

Operating Instructions

AMAZONE

Seed drill
Citan 6000



MG4390
BAH0058-1 10.2015

Please read this operating manual before
commissioning.
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. Sack.

Identification data

Please insert the identification data of the implement. The identification data are arranged on the type plate.

Implement ID no.: (ten digits)

Type:

Basic weight (kg):

Permissible total weight (kg):

Year of manufacture:

Manufacturer's address

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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

Type: Citan 6000

Document number: MG4390

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Foreword

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER GmbH & Co. KG. hosen 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 signalled immediately.

Before commissioning, read and understand 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 service life of your implement.

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1 User information

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

1.1 Purpose of the document

This operating manual

- describes the operation and maintenance of the implement.
- provides important information on safe and efficient handling of the implement.
- is an integral 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
→ Reaction of the implement to handling instruction 1
2. Instruction 2

Lists

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

- Point 1
- Point 2

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 trained in 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 understand the "General safety information" section of this operating manual.
- to read the "Warning pictograms and other labelling on the implement" section of this operating manual and to follow the safety instructions of the warning pictograms 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).

General Safety Instructions

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 to

- the health and safety of the user or third persons.
- the implement itself.
- 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 and protective 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 carries the following meaning:



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 implement handling.

Non-compliance with these instructions can cause faults on the implement 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 implement in the best way possible.

2.3 Organisational measures

The operator 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:

- Safety glasses
- Protective shoes
- Chemical-resistant overalls
- Skin protection agents, etc.



The operation 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 those people who have been trained and instructed may work with/on the implement. The operator must clearly specify the responsibilities of the people charged with operation and maintenance work.

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

Person Activity	Person specially trained for the activity ¹⁾	Trained person ²⁾	Person with specialist training (specialist workshop) ³⁾
Loading/Transport	X	X	X
Commissioning	—	X	—
Set-up, tool installation	—	—	X
Operation	—	X	—
Maintenance	—	—	X
Troubleshooting and fault elimination	—	X	X
Disposal	X	—	—

Legend: 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⁾ People with specialist 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.



Only a specialist workshop may carry out maintenance and repair work on the implement, if such work is additionally marked "Specialist workshop". 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 assemblies to lifting gear when carrying out replacement work.

Check all the bolted connections for tightness. On completion of the maintenance work, check the function of the safety and protective 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 modification 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 support parts.



2.10.1 Spare and wear parts and aids

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

Use only genuine AMAZONE spare and wear parts or the parts cleared by AMAZONEN-WERKE so that the operating permit retains its validity in accordance with 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 labels on the implement



Always keep all the warning symbols of the implement 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 symbols indicate danger areas on the implement and warn against residual dangers. At these points, there are permanent or unexpected dangers.

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 adjacent 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. Risk avoidance instructions.

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

General Safety Instructions

Order number and explanation

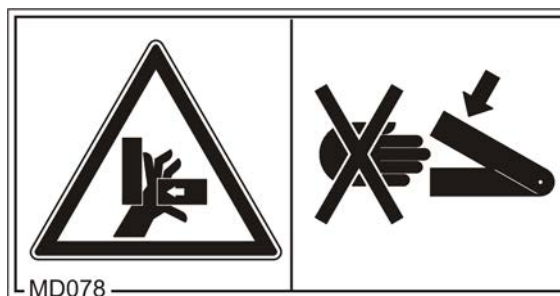
Warning symbols

MD 078

Risk of crushing of fingers/hand by accessible, moving parts of the implement!

This hazard can cause the most severe injuries with loss of body parts.

Never reach into the danger area when the tractor engine is running with the universal joint shaft or hydraulic/electrical system connected.



MD 082

Risk of falling when riding the implement on treads or platforms!

Causes serious, potentially fatal injuries anywhere on the body.

It is forbidden to ride on the implement or climb the implement when it is running. This prohibition also applies to implements with step surfaces or platforms.

Make sure that nobody is riding on the implement.

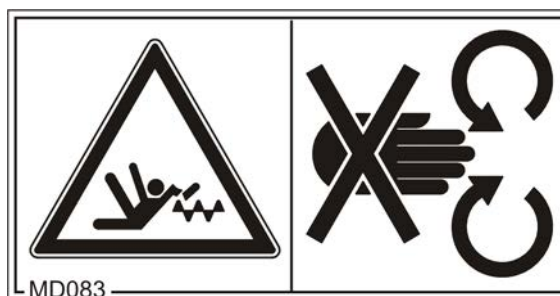


MD 083

Danger of arms being drawn in and/or caught by moving parts involved in the working process!

This hazard can cause the most severe injuries with loss of body parts.

Never open or remove protective devices while the tractor engine is running with the universal joint shaft/hydraulic or electronic systems connected.



MD 084

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

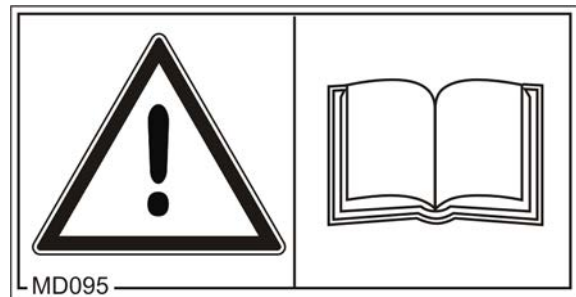
Causes serious, potentially fatal injuries anywhere on the body.

- 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 095

Read and follow the operating manual and safety information before starting up the implement!

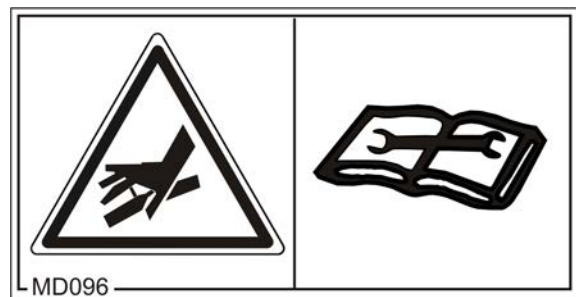


MD 096

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.

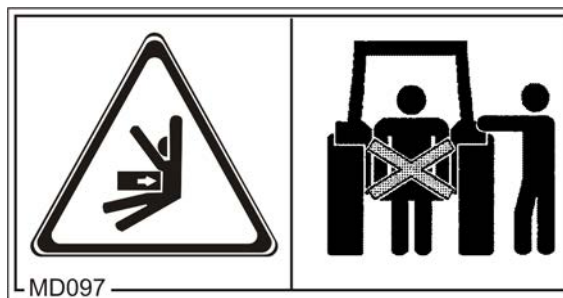


MD 097

Risk of crushing the entire body by entering/remaining in the lifting area of the three-point suspension when the three-point hydraulic system is operated!

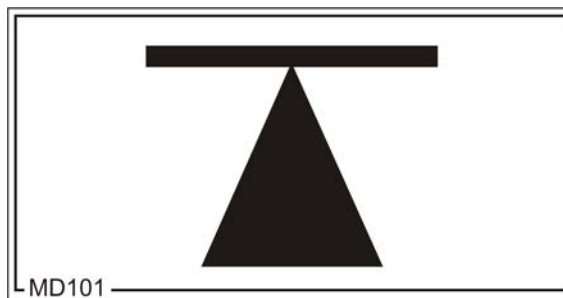
Causes serious, potentially fatal injuries anywhere on the body.

- Personnel are prohibited from standing in the lifting area of the three-point suspension when the three-point hydraulic system is operated.
- Actuate the operating controls for the tractor's three-point hydraulic system
 - only from the designated workstation
 - under no circumstances if you are in the lifting area between the tractor and implement.



MD 101

This symbol indicates jacking points for lifting gear (jack).



MD 102

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

These dangers can cause extremely serious and potentially fatal injuries.

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

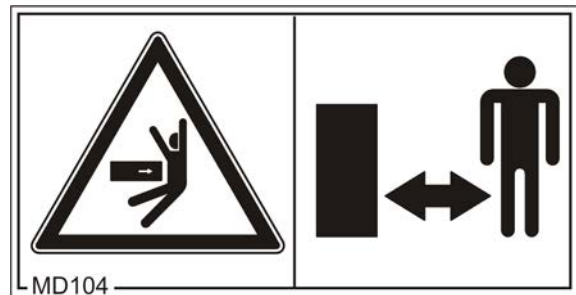


MD 104

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

These dangers can cause extremely serious and potentially fatal injuries.

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

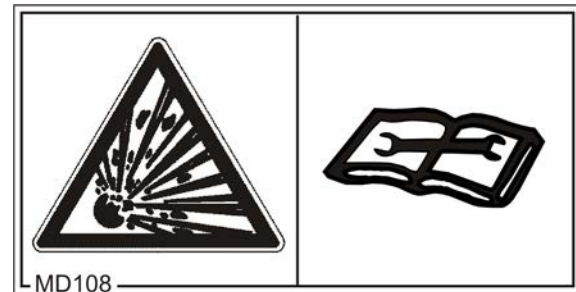


MD 108

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.

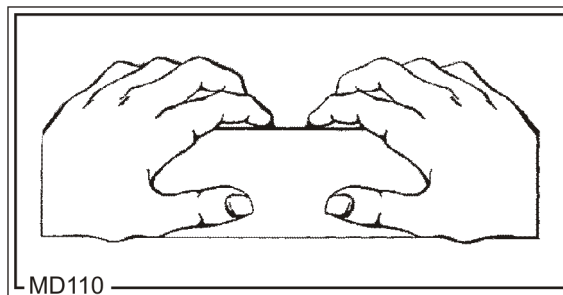
- Read and observe the instructions in the operating manual before carrying out any maintenance or repair work.
- If you are injured by hydraulic fluid, contact a doctor immediately.



General Safety Instructions

MD 110

This pictogram identifies parts of the implement that serve as a handle.

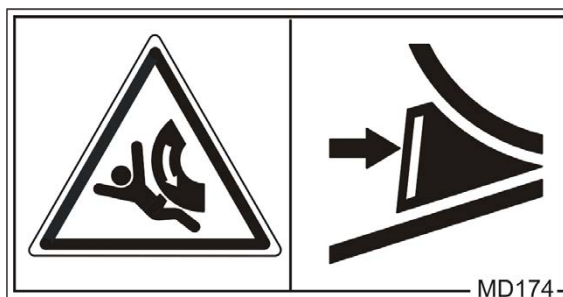


MD 174

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 181

Check that the wheel nuts are secure.

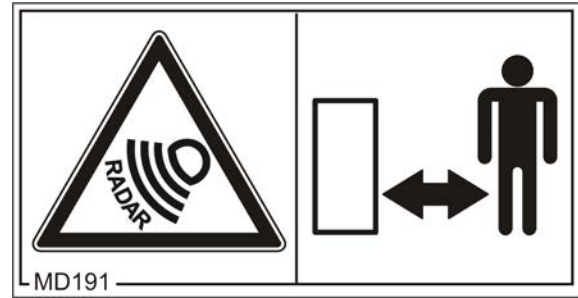
- After the first 10 operating hours
- After a wheel change



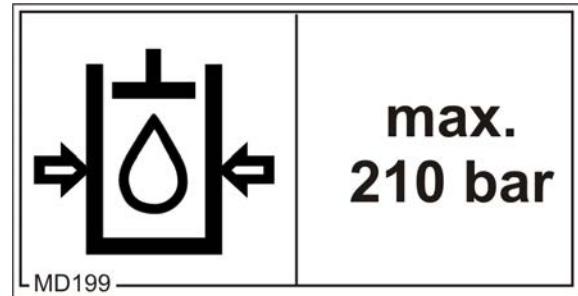
MD 191**Warning: Radiation from radar.**

Risk to the whole body from radar radiation.

When wheel sensors are switched on, maintain a safe distance of 2 metres.

**MD 199**

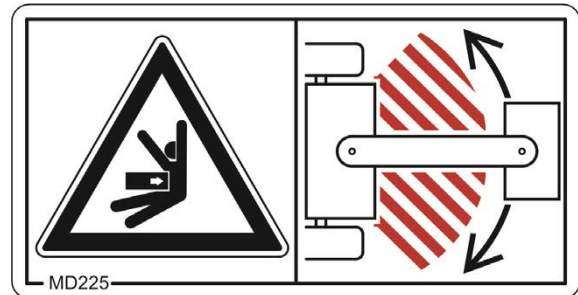
The maximum operating pressure of the hydraulic system is 210 bar.

