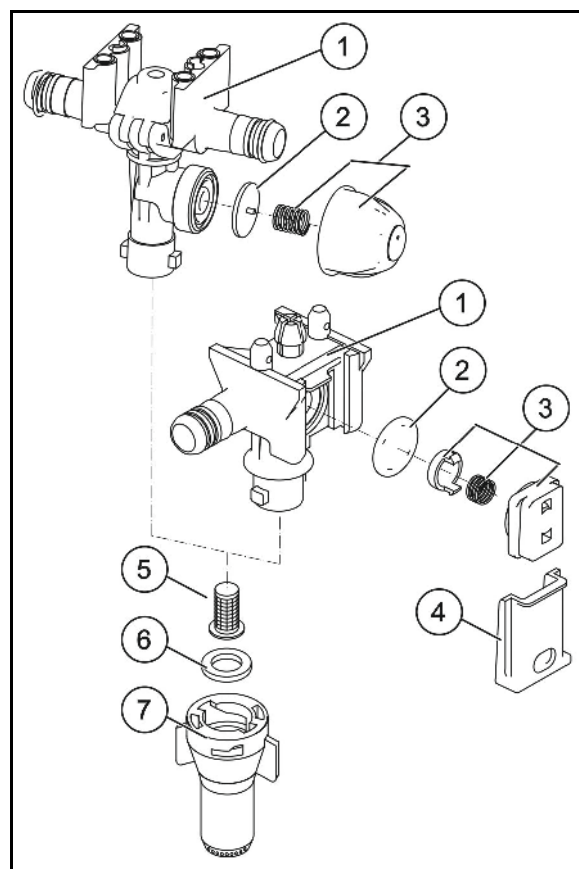
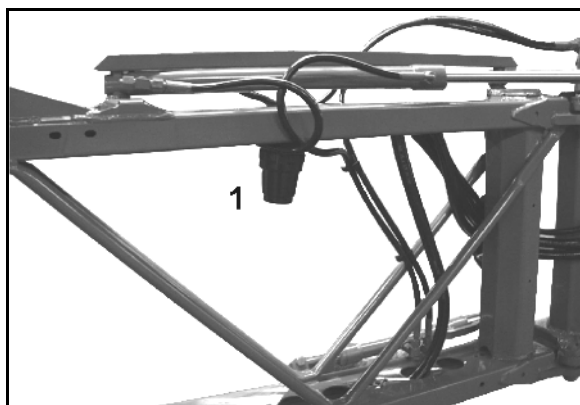


Fig. 2

14.19 Line filter

- Clean the line filters (1) every 3 - 4 months depending on operating conditions.
- Change damaged filter inserts.



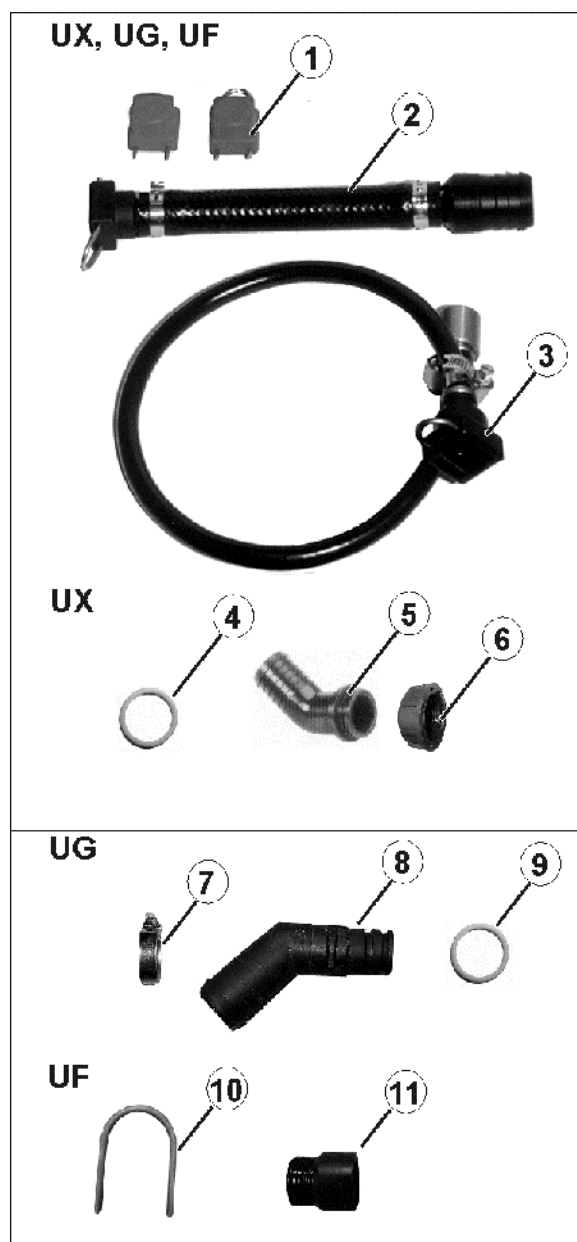
14.20 Instructions on testing the field sprayer



- Only authorised centres are permitted to carry out spray tests.
- According to law, a spray test must be carried out:
 - 6 months after commissioning (if not performed at time of purchase) at the latest, then
 - every two years thereafter.

Field sprayer test set (optional), order no.: 935680

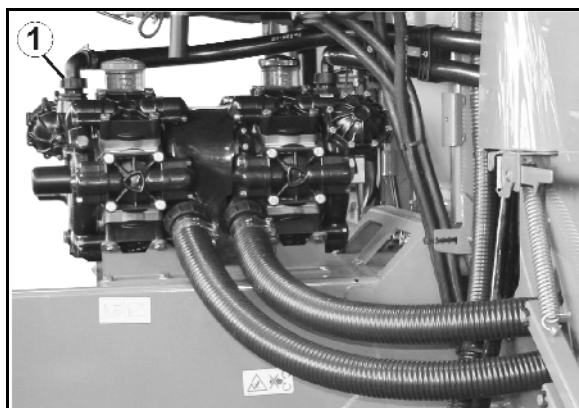
- (1) Push-on cap (order no.: 913954) and connector (order no.: ZF195)
- (2) Flow meter connection (order no.: 919967)
- (3) Pressure gauge connection (order no.: 7107000)



- (4) O-ring (order no.: FC122)
- (5) Hose connection (order no.: GE095)
- (6) Union nut (order no.: GE021)
- (7) Hose bracket (order no.: KE006)
- (8) Plug-in socket (order no.: 919345)
- (9) O-ring (order no.: FC112)
- (10) Turned socket (order no.: 935679)
- (11) Securing plug (order no.: ZF195)

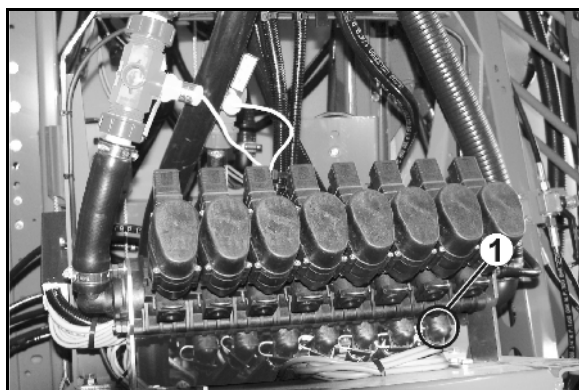
Pump test - testing pump performance (delivery capacity, pressure)

1. Loosen the union nut (1).
2. Put on the hose connection.
3. Tighten the union nut.



Flow meter test

1. Remove all spray lines from the part-width section valves (1).
2. Connect the flow meter connection to a part width section valve and connect to the tester.
3. Block the connections for the remaining part width section valves using blanks.
4. Switch on spraying.