**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.

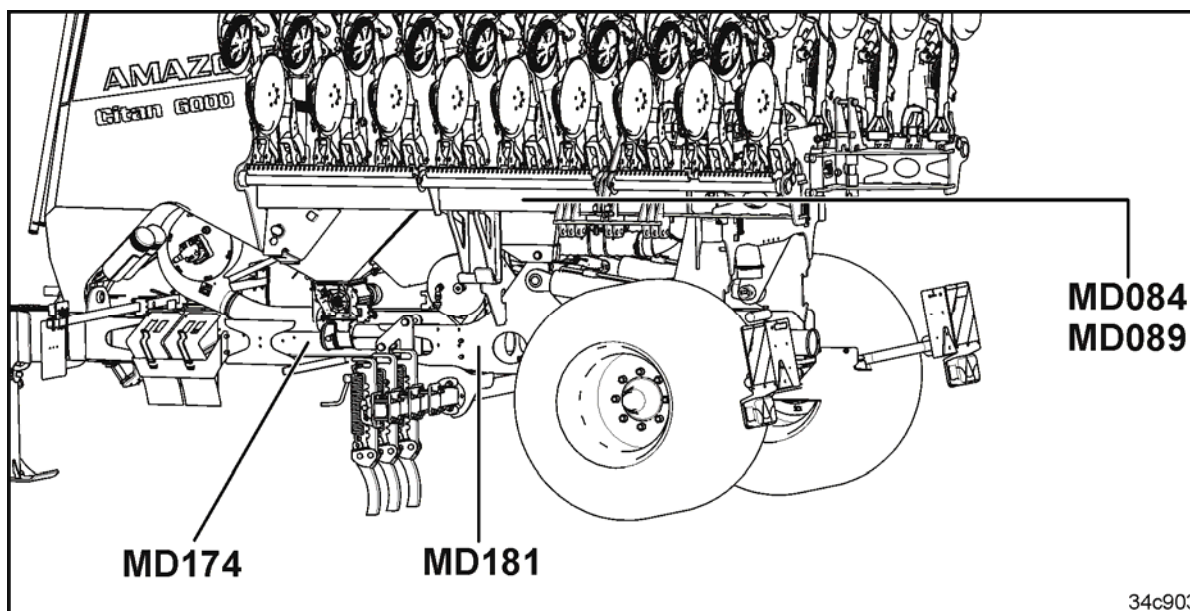
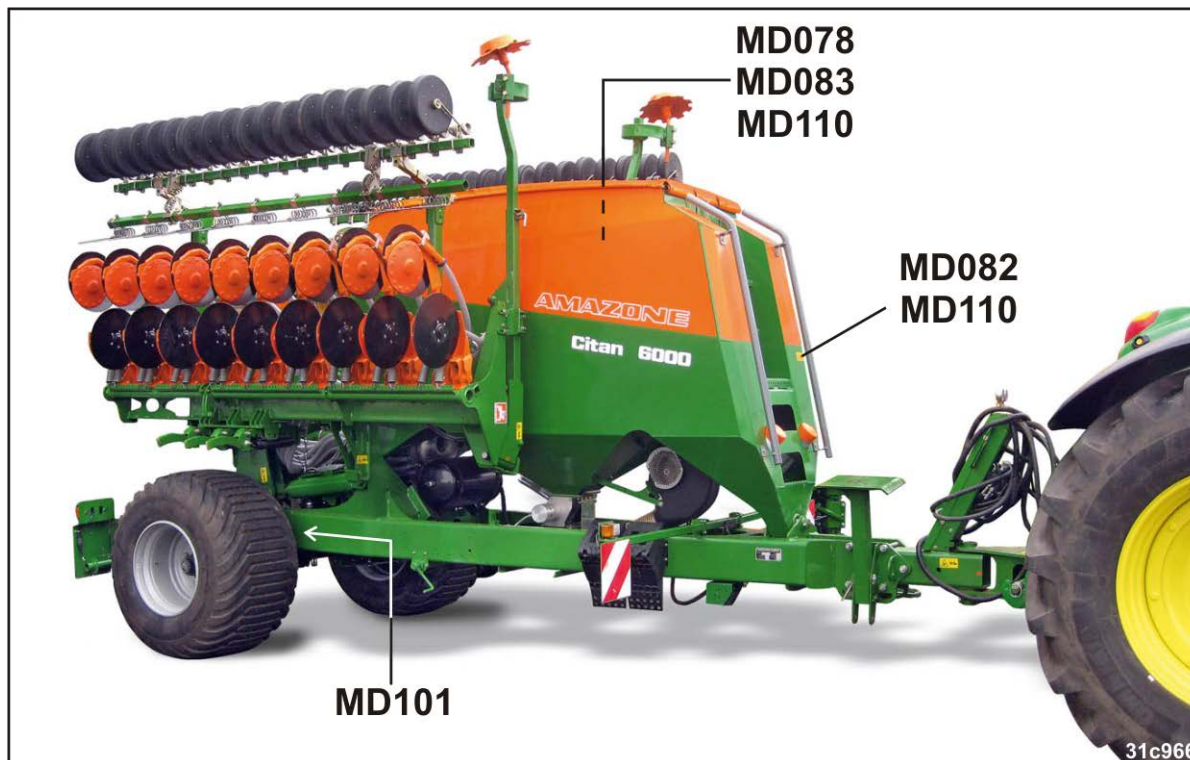
- Standing or walking in the danger area between the tractor and implement is prohibited whenever the tractor engine is running and the tractor is not secured against unintentional rolling.
- Instruct people to leave the danger area between the tractor and the implement whenever the engine of the tractor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

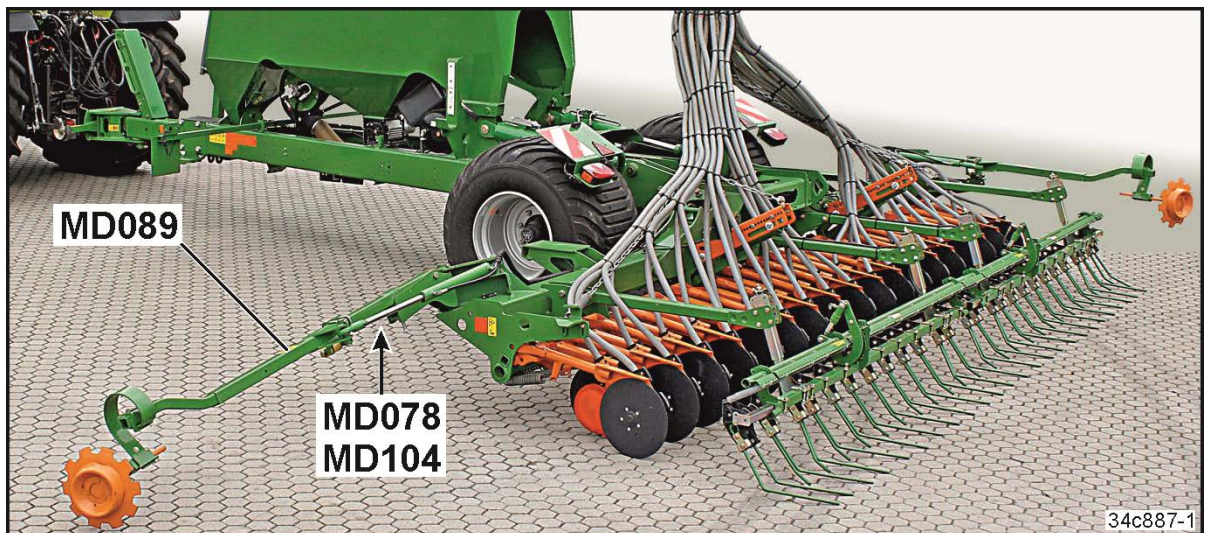
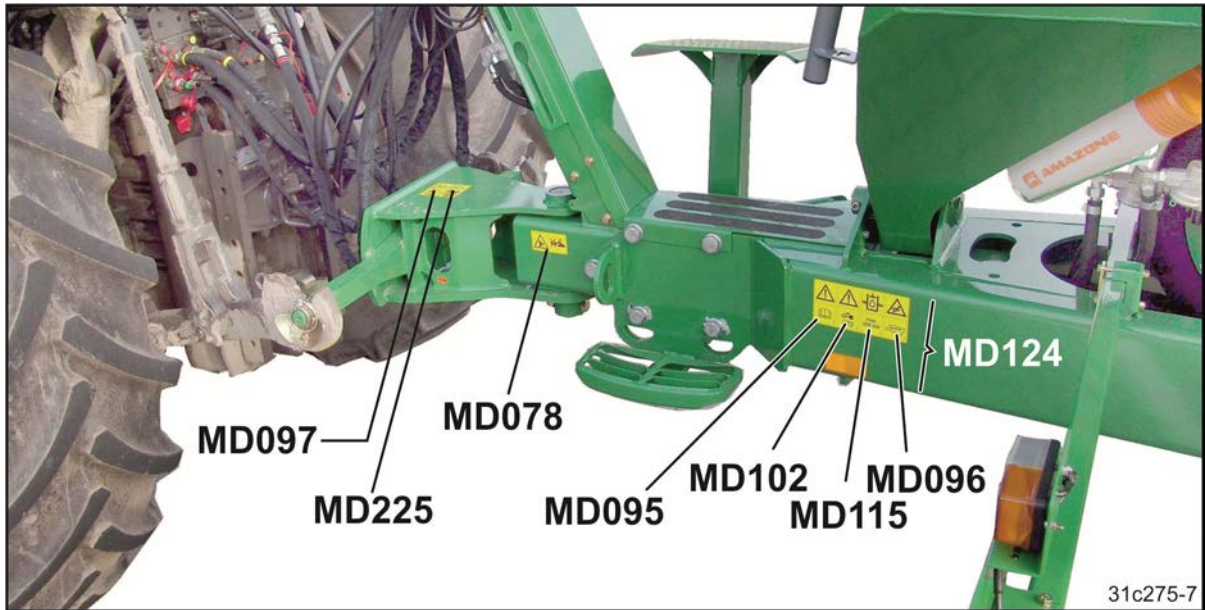


2.13.1 Positions of warning symbols and other labels

Warning symbols

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





2.14 Dangers if the safety information is not observed

Non-compliance with the safety information

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

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

- Risk to people from working in an unsafe working environment.
- Failure of important implement functions.
- Failure of prescribed methods of maintenance and repair.
- Risk to people through mechanical and chemical influences.
- 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 each time, always check their traffic and operational safety.



CAUTION

Switch off the control terminal

- before road transport.
- before adjustment, maintenance and repair work.

Risk of accident due to unintended movements of the metering unit or other implement components caused by radar pulses.

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 and information signs attached on the implement provide important instructions for safe operation of the implement. 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:
 - o must easily give way to all movements in bends without tensioning, kinking or rubbing.
 - o 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 implement 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 support 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 tractor parking brake.
 - Switch off the tractor engine.
 - Remove the ignition key.

Implement transportation

- When using public roads, national road traffic regulations must be observed.
- Switch off the control terminal before road transport.
- Before road transport, check
 - that the supply lines are connected correctly.
 - the lighting system for damage, function and cleanliness.
 - the brake and hydraulic system for visible defects.
 - whether the tractor parking brake is completely released.
 - the function 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 front tractor 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 load of the connected implement and the permissible axle and support 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 road transport, 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.
- Before road transport, check that the required transport equipment, e.g., lighting, warning equipment and protective equipment, is correctly mounted on the implement.
- Before road transport, carry out a visual check that the top and lower link bolts 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).
- Observe the maximum permissible total weight. Only transport the implement with empty seed and fertiliser hoppers.

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 depressurized on both the implement and tractor sides.
- 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.
 - depressurize the hydraulic system.
 - switch off the tractor engine.
 - apply the tractor parking brake.
 - take out the ignition key.
- Have the hydraulic hose lines checked for proper functioning by a specialist at least once a year.
- Replace the hydraulic hose lines if they are damaged or worn. Use only 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 followed.
 - 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 in the appropriate version and carry the CE mark.

2.16.4 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.
- Ensure that the tractor has sufficient steering and braking power. 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 yoke bars with a drawbar load.

2.16.5 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 any malfunctions 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 hose couplings of the supply and brake lines.
- Only move off with the implement connected when the pressure gauge on the tractor shows 5.0 bar.
- Before driving without the implement, lock the hose couplings on the tractor.
- Hang the hose couplings 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 compressed air tank if:
 - the compressed air tank can be moved in the tensioning belts.
 - the compressed air tank is damaged.
 - the rating plate on the compressed air tank is rusted, 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.

2.16.6 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.
- Before performing any work on the tyres, park the implement safely and secure it against unintentional lowering and rolling away (tractor parking brake, wheel chocks)!
- Tighten or retighten all the fixing screws and nuts in accordance with the specifications of AMAZONEN-WERKE.

2.16.7 Sämaschinen-Betrieb

- Observe the permissible filling quantity of the hopper!
- Only use the steps and the platform when filling the hopper. It is forbidden to ride on the implement during operation!
- During the calibration test, note the danger points from rotating and oscillating implement parts.
- Do not place any parts in the hopper!

2.16.8 PTO shaft operation

- 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 is engaged.
 - the ignition key has been removed.
- 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.
- Never switch on the PTO shaft while the tractor engine is turned off.
- After the PTO shaft is switched off, there is a risk of injury from the continued rotation of freewheeling implement parts.
Do not approach too near to the implement during this time. You must only start work on the implement once all implement parts are at a complete standstill.

2.16.9 Cleaning, maintenance and repair

- Only carry out cleaning, maintenance and repair work on the implement when:
 - the control terminal is switched off.
 - the drive is switched off.
 - the tractor engine is at a standstill.
 - the ignition key has been removed!
- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- Secure the raised implement 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 original AMAZONE spare parts.

3 Loading and unloading road transport vehicles



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.



Important for correct handling of the implement during loading and unloading:

- 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.



WARNING

A marshalling person is required for the loading and unloading.

Connect the implement to a suitable tractor for loading onto or unloading from a transport vehicle, refer to the

- section "Commissioning"
- section "Coupling and uncoupling the implement".

Make the following connections on the tractor

- all connections of the brake system
- all hydraulic connections
- the pressureless hydraulic lines of the hydraulic blower fan connection

Connection to the control terminal is not required.



During folding, the lighting can be damaged if the free hydraulic return flow is not connected to the tractor.

3.1 Loading the implement

1. Move the implement into the transport position, see section "Road transport".
2. Push the implement carefully backwards onto the transport vehicle.

A marshalling person is required for loading.



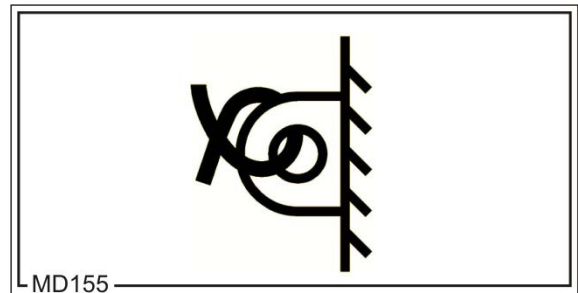
3. Apply the implement's parking brake (if equipped) as soon as the implement has reached its transport position on the transport vehicle.
4. Secure the implement correctly onto the transport vehicle. The lashing points are marked.

Bear in mind that the implement might not have a parking brake.



The symbol marks the lashing points on the implement.

5. Uncouple the tractor from the implement.



In Germany, the permitted total height of the loaded lorry is 4.0 m.

3.2 Unloading the implement

1. Move the implement into the transport position, see section "Road transport".
2. Remove the transport securing device (lashing straps).
3. Pull the attached implement carefully away from the transport vehicle.

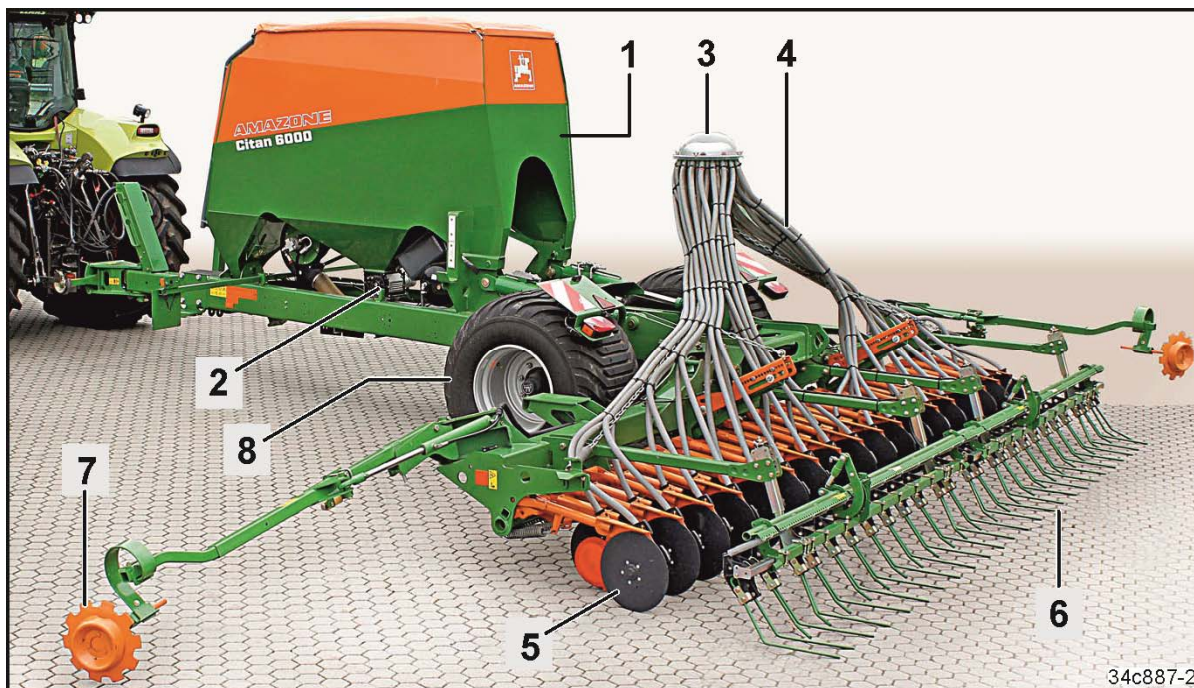
A marshalling person is required for unloading.

4. Disconnect the implement from the tractor (see section "Uncoupling the implement").



4 Product description

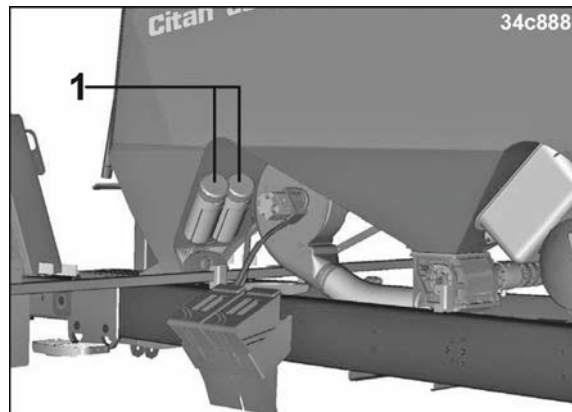
4.1 Main assemblies of the implement



- | | |
|-----------------------------|---|
| (1) Tank | (6) Exact following harrow,
(optionally roller harrow) |
| (2) Metering unit | (7) Track marker (optional) |
| (3) Distributor head | (8) Running gear |
| (4) Seed hose | |
| (5) RoTeC+ Control coulters | |

4.2 Overview of assembly groups

- (1) Case for stowing
 - o of the operating manual
 - o the metering roller
 - o of the digital scale



AMADRILL⁺ control terminal (optional)



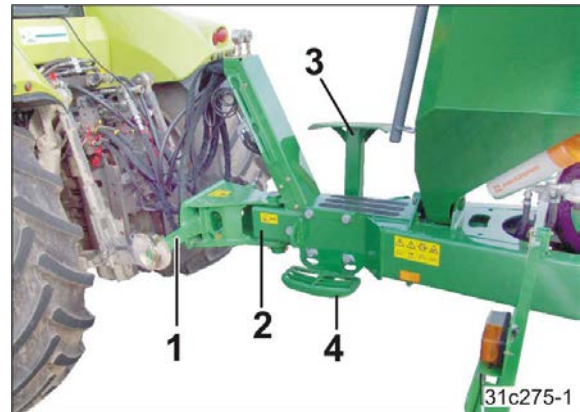
AMATRON 3 control terminal (optional)



- (1) Radar



- (1) Tensioned crosspiece
- (2) Drawbar, extendable
- (3) Stand, foldable
- (4) Step



Bracket for the supply lines



- (1) Blower fan



- (1) Fill level sensor



Product description

RoTeC+ Control coulters



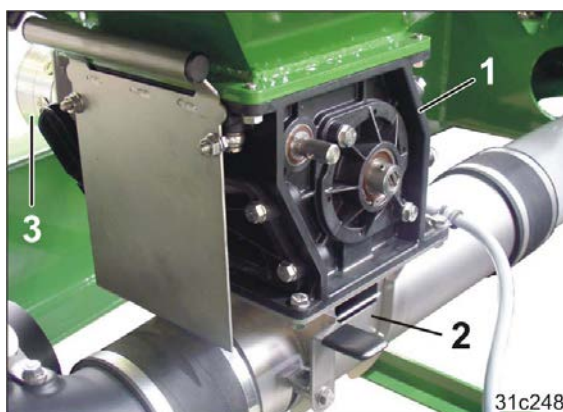
32c855-1

- (1) Roller tarpaulin



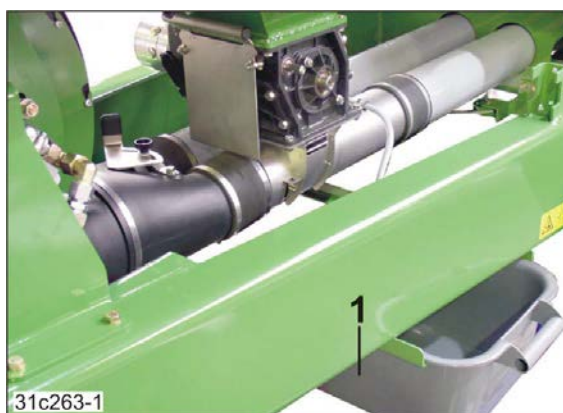
31c187-1

- (1) Seed metering unit
- (2) Injector sluice
- (3) Electric motor (metering roller drive)



31c248

- (1) Calibration trough in mounting for the calibration test



31c263-1

4.3 Safety and protective equipment

- (1) Blower fan guard



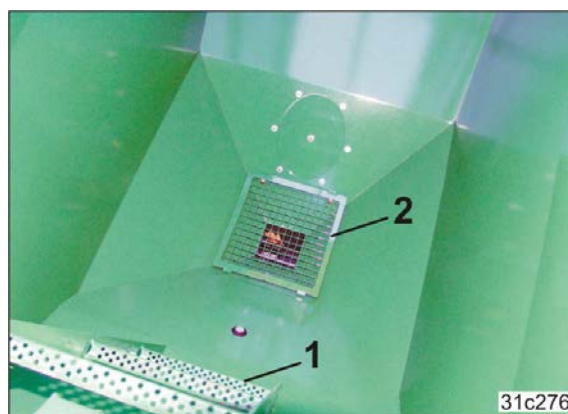
- Wheel chocks



- (1) Locking of implement booms in transport position



- (1) Ladder
(2) Charging sieve
(acts as guard screen in the hopper)



4.4 Overview – Supply lines between the tractor and the implement

Power supply cable

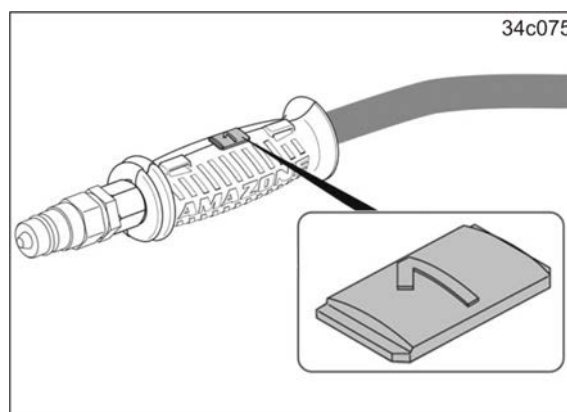
Designation	Function
Implement plug	Control terminal
Electrical socket	Weighing system (optional)
Plug (7-pin)	Road traffic lighting system

Service brake system

Designation	Marking	Function
Brake line	yellow	Dual-circuit pneumatic service brake system
Supply line	red	
Hydraulic brake line		Hydraulic service brake system

Hydraulic hose lines

All hydraulic hose lines have handles with coloured markings and a code number or code letter to assign the respective hydraulic function to the pressure line of a tractor control unit!



The function of the tractor control unit is represented symbolically:



Latched, for a permanent oil circulation

















When the button is pressed, as long as the function is active














Float position, free oil flow in the control unit

Control terminal without job computer (AMADRILL+)

Designation Hydraulic hoses		Function		Note	Tractor rear control unit	
yellow		Rear frame with coulters	Lift		Double- acting	
		Tractor wheel mark eradicator	Lift			
		Rear frame with coulters	Lower			
		Tractor wheel mark eradicator	Lower			
green		Track marker	Lift	Pre- selection, see section 5.5.1, page 62	Double- acting	
		Tramline marker	Lift			
		Implement booms	Fold in			
		Track marker	Lower			
		Tramline marker (only at counter status "0")	Lower			
		Implement booms	Folding out			
blue		coulter pressure	More		Double- acting	
		Exact following harrow pressure	More			
		coulter pressure	Less			
		Exact following harrow pressure	Less			
red		Blower fan hydraulic motor (section 6.3, page 100)	Switch on and switch off		Single- acting	
		Filling auger	Switch on and switch off		Single- acting	
		Pressureless return				

Control terminal with job computer (AMATRON 3)

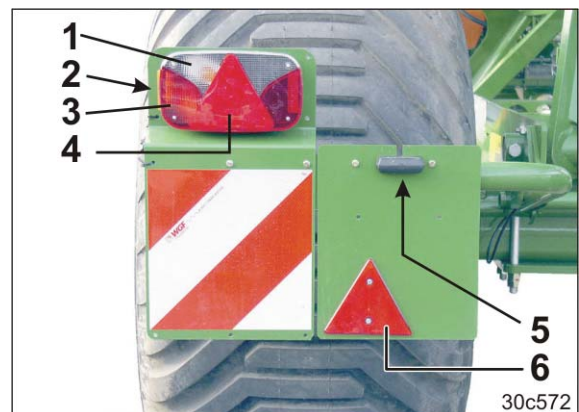
Designation Hydraulic hoses		Function		Note	Tractor rear control unit	
yellow		Rear frame with coulters	Lift	Pre- selection on the control terminal	Double- acting	
		Tractor wheel mark eradicator				
		Track marker				
		Tramline marker				
		Rear frame with coulters	Lower			
		Tractor wheel mark eradicator				
		Track marker				
		Tramline marker (only at counter status "0")				
green		Implement booms	Fold in	Pre- selection on the control terminal	Double- acting	
		coulter pressure	More			
		Exact following harrow pressure	More			
		Implement booms	Folding out			
		coulter pressure	Less			
		Exact following harrow pressure	Less			
red		Blower fan hydraulic motor (section 6.3, page 100)	Switch on and switch off		Single- acting	
		Filling auger	Switch on and switch off		Single- acting	
		Pressureless return				