Pressure gauge test

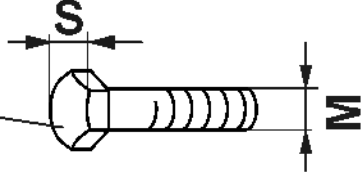
1. Remove a spray line from a part width section valve.
2. Connect the pressure gauge connection to a part width section valve with the help of the turned socket.
3. Screw the check gauge 1/4 of an inch into the inside thread.
4. Switch on spraying.


14.21 Bolt tightening torques

8.8

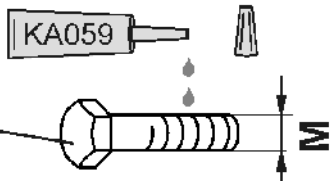
10.9

12.9




| | |  Nm | | | | | | | | | | | |
|----------|---------|--|------|------|--|--|--|--|--|--|--|--|--|
| M | S | 8.8 | 10.9 | 12.9 | | | | | | | | | |
| M 8 | 13 | 25 | 35 | 41 | | | | | | | | | |
| M 8x1 | | 27 | 38 | 41 | | | | | | | | | |
| M 10 | 16 (17) | 49 | 69 | 83 | | | | | | | | | |
| M 10x1 | | 52 | 73 | 88 | | | | | | | | | |
| M 12 | 18 (19) | 86 | 120 | 145 | | | | | | | | | |
| M 12x1.5 | | 90 | 125 | 150 | | | | | | | | | |
| M 14 | 22 | 135 | 190 | 230 | | | | | | | | | |
| M 14x1,5 | | 150 | 210 | 250 | | | | | | | | | |
| M 16 | 24 | 210 | 300 | 355 | | | | | | | | | |
| M 16x1,5 | | 225 | 315 | 380 | | | | | | | | | |
| M 18 | 27 | 290 | 405 | 485 | | | | | | | | | |
| M 18x1,5 | | 325 | 460 | 550 | | | | | | | | | |
| M 20 | 30 | 410 | 580 | 690 | | | | | | | | | |
| M 20x1,5 | | 460 | 640 | 770 | | | | | | | | | |
| M 22 | 32 | 550 | 780 | 930 | | | | | | | | | |
| M 22x1,5 | | 610 | 860 | 1050 | | | | | | | | | |
| M 24 | 36 | 710 | 1000 | 1200 | | | | | | | | | |
| M 24x2 | | 780 | 1100 | 1300 | | | | | | | | | |
| M 27 | 41 | 1050 | 1500 | 1800 | | | | | | | | | |
| M 27x2 | | 1150 | 1600 | 1950 | | | | | | | | | |
| M 30 | 46 | 1450 | 2000 | 2400 | | | | | | | | | |
| M 30x2 | | 1600 | 2250 | 2700 | | | | | | | | | |

KA059



A2-70

A4-70

| M | M4 | M5 | M6 | M8 | M10 | M12 | M14 | M16 | M18 | M20 | M22 | M24 |
|--|-----|-----|-----|------|------|------|-----|-----|-----|-----|-----|-----|
|  Nm | 2.4 | 4.9 | 8.4 | 20.6 | 40.7 | 70.5 | 112 | 174 | 242 | 342 | 470 | 589 |



Coated bolts have different tightening torques.

Observe the specific data for tightening torques in the maintenance section.

14.22 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.