4.5 Transportation equipment

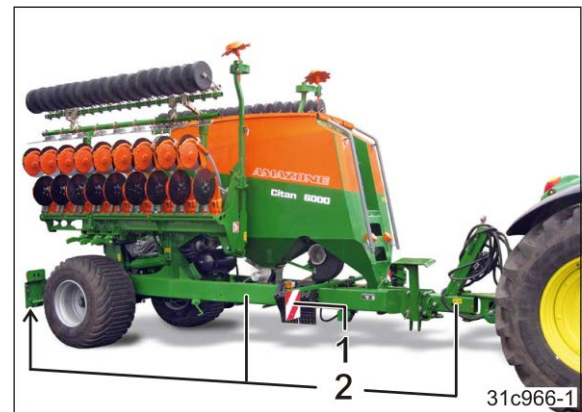
- (1) 2 rear-facing warning signs
- (2) 1 speed sign



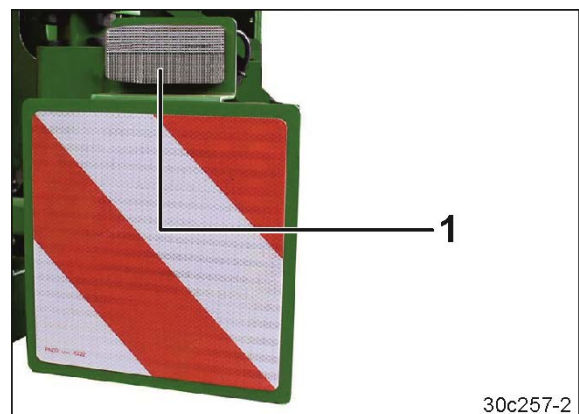
- (1) 2 rear-facing turn indicators
- (2) 2 reflectors, yellow.
- (3) 2 brake and rear lights
- (4) 2 red reflectors
- (5) 1 light for licence plate
- (6) 2 reflectors, triangular



- (1) 2 forwards-facing warning signs
- (2) 2 x 3 reflectors, yellow, (laterally with a max. spacing of 3 m)



- (1) 2 forwards-facing limiting lights



4.6 Intended use

The implement

- is designed for the metering and spreading of commercially-available seed
- is coupled to the tractor using the tractor's lower links and operated by an additional person.

Slopes can be travelled

- Along the contours
Direction of travel to left: 10 %
Direction of travel to right: 10 %
- Along the gradient
Up the slope: 10 %
Down the slope: 10 %

Intended use also includes

- Compliance with all the instructions in this operating manual.
- Adherence of inspection and maintenance work.
- Exclusive use of original 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.

4.7 Danger areas and danger points

The danger area is the area around the implement 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 symbols 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 remain in the danger area of the implement

- as long as the tractor engine is running with a connected PTO 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 the implement, particularly when coupling and decoupling and when filling the hopper.
- in the area of the swivelling track marker.
- in the area of the swivelling implement booms.
- when unfolding/folding the implement booms near overhead power lines.
- in the area of moving parts.
- underneath raised, unsecured implements or parts of implements.

4.8 Rating plate and CE mark




The figure shows the arrangement of the rating plate (1) and the CE mark on the implement.

The CE marking on the indicates compliance with the stipulations of the valid EU directives.



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

- (1) Implement ID no.
- (2) Type
- (3) Basic weight kg
- (4) Perm. system pressure total weight kg
- (5) Perm. front axle load/drawbar load kg
- (6) Perm. system pressure rear axle load
- (7) Perm. system pressure bar
- (8) Factory
- (9) Model year
- (10) Year of manufacture

AMAZONEN-WERKE			
D-49205 Hasbergen / BGC D-04249 Leipzig			
Fahrz.-/Masch.-Ident-Nr.	1		
Typ	2		
Grundgewicht kg	3	zul. Gesamtgewicht kg	4
zul. Achslast vorne/Stützlast kg	5	Werk	8
zul. Achslast hinten kg	6	Modelljahr	9
zul. Systemdruck bar	7		
		Baujahr Année de fabrication year of construction Дата изготовления	10
			

4.9 Technical data

		Citan 6000
Boom		foldable
Working width	[m]	6.0
Row spacing	[cm]	16.6
Number of seeding coulters	[number]	36
Number of hopper chambers	[number]	1
Hopper volume	[l]	3000
Payload	[kg]	2400
Filling height (boom unfolded)	[mm]	3080
Working speed 8 to 16 km/h		●
Hydraulic system, maximum 210 bar		●
Tensioned crosspiece for cat. II/cat. III/cat. IV		❖
Electrical system 12 V (7-pin)		●
Hydraulic fluid 51524 HLP68 ¹⁾		●
Oil flow rate (minimum)	[l/min]	80
Overall length (in working position)	[mm]	8000
Total height without filling auger (in working position)	[mm]	3100
Tyres	700/40-22.5 (diagonal)	❖
	710/40-R22.50 (radial)	❖
Maximum drawbar load with full hopper (on the field)	[kg]	2000
Service brake system		see section 5.1, page 58

● = Standard equipment

❖ = Optional equipment

- 1) The implement hydraulic/transmission fluid is suitable for the combined hydraulic / transmission fluid circuits of all standard makes of tractor.

Product description

4.9.1 Road transport data (only with an empty seed hopper)

		Citan 6000
Boom		foldable
Total width (in transport position)	[m]	3.0
Total length (in transport position)	[m]	5.7
Maximum total height (in transport position)	<ul style="list-style-type: none"> depending on the harrow type and without filling auger 	3500
	<ul style="list-style-type: none"> with filling auger. 	4000
Basic weight	[kg]	see rating plate
Permissible total weight	[kg]	see rating plate
Permissible rear axle load	[kg]	see rating plate
Permissible drawbar load (F_H) for road transport (see rating plate and section 6.1.1.1, page 95)	[kg]	2000
Max. permitted speed		see section 9, page 147

4.10 Necessary tractor equipment

For operation of the implement in compliance with the intended use the tractor must fulfil the following requirements.

Power requirement	Citan 6000	from 110 kW / 150 HP
Electrical system	Battery voltage	12 V (volts)
	Lighting socket	7-pin
Hydraulic system	Tractor control units	see section 4.4, page 46
	Maximum operating pressure	see section 4.9, page 53
	Tractor pump output	At least 80 l/min at 150 bar
	Hydraulic oil for supplying the implement	see section 4.9, page 53
Service brake system	Dual-circuit service brake system	see section 5.1, page 58
	Hydraulic operating brake system	

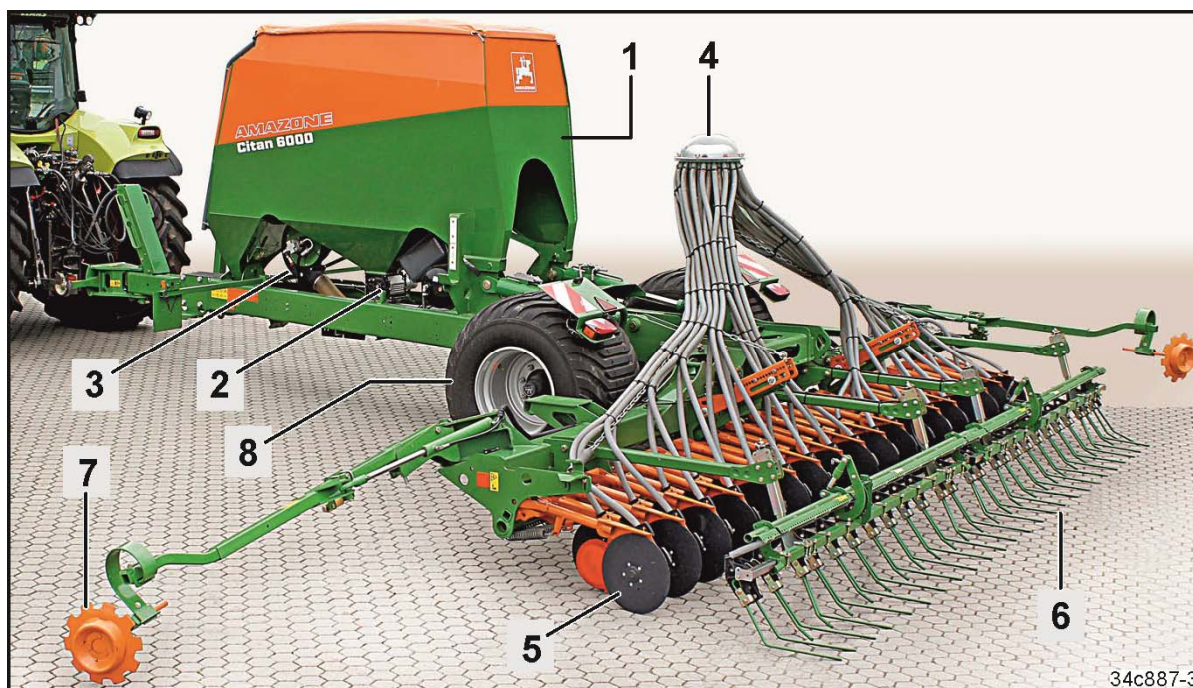
4.11 Noise production data

The workplace-related emission value (acoustic pressure level) is 70 dB(A), measured in operating condition at the ear of the tractor driver with the cabin closed.

Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5 Layout and function



The Citan separates soil tillage and seeding. This allows the seeding date to be optimally set. Low ground pressure and powerful seeding are important advantages in modern tight crop rotations.

The hopper (1) on the Citan has a chamber to carry seed. The 3,000 l seed hopper can be quickly and easily filled using a filling auger (optional), Big Bags, a front loader or transfer vehicle.

The set metered seed quantity passes from the seed metering unit (2), which is driven by an electric motor, into the air stream generated by the blower fan (3).

The air current delivers the seed to the distributor head (4), which distributes the seed uniformly onto all the coulter (5). The adjustable coulter pressure up to 55 kg provides uniform seed placement and a steady coulter ride. The required placement depth is set by adjusting the coulter pressure and the coulter disc.

The shallow seeding disc is used for seeding with increased coulter pressure also on light soils. The increased coulter pressure provides a particularly steady coulter ride on light soils.

The exact following harrow serves to level the soil and cover the seed under normal or moist condition (6). The harrow pressure can be adjusted either mechanically or hydraulically.

The roller harrow is used on dry locations. The trailing press rollers can be pressurised up to 35 kg and provide good soil closure.

The bout is marked in the centre of the tractor by the track markers (7).



Changing from transport to working position is quick and easy. Before transportation on the running gear (1), the implement is folded to a width of 3 m. The implement booms (2) are resting closely on the seed hopper (3) during transport.

During operation, the folding rear frame (4) lifts the coulters before turning at the end of the field.

5.1 Service brake system

The implement can be equipped

- with dual-circuit pneumatic service braking system.
- with hydraulic service brake system
The hydraulic service brake system is not approved in Germany and a few other EU countries.
- without service brake system (see note, section 5.1.4).

5.1.1 Parking brake

Implements with a dual-circuit pneumatic service brake system and hydraulic service brake system are fitted with a parking brake.

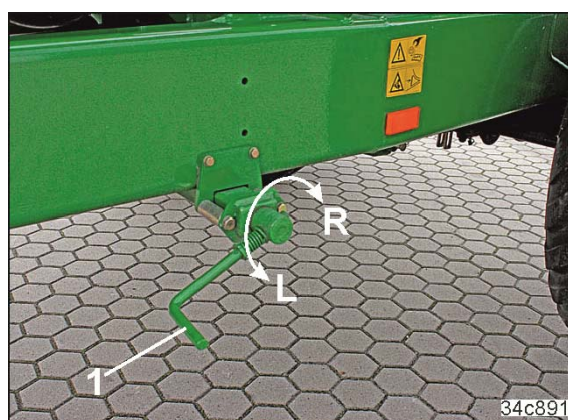
The crank (1) is used to activate the parking brake.

Engaging the parking brake:

Turn the crank to the right (R).

Releasing the parking brake:

Turn the crank to the left (L).



5.1.2 Dual-circuit pneumatic service brake system

In Germany, the implement is equipped with a dual-circuit pneumatic service braking system.

The dual-circuit pneumatic service brake system controls two brake cylinders, which actuate the brake shoes in the brake drums.

The tractor also has to be equipped with a dual-circuit pneumatic service brake system.

5.1.3 Hydraulic service brake system

The implement can be equipped with a hydraulic service brake system. The hydraulic service brake system is not allowed in Germany and a few other EU countries.

The hydraulic service braking system acts on two braking cylinders which actuate the brake shoes in the brake drums.

The tractor also has to be equipped with a hydraulic service brake system.

5.1.4 Implements without independent service brake system

In Germany and many other countries, the Citan 6000 may only be transported on public roads with a dual-circuit pneumatic service braking system fitted. In several other countries, the implement may only be operated with the hydraulic service brake system.