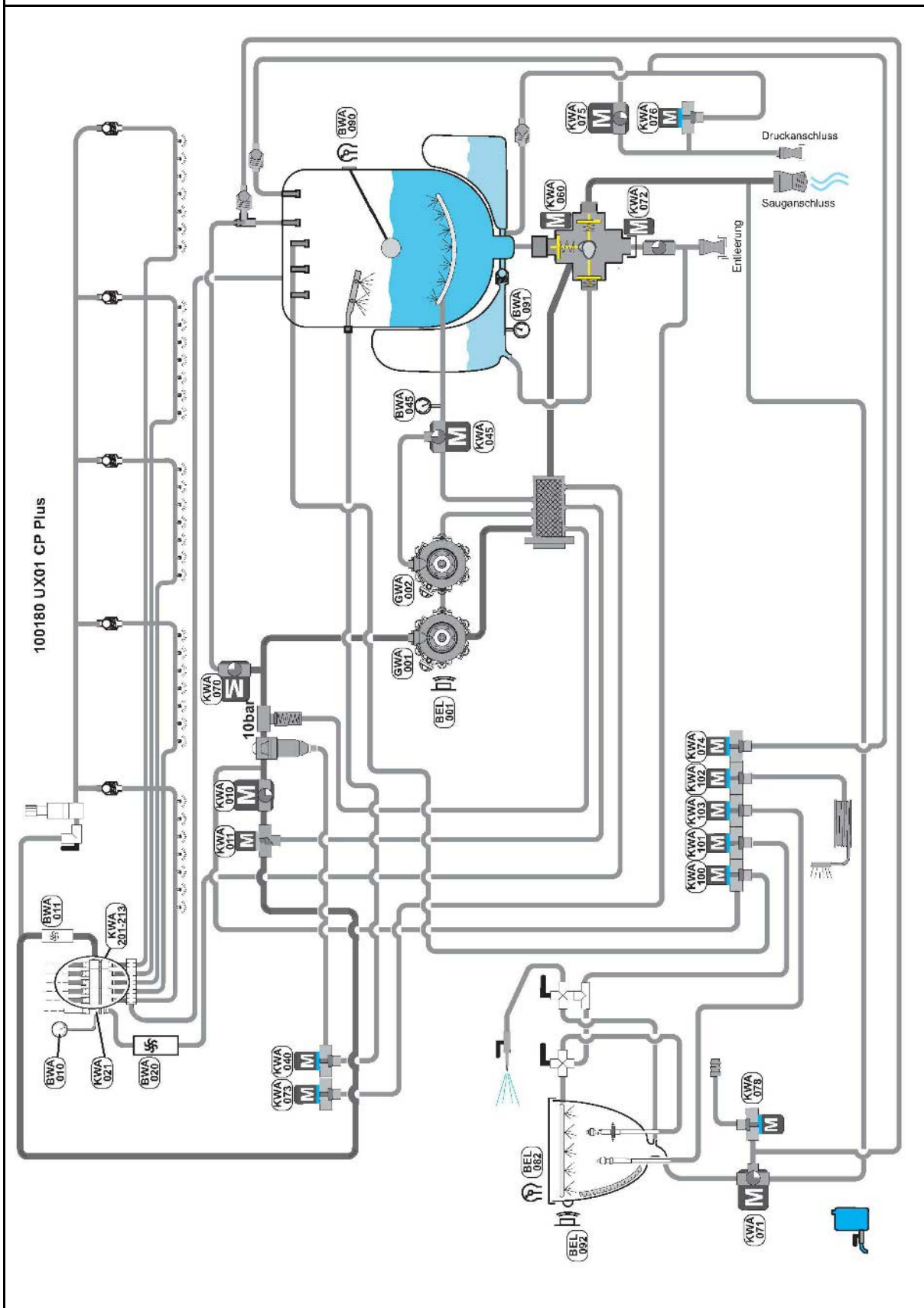
15 Diagrams and overviews

15.1 Liquid circuit

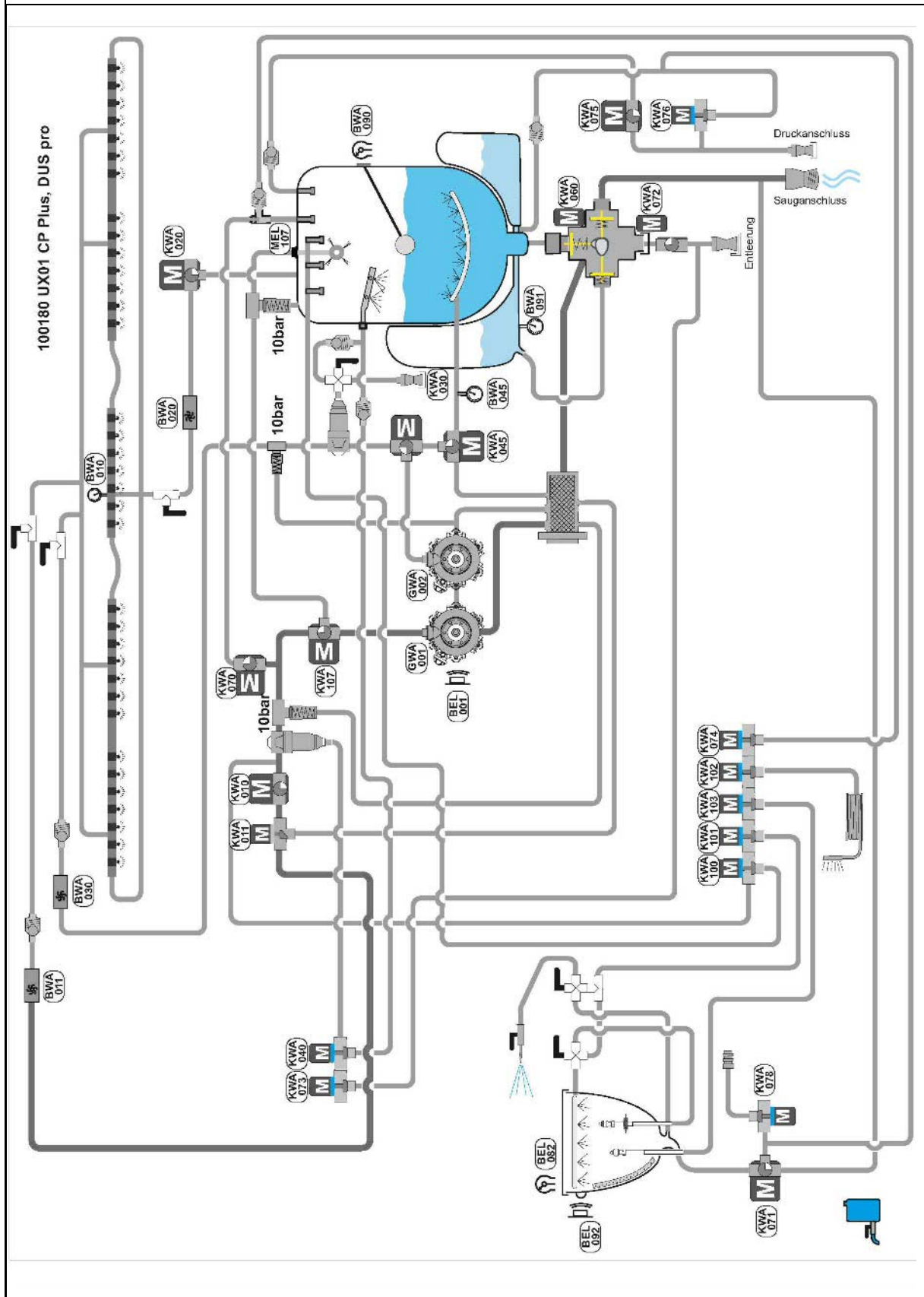
| | | | |
|--------|--|---------|---|
| BWA010 | Spray line pressure | KWA010 | Spray line valve |
| BWA011 | Spray line flow sensor | KWA011 | Application rate control valve |
| BWA020 | Return flow sensor | KWA020 | Return flow quantity control valve |
| BWA030 | HighFlow flow sensor | KWA021 | Bypass valve |
| BWA045 | Main agitator pressure | KWA030 | HighFlow application rate control valve |
| BWA090 | Spray liquid tank fill level | KWA040 | Secondary agitator |
| BWA091 | Flushing water tank fill level | KWA045 | Main agitator |
| GWA001 | Spray liquid pump | KWA060 | Suction tap |
| GWA002 | Agitator pump 1 | KWA065 | Suction-side flushing water pump |
| GWA004 | Flushing water pump | KWA070 | Injector |
| BEL001 | Spray liquid pump speed | KWA071 | Injector suction |
| BEL004 | Flushing water pump speed | KWA072 | Drain tap |
| BEL082 | Induction bowl suction setpoint device | KWA073 | Quick emptying |
| BEL092 | Induction bowl position | KWA074 | Filling the flushing water tank |
| | | KWA075 | Pressure filling spray fluid tank |
| | | KWA076 | Pressure filling of the flushing water tank |
| | | KWA077 | Spray liquid pump to the induction bowl |
| | | KWA078 | Ecofill |
| | | KWA100 | Internal cleaning |
| | | KWA101 | Induction bowl |
| | | KWA102 | External cleaning |
| | | KWA103 | Cleaning of the induction bowl |
| | | KWA106 | Internal cleaning of the spray liquid pump |
| | | KWA107 | XtremeClean |
| | | KWA201- | Part width valves |