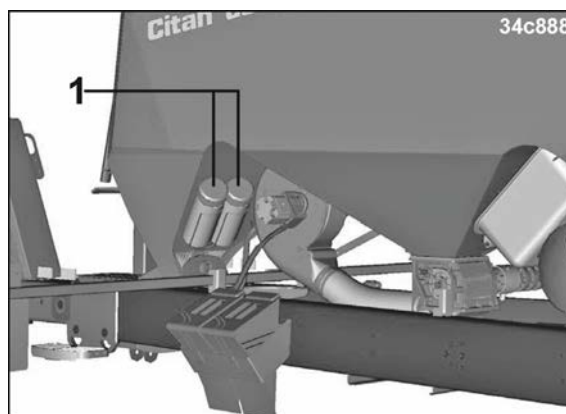
If the implement does not have a service brake system, check the officially approved registration of your implement before commissioning.

5.2 Accessories kit with the operating manual

The accessories pack (1) contains

- the operating manual,
- the ratchet for actuating the parking brake,
- a metering roller in park position,
- the scales for the calibration test.

The accessories pack is stowed in the transport bracket.



5.3 Radar

The radar (1) is used to record the working speed.

The working speed data is used to determine:

- the required speed for the speed of the metering roller(s),
- the worked area (hectare counter).

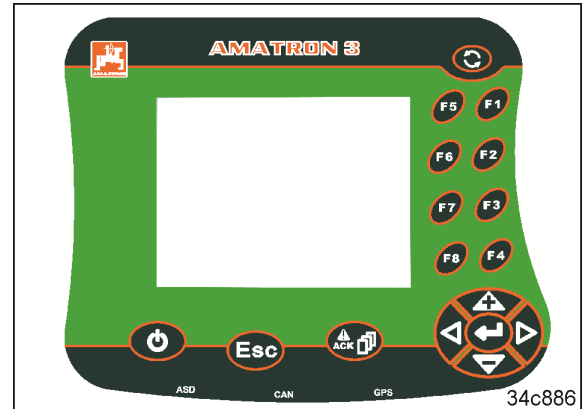
When lifting the coulters to turn at the end of a field, the electric motor switches off and the metering roller comes to a halt.



5.4 AMATRON 3 control terminal

The AMATRON 3 consists of the control terminal, the basic equipment (cable and fastening materials) and the job computer on the implement.

The AMATRON 3 operating instructions explain the operation of the terminal.



The hydraulic functions of the implement are actuated via the electrohydraulic control block (1). The control block is shown without its cover.

Initially, the desired hydraulic function has to be selected on the AMATRON⁺ before the hydraulic function can be executed via the appropriate control unit.

This switching clear of the hydraulic functions in the AMATRON⁺ allows operation of all hydraulic functions with only:

- few tractor control units for the implement functions.
- only one tractor control unit for the blower fan.



5.5 AMADRILL+ control terminal

The AMADRILL+ consists of the control terminal and the basic equipment (cable and fastening materials).

The AMADRILL+ operating instructions explain the operation of the terminal.

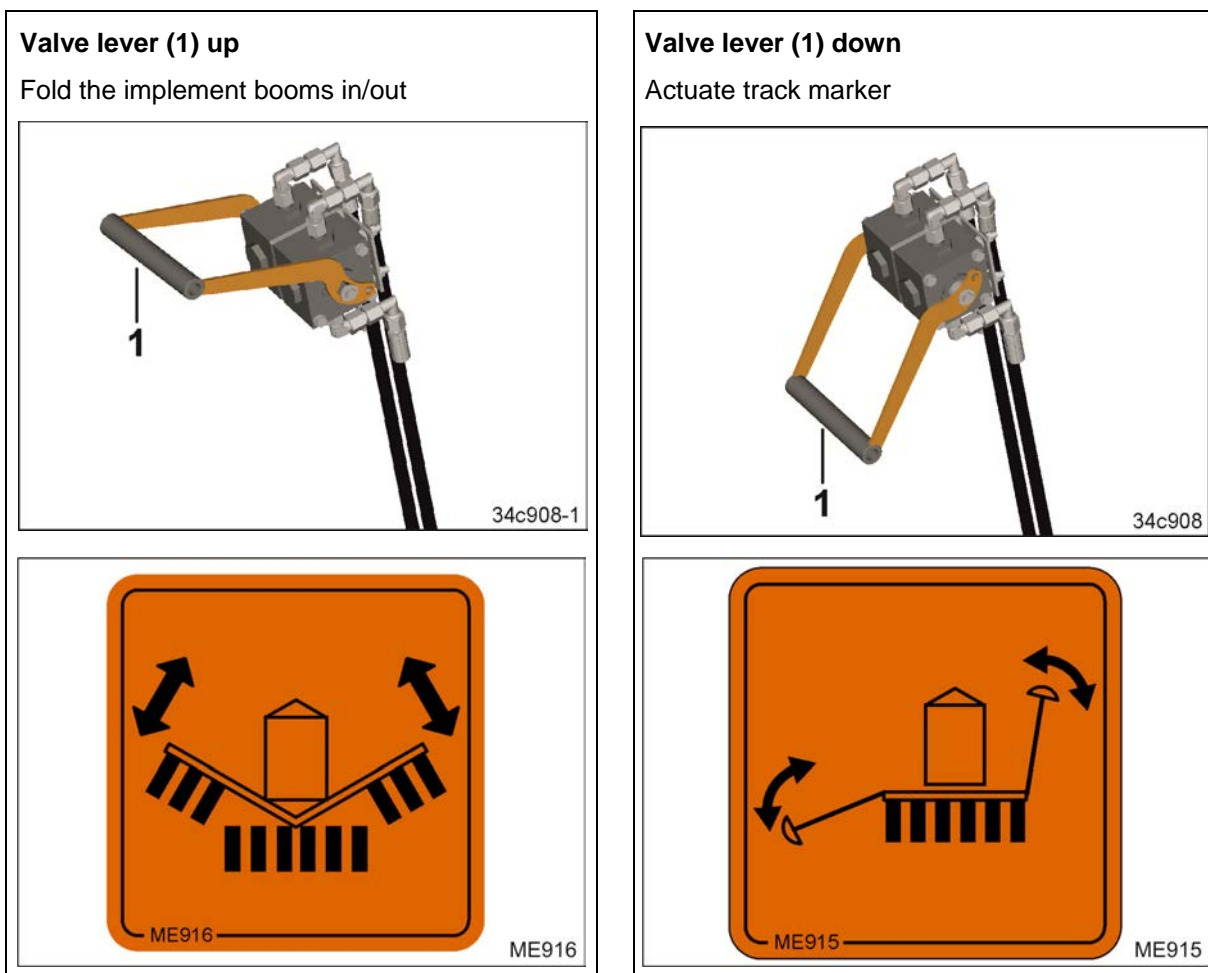


5.5.1 Controlling the implement with the AMADRILL+ control terminal

If the combination is equipped with the AMADRILL+ control terminal, the control valve is used to pre-select the hydraulic function.

Actuation of tractor control unit 2 in the tractor cab executes the selected hydraulic function.

The control valve lever can assume one of the two positions:



Set the valve lever in the up position only to fold the booms in or out.

The valve lever is in the down position during work and during road transport.

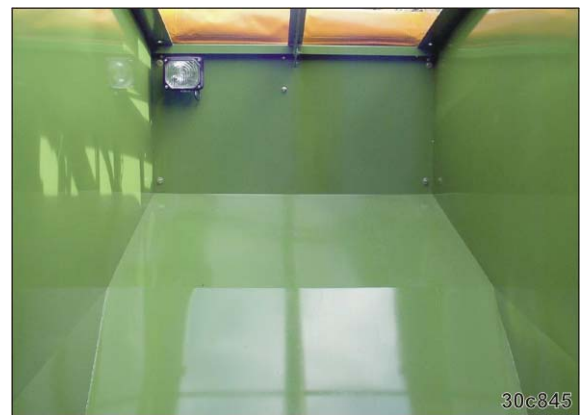
5.6 Hopper

The hopper is closed with a roller tarpaulin (1) to protect against dust and rain.

The full-area opening of the hopper allows rapid filling.



The interior lighting of the hopper is coupled with the driving lights of the tractor.



5.6.1 Filling auger

The filling auger (optional) is used to fill the hopper. The filling auger can be folded hydraulically.

The filling auger is driven by a hydraulic motor and is folded to the transport position by a hydraulic cylinder. When you fold the filling auger and fill the hopper, the tractor engine must also be running.

The control lever is located directly beside the filling auger on the implement. One control lever is used to fold and unfold the filling auger. The second control lever is used to switch the filling auger on and off.



5.6.2 Fill level monitoring

The fill level sensor (1) monitors the fill level in the hopper.

When the level in the chamber reaches the filling level sensor, the control terminal indicates a warning message and outputs an alarm signal at the same time. This alarm signal is intended to remind the tractor driver to fill up the hopper.

The height of the fill level sensor can be adjusted from outside by securing the fill level sensor in the second bracket.



Fit the fill level sensor according to the type of seed.

Grains and legumes:

Fit the sensor to the higher bracket.

Fine seed types (e.g. rapeseed):

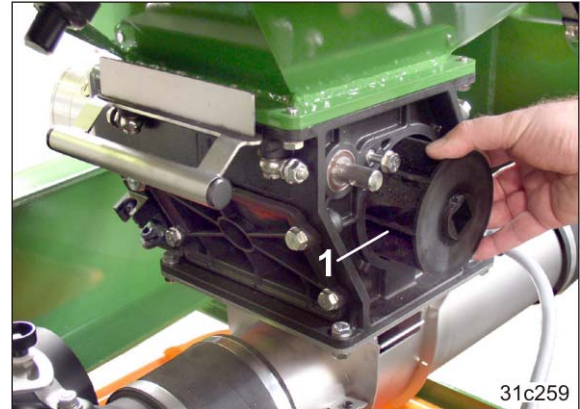
Fit the sensor to the lower bracket (factory setting).

5.7 Metering

The metering unit is located under the seed hopper.

The seed is metered by a metering roller in the metering unit.

The metering roller (1) can be replaced.



The metering roller is driven by an electric motor (1) (full metering).

The seed falls into the injector sluice (2) and is directed by the air current to the distributor head and then on to the coulters.



The speed of the metering roller

- is determined by the calibration test.
- determines the spread rate.
The higher the speed of the electric motor, the greater the spread rate.
- automatically adjusts to changing working speeds.
- can be increased during operation by the press of a button on the control terminal when the soil changes from normal to heavy.

The working speed is determined by the pulses of the radar.

As soon as the coulters are raised when turning at the end of a field, the electric motor switches off and the metering roller comes to a halt.

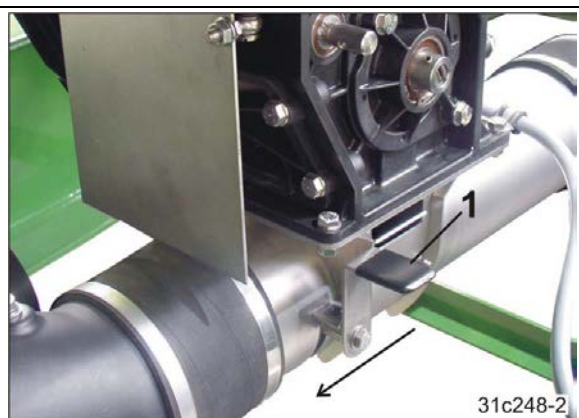
Layout and function

For the calibration test and for emptying, the seed falls through an opening in the floor of the injector sluice. A rotary shutter closes the opening. The rotary slide is actuated with a lever. The lever must engage when opening and closing.

The opening at the bottom of the injector sluice is closed when the lever (1) points to the left in the driving direction (arrow), as shown.

Always make the lever (1) engage in one of the two positions

- Rotary slide closed
- Rotary slide open



5.7.1 Spread rate/Calibration test

The speed of the metering rollers and therefore the spread rate is adjusted with the calibration test.

The calibration simulates the subsequent field pass. The weight of the seed quantity collected from the first calibration test is required.

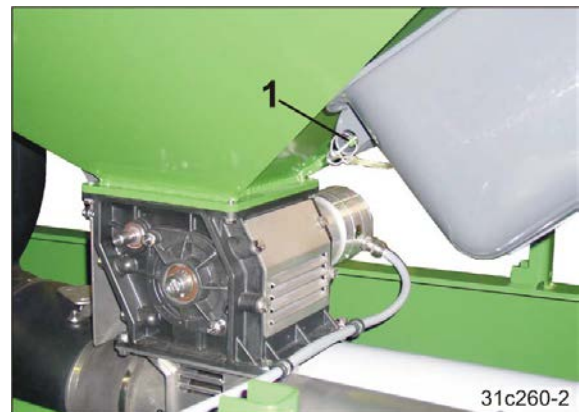
A second calibration test is essential. The required seed quantity is usually applied during the second calibration test. If this is not the case, repeat the calibration test until the required seed quantity is reached.

Always carry out a calibration test

- during the initial operation.
- when changing the sort.
- if the seed type is identical, but the grain size, grain shape, specific weight and dressing are different.
- after replacing the metering roller.
- if the hopper takes more/less time than expected to empty. The actual spread rate does not correspond with the spread rate determined by the calibration test then.

The seed for the calibration test drops into the calibration trough and is weighed.

The calibration trough is fastened in a holder for transport and secured with a linch pin (1).

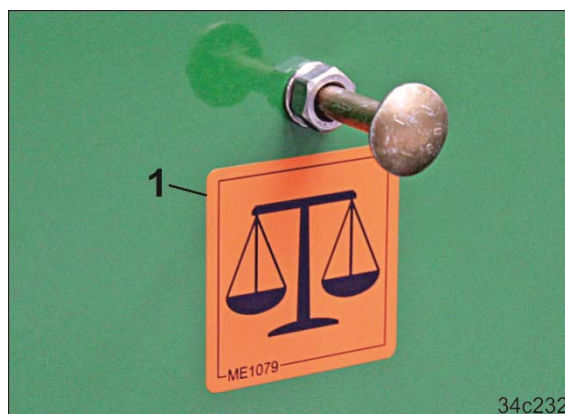


Layout and function

A digital scale is include in the scope of delivery.



The symbol (1) marks the bracket for the digital scale. The holder is used to hang the digital scale during the calibration test.



5.7.2 Seed pre-metering

The seed pre-metering, which meters the seeds in the air current before the implement starts up, can be switched on in the control terminal (e.g. AMATRON).

Seed pre-metering is used when corners are to be seeded that can only be reached when the implement is being reversed or with raised coulters.

The run time of the seed pre-metering is adjustable.

5.7.3 Start-up ramp

The "start-up ramp" can be adjusted on the control terminal, and is used to adjust the spread rate for the acceleration of the implement, e.g., after the turning procedure.

After turning and actuating the control unit (yellow), the implement moves into working position. Seed is metered into the delivery line. The "start-up ramp" compensates for system-related seed rate reductions during the acceleration phase of the implement. The factory settings can be adapted.

For this purpose, the probable working speed set in the calibration menu is used. The starting speed and the time until the probable working speed is reached can be set as a percentage of the probable working speed.

This time and the percentage value depend on the respective tractor acceleration and prevent the metering of insufficient seed during the acceleration phase.

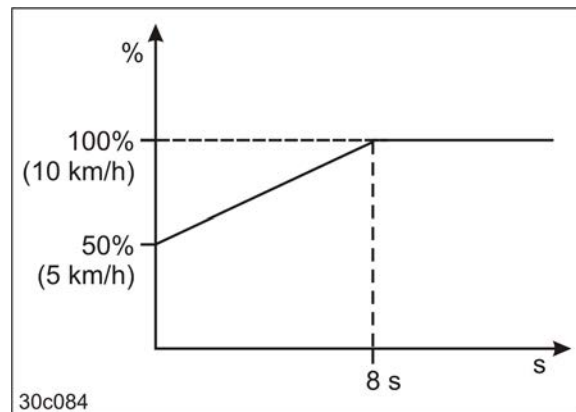
Example

Values that can be adjusted in the control terminal

Probable working speed: 10 km/h

Starting speed: 50 %

Time to achieve working speed: . 8 seconds



5.8 Metering rollers

The metering roller selection is dependent on the

- grain size,
- spread rate.

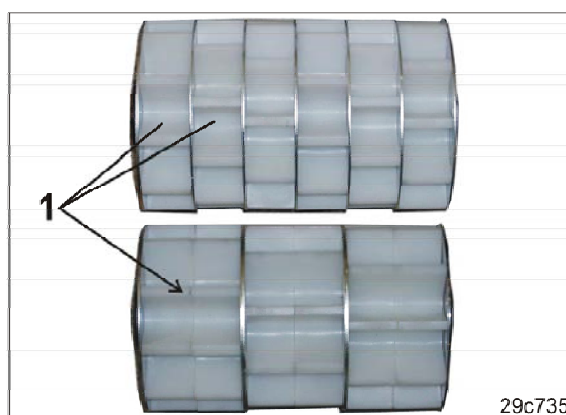
You can choose between metering rollers with various sizes of chambers or various volumes.

You must select a metering roller volume that is not too large but that is sufficient to spread the required quantity (kg/ha).

During the calibration test, check whether the selected metering roller reaches the spread rate.






For sowing particularly large seeds, e.g., large beans, the chambers (1) of the metering roller can be enlarged by repositioning the wheels and the plates.



The volume of some metering rollers can be modified by repositioning/removing the existing wheels and inserting metering wheels without chambers.



5.8.1.1 Metering roller diagram table

 <p>31c651-2</p> <p>7.5 cm³</p>	 <p>31c628-2</p> <p>20 cm³</p>
 <p>33c622-1</p> <p>40 cm³</p>	 <p>31c632-2</p> <p>120 cm³</p>

Layout and function



210 cm³



600 cm³



660 cm³



880 cm³



Metering rollers with different capacities are available.

Select the metering roller required depending on the seed or the fertiliser and the spread rate according to the following tables.

If the seed is not listed, select the metering roller of a seed that has a similar grain size.

5.8.1.2 Table – metering rollers, seed

Seed	7.5 cm ³	20 cm ³	40 cm ³	120 cm ³	210 cm ³	600 cm ³	660 cm ³	880 cm ³
Beans							X	
Buckwheat					X	X		X
Spelt						X		X
Peas							X	
Flax (dressed)		X	X	X	X			
Barley					X	X		X
Grass seed					X			
Oats						X		X
Millet				X	X			
Caraway		X	X					
Lupins				X	X			
Alfalfa		X	X	X	X			
Maize				X				
Poppy seed	X							
Oil linen (moist dressing)		X	X					
Fodder radish		X	X	X	X			
Phacelia		X	X	X				
Rapeseed	X	X	X					
Rice								
Rye					X	X		X
Red clover		X	X	X				
Mustard		X	X	X	X			
Soya						X	X	
Sunflowers				X	X			
Turnips		X	X					
Triticale					X	X		X
Wheat					X	X		X
Vetches					X			

5.9 Blower fan

The blower fan that creates the air current is driven by a hydraulic motor (1).

The air current carries the seed to the coulters.

The blower fan speed determines the air volume of the air current. The higher the blower fan speed, the greater is the air volume generated.

The control terminal displays the current blower fan speed and issues an alarm if there is a deviation from the nominal speed.



The blower fan hydraulic motor can be driven by

- the tractor hydraulics (see section 5.9.1).
- the tractor PTO shaft (see section 5.9.2).

The required blower fan speed can be found in the following table. The required blower fan speed depends on the implement working width and the seed.

The blower fan speed (rpm) depends on





- the implement working width (1).
- the seed
 - Fine seed types (2), e.g. rape or grass seed.
 - Grain and legumen (3).

Example:

Citan 6000

- Working width 6.0 m (1).
- Cereal seed (3).

required
blower fan speed: 3900 rpm

<div>  <div>max. 4000 1/min</div>  </div>		
		
3,0 / 3,5 m	2800	3500
4,0 / 4,5 m	3000	3800
5,0 / 6,0 m	3200	3900
8,0 / 9,0 / 12,0 m	3200	3900
ME752	1/min	1/min
1	2	3

Blower fans with connection to the tractor hydraulic system can be equipped with a suction grating for the blower fan. The suction grating prevents the suction of straw residues under very dry conditions.

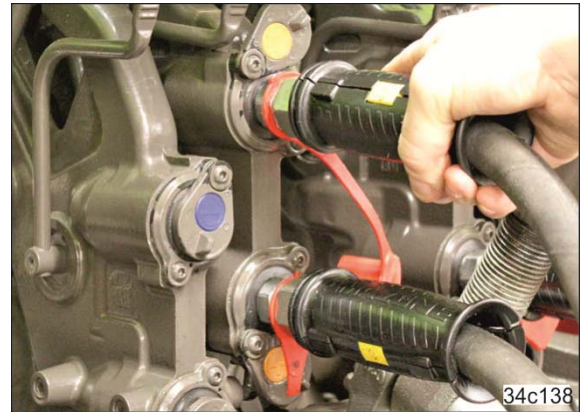
When the blower fan hydraulic motor is driven by the tractor PTO shaft, the suction grating is included in the scope of delivery.

5.9.1 Connecting the blower fan to the tractor hydraulic system

The blower fan hydraulic motor may be connected to the tractor hydraulic system.

Set the blower fan speed

- at the flow control valve of the tractor (see section 8.5.1).
- at the pressure relief valve of the hydraulic motor (see section 8.5.2), if the tractor has no flow control valve.

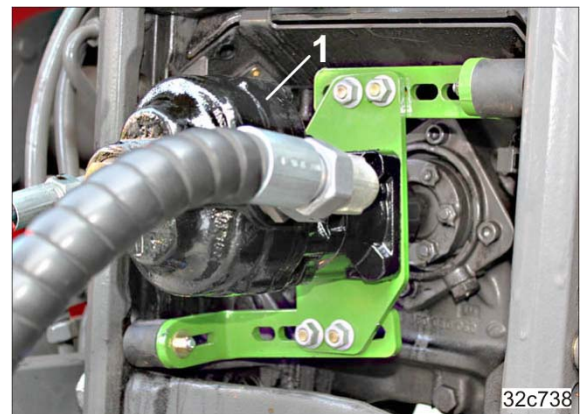


5.9.2 Connecting the blower fan to the on-board hydraulic system (tractor PTO shaft)

The on-board hydraulic system (optional) consists of a hydraulic pump and a hydraulic motor that drives the blower fan.

Set the blower fan speed according to section 8.5.3.

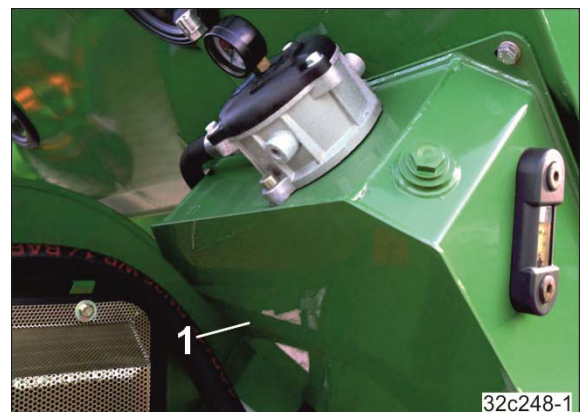
The hydraulic pump (1) is driven by the tractor PTO shaft.



The hydraulic motor (1) is fastened to the rear wall of the blower fan.

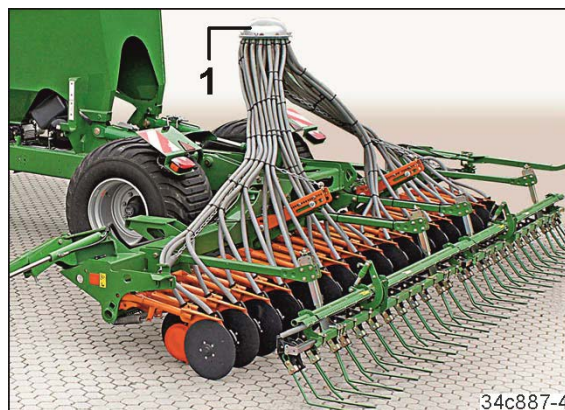


In a closed circuit, the implement carries the hydraulic fluid in an oil tank (1).



5.10 Distributor head

In the distributor head (1), the metered seed is distributed uniformly over all the coulters.



5.10.1 Seed tube monitoring (optional)

The seed tube hoses represent the connection between the distributor head and the coulters.

Each seed tube hose can be equipped with a sensor (1) that detects the seed flow.

If the seed flow is stopped in one of the seed tube hoses equipped with a sensor, a warning message is issued.



5.11 Seed placement

The RoTeC+ Control coulters are used for plough and mulch seeding, even with large amounts of straw and plant residues.

With the support of the RoTeC+ Control coulters on the coulters disc and the high coulters pressure, the coulters have a very steady ride and precisely maintain the seed placement depth.

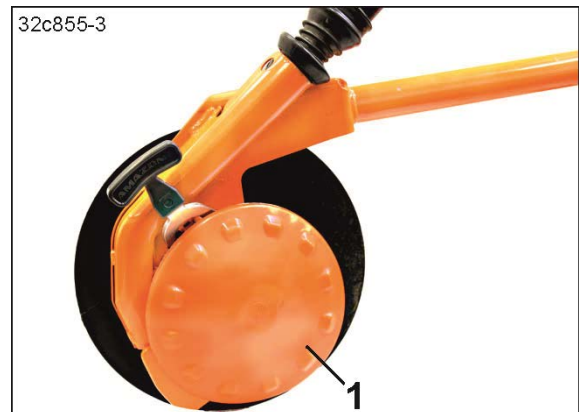
The shallow seeding disc (1) and the cleaning disc (see below) are used for

- limiting the seed placement depth
- cleaning the rear side of the steel disc (2).

For limiting the seed placement depth, the discs can be adjusted in 3 positions. The handle (3) is used for actuation.

The shallow seeding disc (1) also enables shallow seeding on very light soils with increased coulters pressure.

The cleaning disc (1) is used on heavy soils.



If the seed placement depth cannot be reached, the coulters discs can be removed from the coulters.

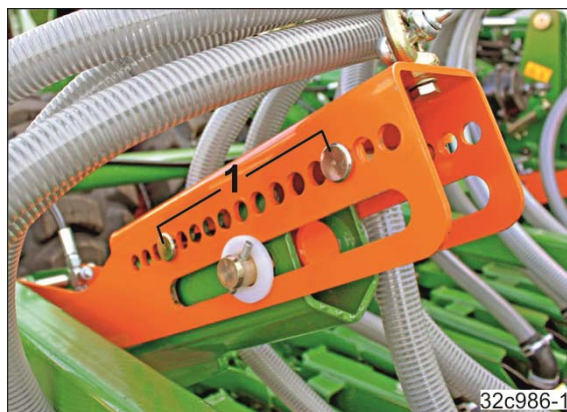
Layout and function

The seed planting depth depends on the factors

- soil type (light to heavy)
- forward speed
- coulter pressure

With the hydraulic coulter pressure adjustment, the coulter pressure is preset for two types of soil.