213

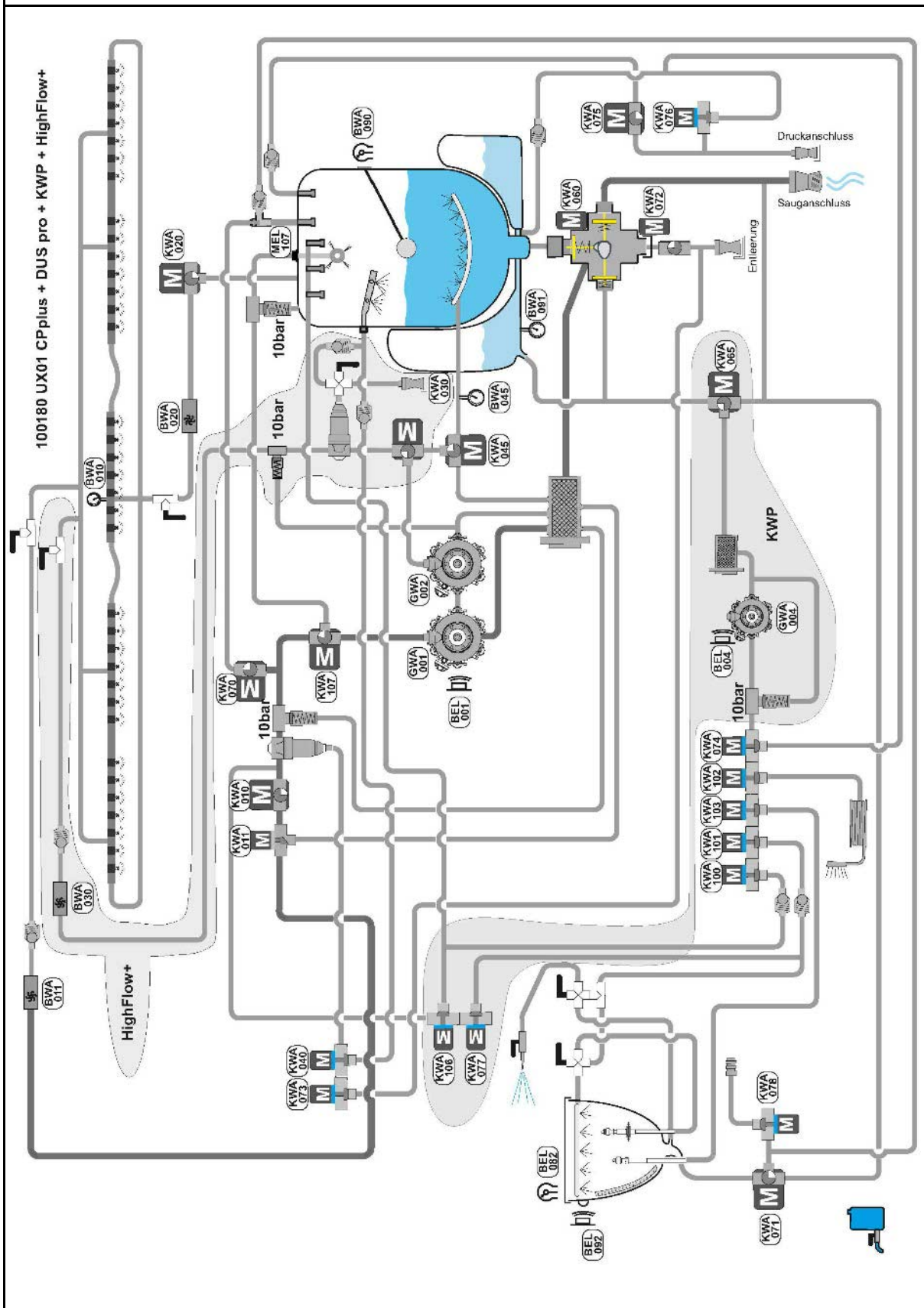
Part-width section control



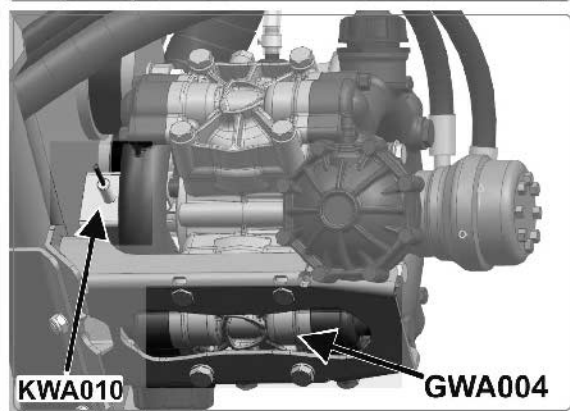
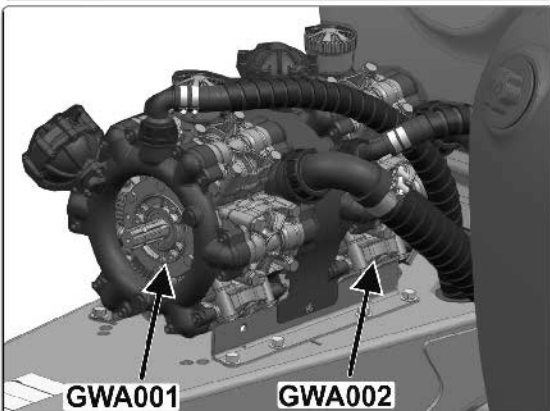
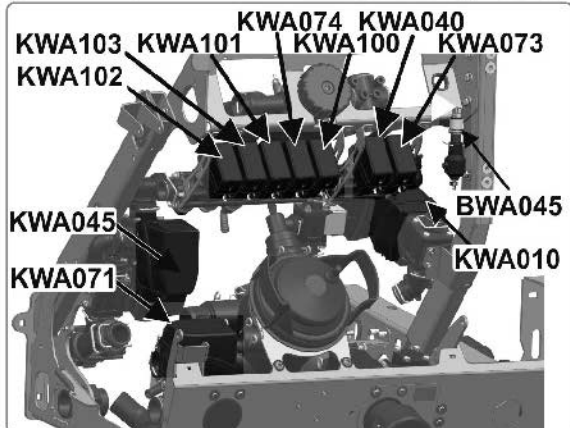
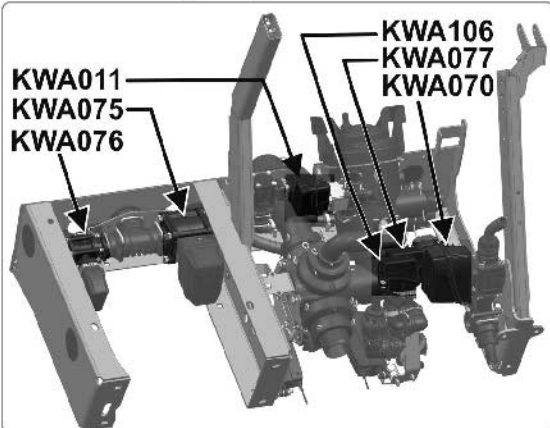
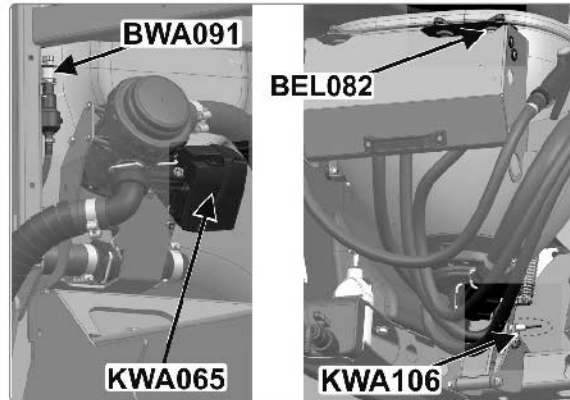
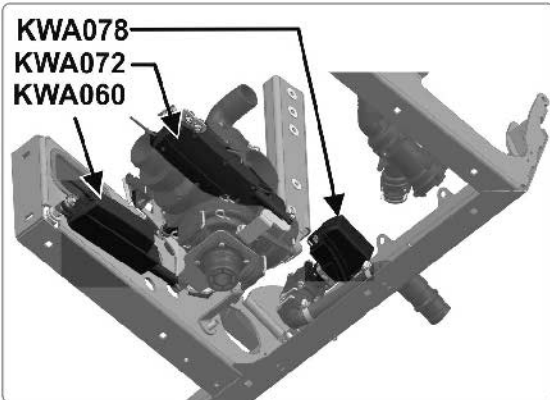
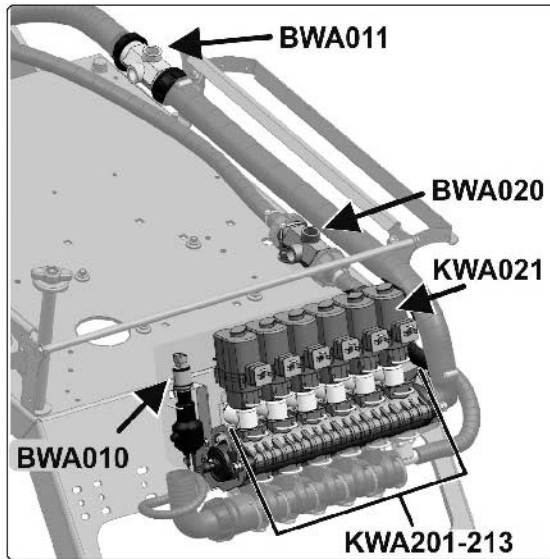
Single nozzle control:



with HighFlow+ and flushing water pump

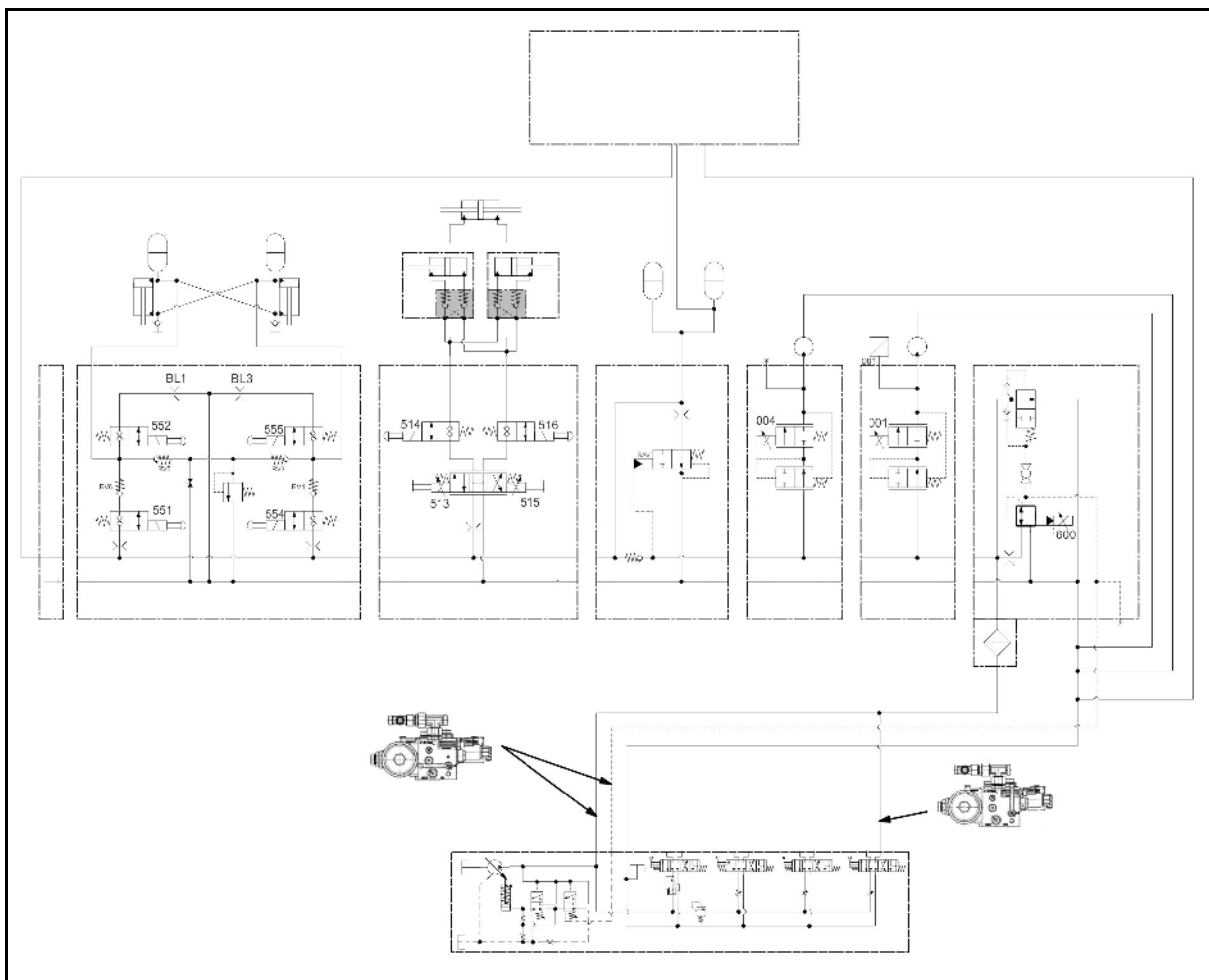


15.2 Actuators and sensors

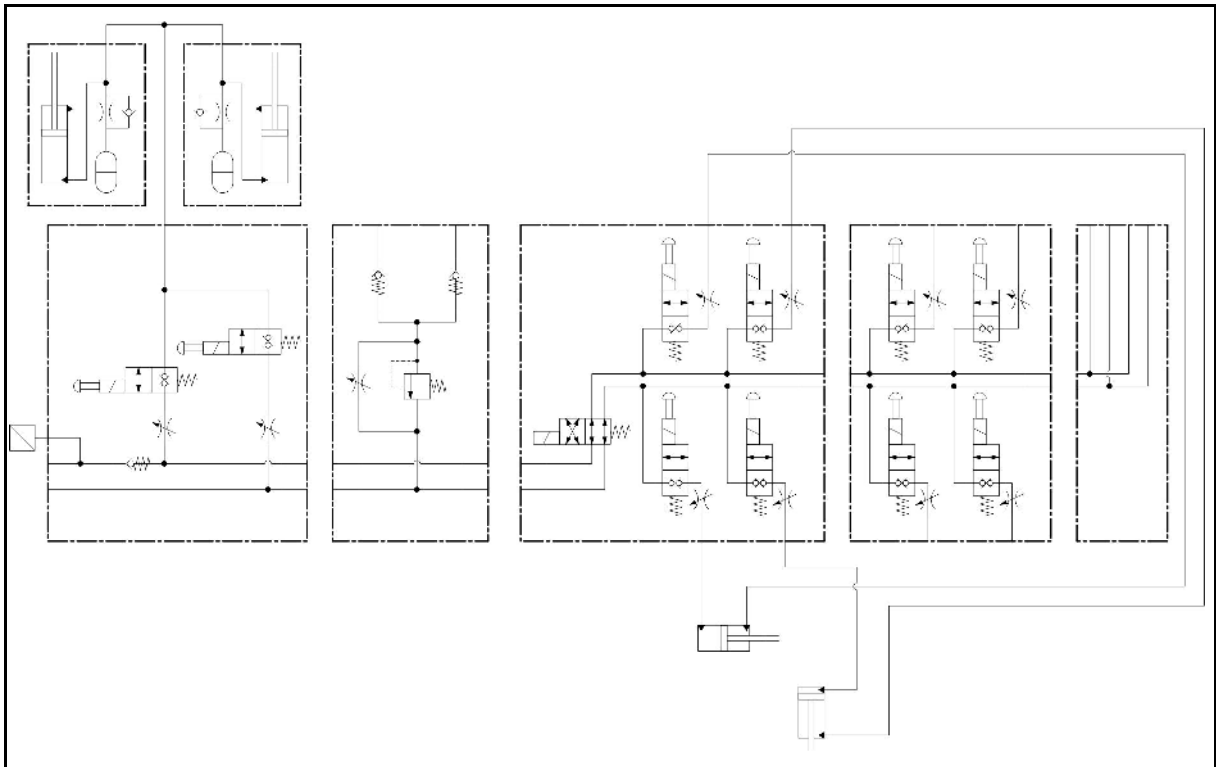