Two bolts (1) serve as stop for a hydraulic cylinder. This means that the coulter pressure can be adjusted to the soil during work, e.g., in event of a change from normal soil to heavy soil and vice versa.



5.12 Roller harrow (optional equipment)

The roller harrow consists of

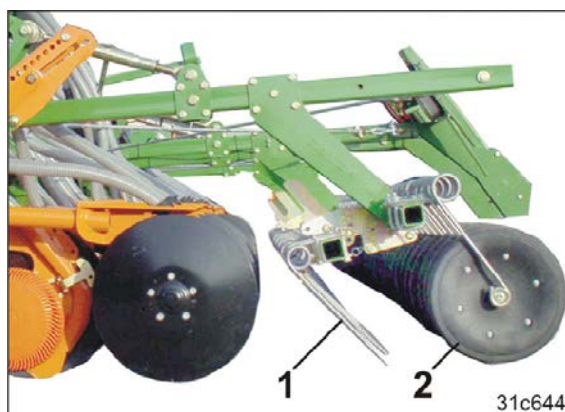
- the harrow tines (1)
- the press rollers (2).

The harrow tines close the seed furrows.

The press rollers press the seeds into the furrows. Better soil contact means more humidity is available for germination. Voids are closed and obstruct snails' access to the seed.

The following are adjustable

- the angle of the harrow tines
- the working depth of the harrow tines
- the roller pressure on to the ground



5.13 Exact following harrow (optional equipment)

The exact following harrow (1) evenly covers the seeds deposited in the seed furrows with loose earth and levels the ground.

The following are adjustable

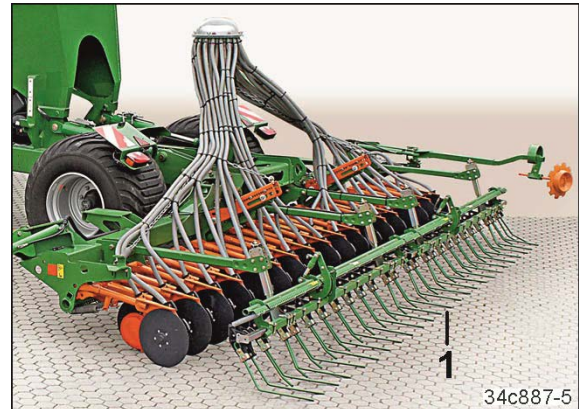
- the exact following harrow tine position (spindle adjustment)
- the exact following harrow pressure

The exact following harrow pressure determines the working intensity of the exact following harrow and is independent of the soil type.

Always lift the seed drill before reversing with the tractor.

If a slight collision occurs when driving in reverse, the exact following harrow tines deflect downwards from the obstacle.

When travelling forwards, the exact following harrow tines return to working position.



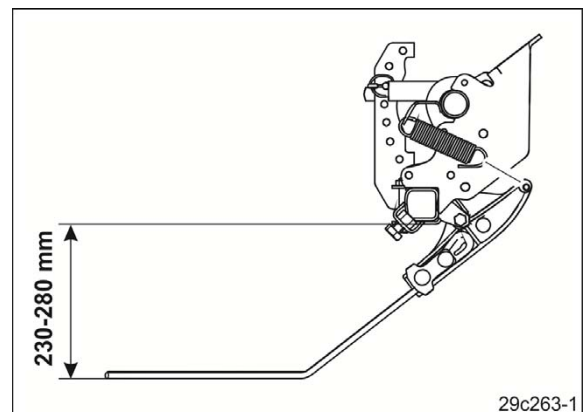
5.13.1 Exact following harrow tine position

Exact following harrow tine position

Distance "A"	230 to 280 mm
--------------	---------------

When correctly set, the harrow tines of the exact following harrow should:

- lie horizontally on the ground and
- have 5-8 cm clearance beneath.



5.13.2 Exact following harrow pressure adjustment

Adjust the exact following harrow pressure so that all seed rows are evenly covered with earth.

5.13.2.1 Mechanical exact harrow pressure adjustment

The tension springs that generate the exact harrow pressure are pre-tensioned by a lever.

The lever rests upon a bolt in the adjuster segment.

The higher the bolt is inserted in the group of holes, the greater the harrow pressure.

5.13.2.2 Hydraulic exact harrow pressure adjustment

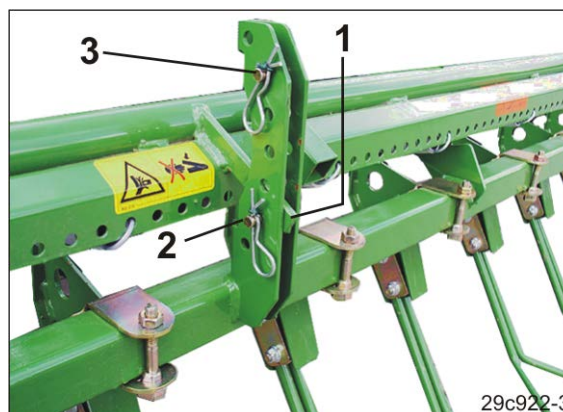
The exact following harrow pressure can be adapted to the soil during drilling in the event of a change from normal soil to heavy soil and vice versa.

The exact following harrow pressure is adjusted centrally via a hydraulic cylinder that is connected to the control unit together with the hydraulic coulter pressure adjustment.

When increasing the coulter pressure, the exact following harrow pressure increases automatically.

Two pins in an adjuster segment act as the stop for the lever (1).

If pressure is applied to the control unit, the exact following harrow pressure increases and the lever rests against the top pin (3). If the coulter pressure is reduced, the lever rests against the bottom pin (2).

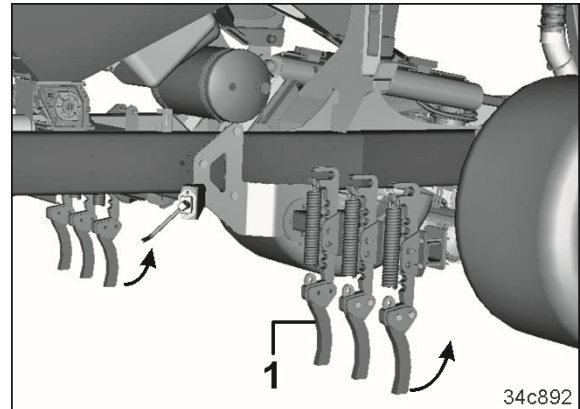


5.14 Tractor wheel mark eradicator (optional)

The tractor wheel mark eradicators (1) loosen soil compacted by traffic with the tractor tyres and produce fine earth for covering the seed furrow. Stones deflect on the spring-loaded wheel mark eradicator.

The wheel mark eradicators can be set horizontally and vertically. Horizontally, the wheel mark eradicators are infinitely adjustable.

When lifting the implement at the headlands or for road transport, the wheel mark eradicators must be swivelled up by approx. 90°.

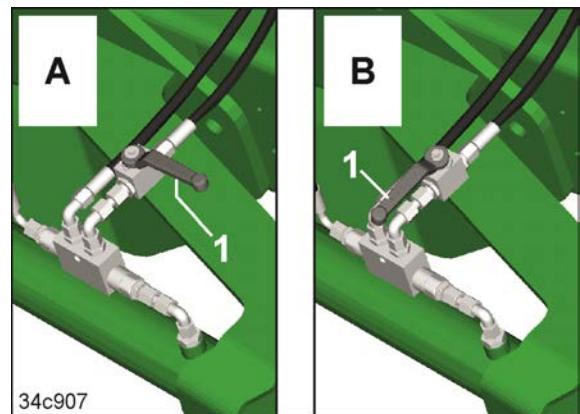


By throwing the valve lever (1) after swivelling into transport position, it is also possible to work without the tractor wheel mark eradicator.

Valve lever position A: Transport position

Valve lever position B: Working position

Putting the valve lever into position A prevents accidental swivelling of the tractor wheel mark eradicators from transport into working position.



5.15 Track markers (optional)

The hydraulically-actuated track markers (1) dig into the soil alternately on the left and the right of the implement.

In so doing, the active track marker creates a mark. This mark serves the tractor driver as an orientation aid.

On the next run, the tractor driver drives over the centre of the mark.



It is possible to set:

- the length of the track marker,
- the working intensity of the track marker, depending on the type of soil.



To pass obstacles the active track marker can be folded and unfolded on the field.

Before the track marker is folded in, actuate the obstacle key on the control terminal, so that the tramline counter of the seed metering wheel tramline control does not advance.

If the track marker still encounters hard obstacles, the overload protection system of the hydraulic system responds and the hydraulic cylinder gives way to the obstacle and thus protects the track marker against damage.

After passing the obstacle the tractor driver unfolds the track marker again by actuating the control unit.

5.16 Tramlines

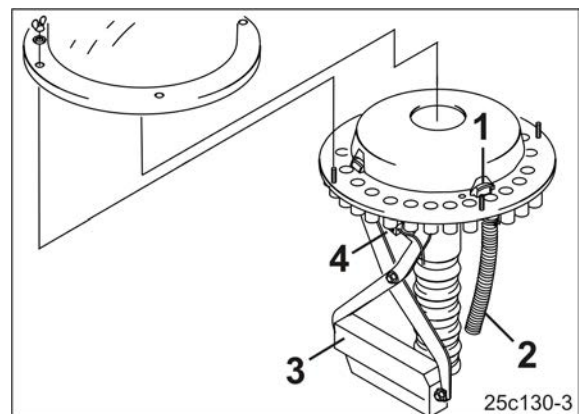
Tramlines can be created on the field. Tramlines are seed-free tracks for fertilising and plant care implement used later.



When creating the tramlines

- shutters (1) in the distributor head block the seed supply to the seed tubes (2) of the tramline coulters.
- the tramline coulters do not deposit any seeds on the ground.

The shutters are actuated by an electric motor (3).



When creating a tramline

- the control terminal shows the value "0".
- the seeding quantity is reduced. The minimum quantity can be adjusted.
- a sensor (4) checks if the shutter (1) is working correctly. In event of faulty position, a warning message is issued.

Factory settings

The seeding line tubes on the distributor head and coulter are marked, being

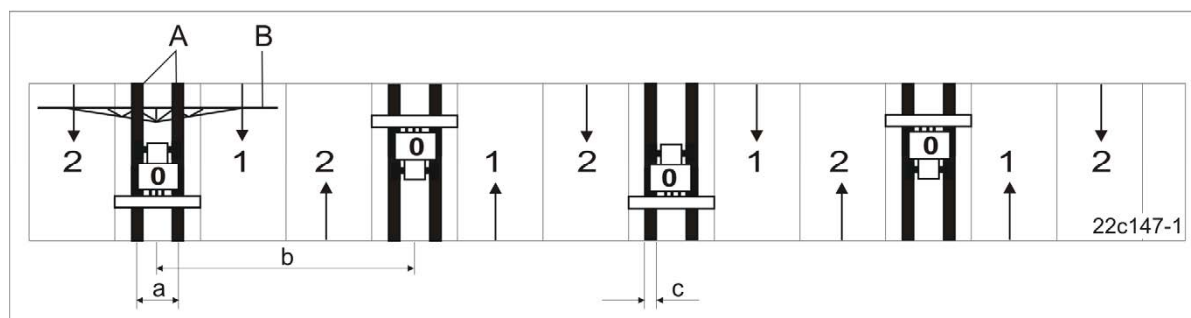
- with red cable ties with active shutters in the distributor head.
- with blue cable ties with passive shutters in the distributor head.

If not ordered otherwise, the track width of the tramline is set to 1.80 m.

Layout and function

The tramline control allows the creation of tramlines (A) at pre-selected intervals on the field.

The tramline spacing (b) corresponds to the working width of the cultivating machines (B), e.g. fertiliser spread and/or sprayer, which are used on sown fields.



To set the different tramline spacings (b), appropriate tramline rhythms must be set.

The figure shows tramline rhythm 3. During work, the field passes are numbered consecutively (tramline counter) and displayed on the control terminal.

In tramline rhythm 3, the tramline counter shows the field runs in the following order: 2-0-1-2-0-1-2-0-1...etc.

When creating a tramline, the tramline counter displays the tramline value "0".

The required tramline rhythm (see following table) is derived from the required tramline spacing (b) and the working width of the seed drill. Further tramline rhythms can be obtained in the control terminal.

The track width (a) of the tramline corresponds to that of the cultivating tractor and is adjustable.

The track width (c) of the tramline increases with an increasing number of tramline coulters fitted next to each other.

Tramline rhythm	Seed drill working width 6.0 m
	Tramline spacing (working width of the fertiliser spreader and field sprayer)
1	12 m
3	18 m
4	24 m
5	30 m
6	36 m
7	42 m
2 plus	24 m
6 plus	36 m

5.16.1 Examples for creating tramlines

The creation of tramlines is shown using various examples:

A = Working width of the seed drill

B = Tramline spacing
(= working width of fertiliser spreader/field sprayer)

C = Tramline rhythm (entry in control terminal)

D = Tramline counter (the field runs are numbered consecutively during work and displayed on the control terminal).