15.3 Hydraulic diagram

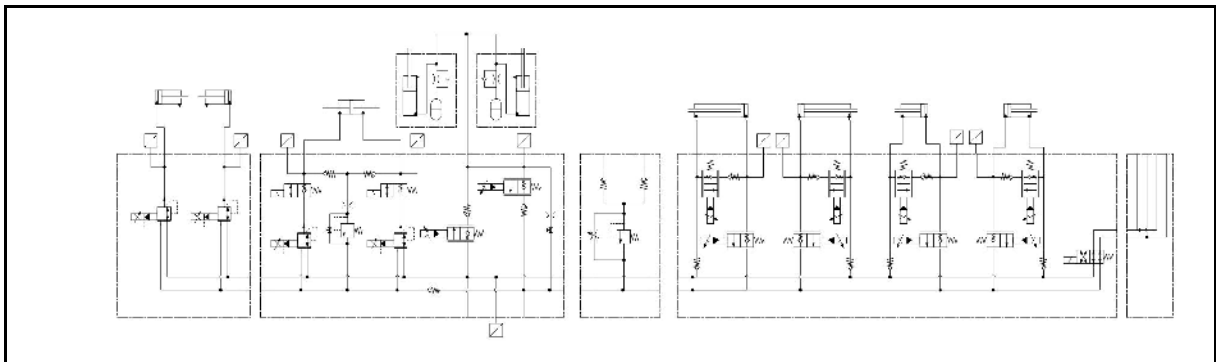
Basic implement



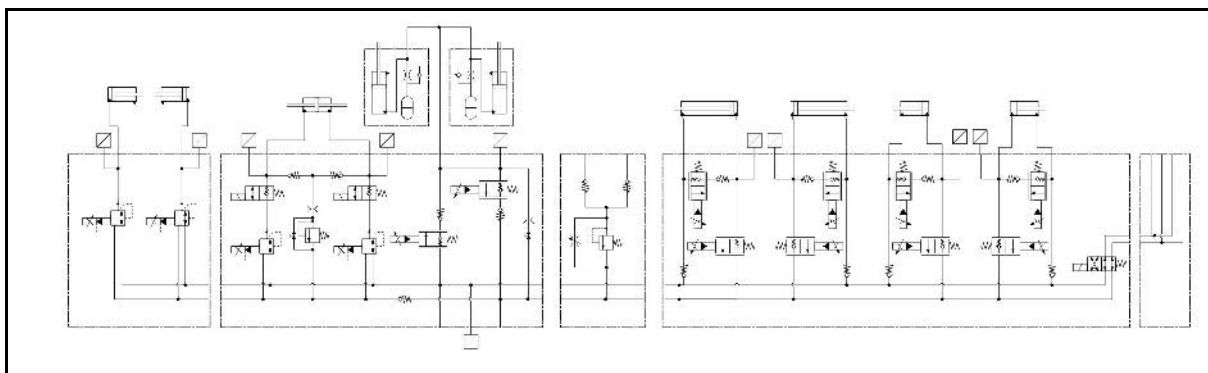
Profi-folding:



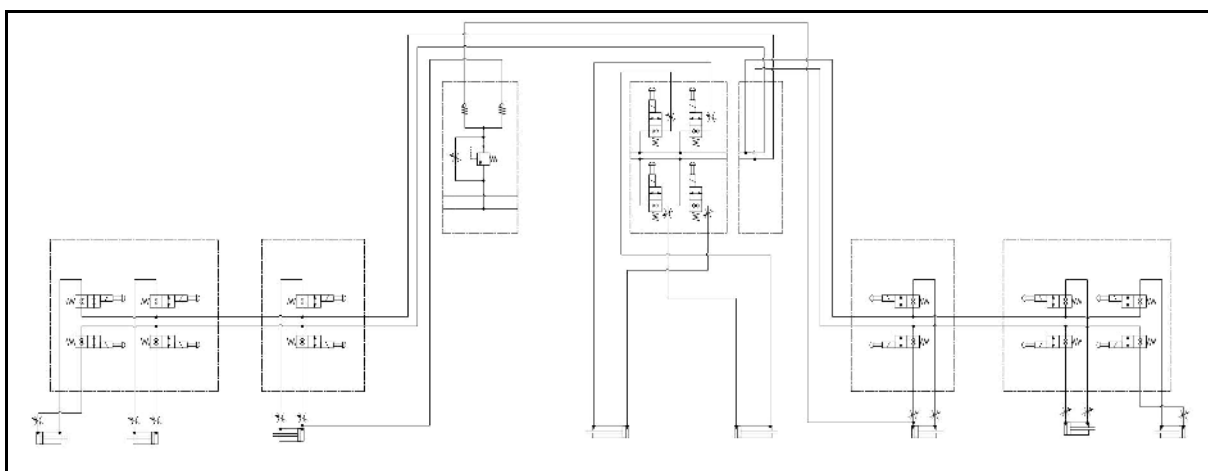
ContourControl and SwingStop



Hydraulic folding



Electro hydraulic folding

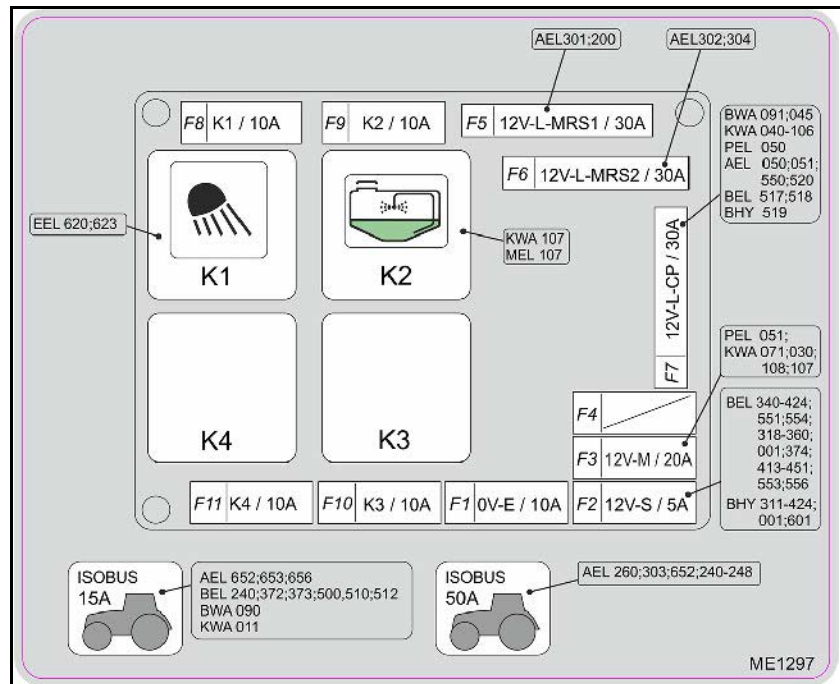


15.4 Fuses and relays

The fuse box is located under the cover at the front left.



Fuses for the boom functions



| Number | Amperage | Function |
|--------|----------|--|
| F1 | 10A | OV_E |
| F2 | 5A | OV_E |
| F3 | 20A | 12V-L-S Tilting cylinder pressure, right-side |
| F4 | 30A | 12V_M |
| F5 | 30A | Spare |
| F6 | 30A | 12V_L_MRS1 |
| F7 | 30A | 12V_L_MRS2 |
| F8 | 10A | 12V_C_CP |
| F9 | 10A | K1 Boom work floodlights, left-side / surroundings on right-side |
| F10 | 10A | K3 |
| F11 | 10A | 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 |

16 Spray table

16.1 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 [bar] | |
|--------------|--------------|----------------------------------|---------------|
| | | min. pressure | max. pressure |
| XRC | TeeJet | 1 | 5 |
| AD | Lechler | 1.5 | 5 |
| Air Mix | agrotop | 1 | 6 |
| Air Mix OC | | 2 | 4 |
| IDK / IDKN | Lechler | 1 | 6 |
| ID3 01 - 015 | | 3 | 8 |
| ID3 02 - 08 | | 2 | 8 |
| AI | TeeJet | 2 | 8 |
| TTI | | 1 | 7 |
| AVI Twin | agrotop | 2 | 8 |
| TD Hi Speed | | 2 | 10 |



For further information about the nozzle characteristics, see the nozzle manufacturer's website.

www.agrotop.com / www.lechler-agri.de / www.teejet.com

Selecting the nozzle type

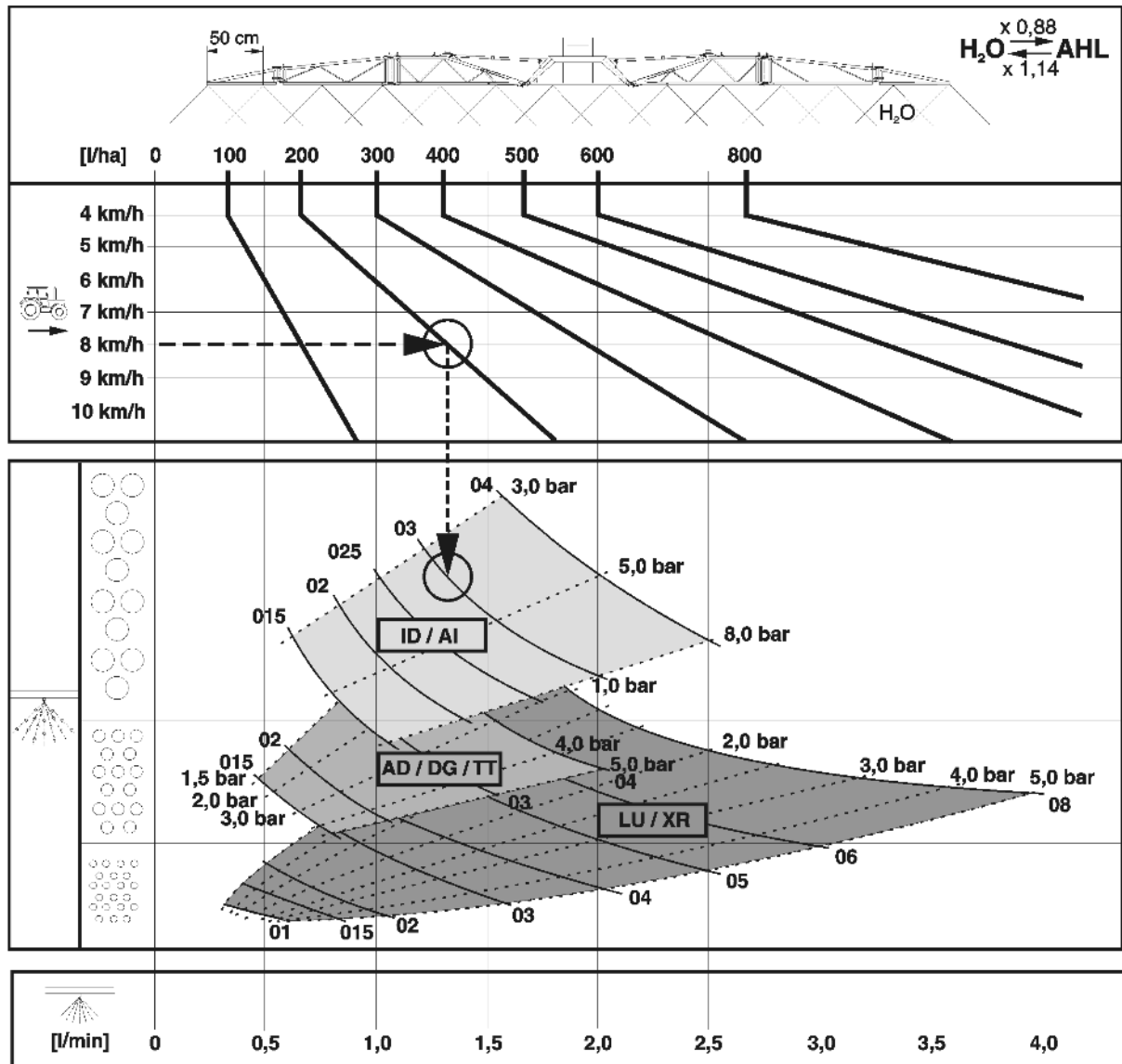


Table 1

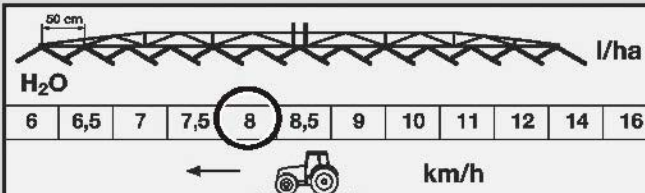


Example:

| | |
|--|---------------------------------------|
| Required application rate: | 200 l/ha |
| Intended operational speed: | 8 km/h |
| Required atomisation characteristic for the crop protection measure: | coarse-dropped (fine drifting) |
| Required nozzle type: | ? |
| Required nozzle size: | ? |
| Required spray pressure: | ? bar |
| Required individual nozzle output for calibrating the field sprayer: | ? l/min |

Determining the nozzle type, nozzle size, spray pressure and individual nozzle output

1. Determine the working point for the required application rate (**200 l/ha**) and the intended operational speed (**8 km/h**).
 2. At the working point, trace a 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, with reference to the required atomisation characteristic (fine, medium or coarse-dropped).
- Nozzle choice for the example given above:
- Nozzle type: **AI or ID**
4. Switch to the spray table (Table 2).
 5. In the column with the intended operational speed (**8 km/h**), find the required application rate (**200 l/ha**) or a figure which is as close as possible to the required application rate (in this case, for example, **195 l/ha**).
 6. In the line with the required application rate (**195 l/ha**),
 - o read the nozzle sizes in question. Select a suitable nozzle size (e.g. **'03'**).
 - o where the nozzle size column intersects with the selected nozzle size, read the required spray pressure (e.g. **3.7 bar**).
 - o read the required individual nozzle output (**1.3 l/min**) for calibrating the field sprayer.

| | |
|--|------------------|
| Required nozzle type: | AI / ID |
| Required nozzle size: | '03' |
| Required spray pressure: | 3.7 bar |
| Required individual nozzle output for calibrating the field sprayer: | 1.3 l/min |

| | | | | | | | | | | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|---|-----|-----|-----|-----|-----|-----|--|
|  | | | | | | | | | | | |  bar | |  | | | | | | | |
| I/min | | | | | | | | | | | | 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 | |
| x 0,88 | 608 | 570 | 537 | 507 | 456 | 415 | 380 | 326 | 285 | 3,8 | | | | | | | | | | 4,5 | |
| H ₂ O ↔ AHL | 624 | 585 | 551 | 520 | 468 | 425 | 390 | 335 | 293 | 3,9 | | | | | | | | | | 4,7 | |
| x 1,14 | 640 | 600 | 565 | 533 | 480 | 436 | 400 | 343 | 300 | 4,0 | | | | | | | | | | 5,0 | |

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

ME 735

16.2 Spraying nozzles for liquid fertiliser

| Nozzle type | Manufacturer | Permissible pressure range [bar] | |
|-------------|--------------|----------------------------------|---------------|
| | | min. pressure | max. pressure |
| 3- jet | agrotop | 2 | 8 |
| 7- hole | TeeJet | 1.5 | 4 |
| FD | Lechler | 1.5 | 4 |
| Drag hose | AMAZONE | 1 | 4 |

16.2.1 Spray table for three-ray nozzles, spraying height 120 cm

AMAZONE - Spray table for three-ray nozzles (yellow)

| Pres- sure (bar) | Nozzle output | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|----------------------|------|-------------------------|----|----|----|----|----|----|----|----|
| | Water (l/min) | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|----------------------|------|-------------------------|-----|-----|-----|-----|----|----|----|----|
| | Water (l/min) | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|---------------|---------|-------------------------|-----|-----|-----|-----|-----|-----|-----|----|
| | Water | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | (l/min) | (l/min) | | | | | | | | | |
| 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 (bar) | Nozzle output | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|---------------|---------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | (l/min) | (l/min) | | | | | | | | | |
| 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 |

16.2.2 Spray table for 7-hole nozzles

AMAZONE Spray table for 7-hole nozzle SJ7-02VP (yellow)

| Pres- sure (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|---------|-----------------------------|-----|-----|-----|----|----|----|----|----|
| | Wasser | AHL | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | (l/min) | (l/min) | | | | | | | | | |
| 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 |

Spray table

AMAZONE Spray table for 7-hole nozzle SJ7-03VP (blue)

| Pres- sure (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|----|----|
| | Wasser | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Wasser | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Wasser | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Wasser | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Wasser | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 |

16.2.3 Spray table for FD- nozzles

AMAZONE Spray table for FD-04- nozzle

| Pres- sure (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water | AHL | | | | | | | | | |
| | (l/min) | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 |

Spray table

AMAZONE Spray table for FD-08- nozzle

| Pres- sure (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water | AHL | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | (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 (bar) | Nozzle output per dosing disc | | AUS spray rate AHL (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water | AHL | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | (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 |

16.2.4 Spray table for drag hose unit

AMAZONE Spray table for dosing disc 4916-26, (dia. 0.65 mm)

| Pres- sure (bar) | Nozzle output per dosing disc | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-------------------------|-----|-----|----|----|----|----|----|----|
| | Water (l/min) | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-------------------------|-----|-----|-----|-----|-----|-----|----|----|
| | Water | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | (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 (bar) | Nozzle output per dosing disc | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | (l/min) | | | | | | | | | | |
| 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 |

Spray table

AMAZONE Spray table for dosing disc 4916-45, (dia. 1.2 mm)

| Pres- sure (bar) | Nozzle output per dosing disc | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | |
| | Water (l/min) | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 (bar) | Nozzle output per dosing disc | | AUS spray rate (l/ha) / | | | | | | | | |
|----------------------------|----------------------------------|------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | Water (l/min) | AUS | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 |
| | | | 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 |

16.3 Conversion table for spraying ammonium nitrate / urea solution (AUS) liquid fertiliser

(Density 1.28 kg/l, i.e. approx. 28 kg N for 100 kg of liquid fertiliser or 36 kg N for 100 litres of liquid fertiliser at 5

| 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 | 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 | 342.7 | 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 | 50.0 | 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 | 75.0 | 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 | 89.0 | 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 | 100.0 | 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 | 285.8 | 122 | 339.0 | 436.0 | 185 | 514.0 | 660.0 | | | |
| 40 | 111.0 | 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 | | | | | | |



AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51
D-49202 Hasbergen-Gaste
Germany

Tel.: + 49 (0) 5405 501-0
e-mail: amazone@amazone.de
<http://www.amazone.de>