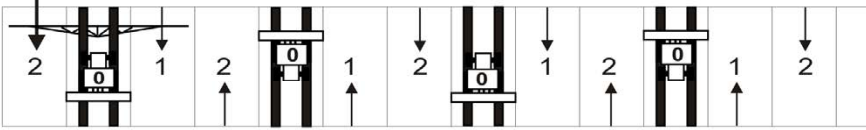

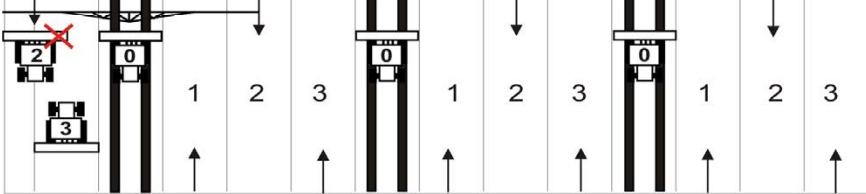
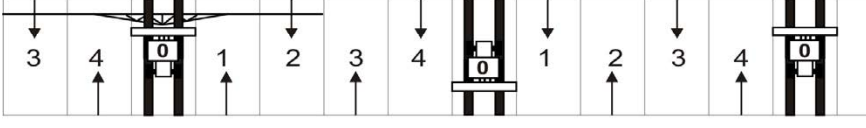
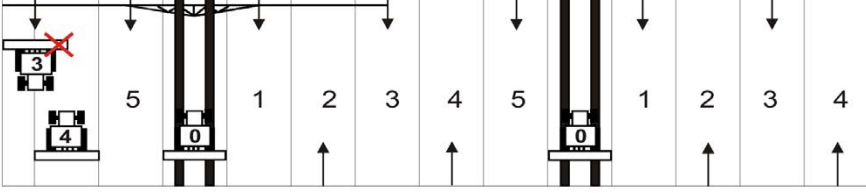
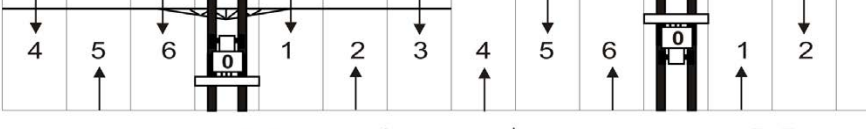
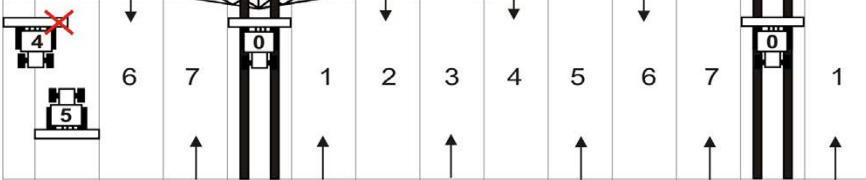
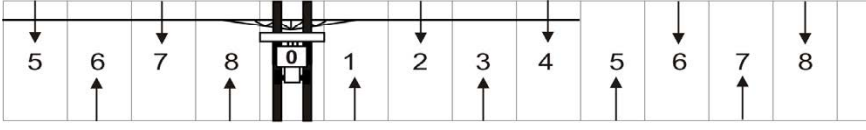
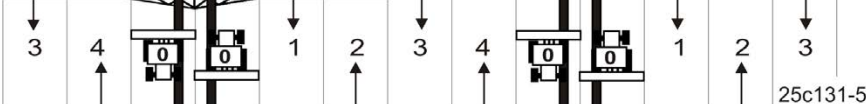
Carry out inputs and displays using the control terminal operating manual.

Example:

Working width – seed drill: 6 m

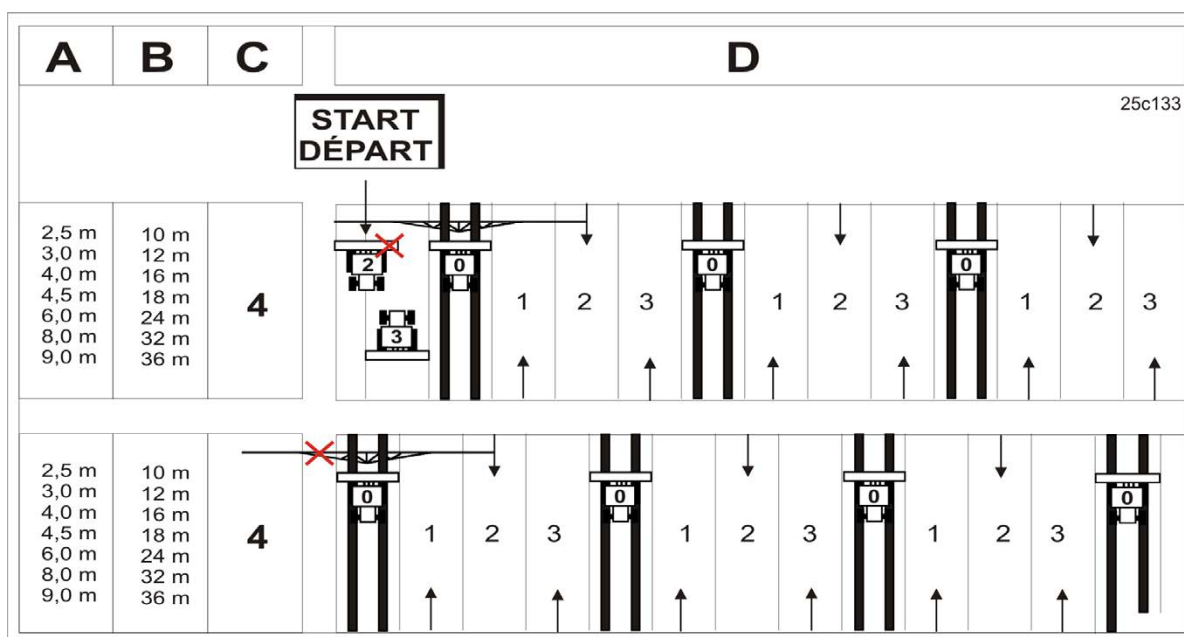
Working width – fertiliser spreader or field sprayer: 18 m = 18 m tramline spacing

1. In the adjacent table, look for the following:
in column A the seed drill's working width (6 m) and
in column B the tramline spacing (18 m).
2. On the same line in column "C", read the tramline rhythm (tramline rhythm 3) and set this on the control terminal¹⁾.
3. On the same line in column "D" under the inscription "START", take the reading of the tramline counter for the first field run (tramline counter 2) and enter this figure on the control terminal.
Input this value directly before commencing the first field run.

A	B	C	D
START DÉPART			
3,0 m 4,0 m 6,0 m 8,0 m 9,0 m	9 m 12 m 18 m 24 m 27 m	3	
2,5 m 3,0 m 4,0 m 4,5 m 6,0 m 8,0 m 9,0 m	10 m 12 m 16 m 18 m 24 m 32 m 36 m	2	
2,5 m 3,0 m 4,0 m 4,5 m 6,0 m 8,0 m 9,0 m	10 m 12 m 16 m 18 m 24 m 32 m 36 m	4	
3,0 m 4,0 m 6,0 m 8,0 m	15 m 20 m 30 m 40 m	5	
2,5 m 3,0 m 3,5 m 4,0 m 4,5 m 6,0 m 8,0 m	15 m 18 m 21 m 24 m 27 m 36 m 48 m	6	
3,00 m 3,43 m 4,00 m 6,00 m	21 m 24 m 28 m 42 m	7	
2,5 m 3,0 m 3,5 m 4,0 m	20 m 24 m 28 m 32 m	8	
3,0 m 4,0 m	27 m 36 m	9	
2,5 m 3,0 m 3,5 m 4,0 m 4,5 m 6,0 m 8,0 m	15 m 18 m 21 m 24 m 27 m 36 m 48 m	21	

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5.16.2 Tramline rhythm 4, 6 and 8



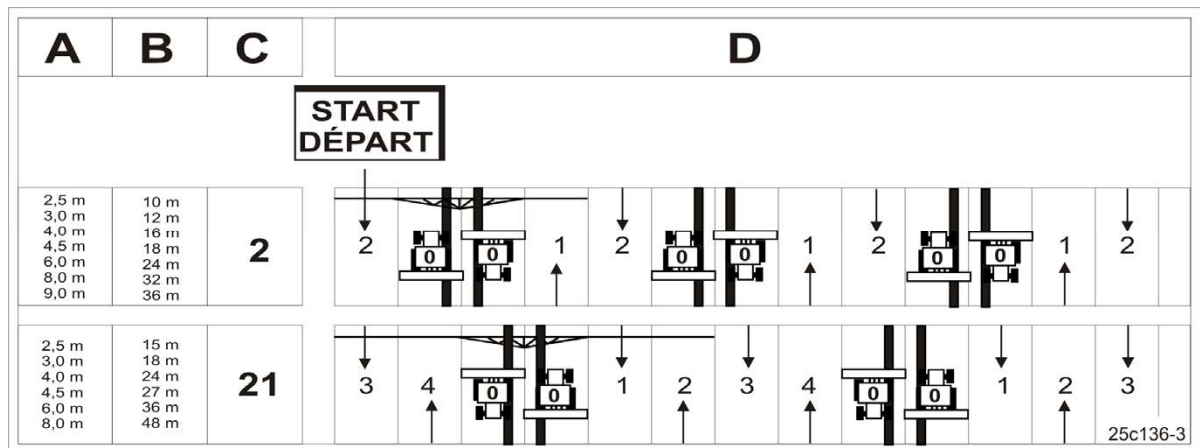
The tramline rhythm 4, 6 and 8 require the work with the seed drill at half width (partial width) during the first field run.

Another option for creating tramlines with tramline rhythms 4, 6 and 8 is to begin with the full working width and the creation of a tramline.

In this case, the cultivating implement works with half the working width during the first field pass.

After the first field run, restore the full implement working width.

5.16.3 Tramline control 2 and 21



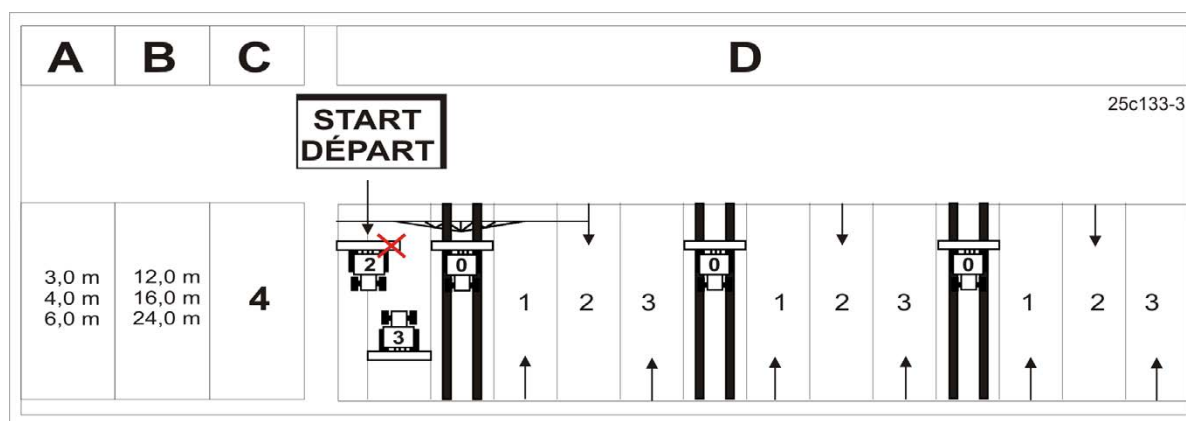
When tramlines are created with the tramline rhythm 2 plus and 21 plus, tramlines are created during the trips forward and backward over the field.

The seed feed to the tramline coulters may be interrupted by the implement with

- tramline rhythm 2 plus, only the right side of the implement.
- tramline rhythm 21 only on the left side of the implement.

Work always starts on the right hand edge of the field.

5.16.4 One-sided switching



During the first field run, e.g., tramline rhythm 4 requires the work of the seed drill at half working width. The coulter on the left side of the implement does not place seeds in the soil.

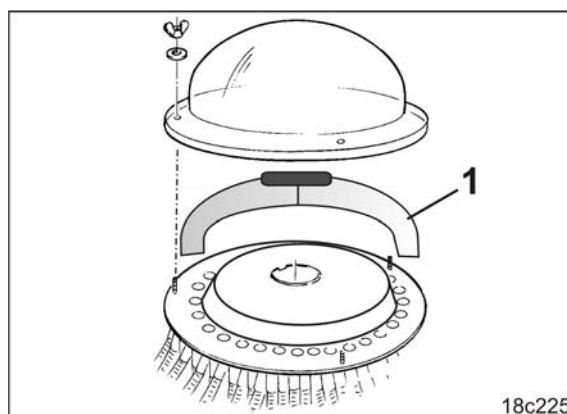
On implements with one distributor head, the coulters are shut off on one side of the implement by closing the required outputs in the distributor head with an insert (see section 5.16.4.1).



5.16.4.1 One-sided switching for implements with one distributor head

The installation of an insert (1) in the distributor head closes the outlets to the coulters on one side of the implement.

Halve the spread rate on the control terminal when working with half the working width.



5.16.5 Tramline marker (optional)

When tramlines are being created, the track discs lower automatically and mark the tramline that has just been created. Due to this the tramlines already become visible before the seed has been sown.

The following are adjustable

- the track width of the tramline,
- the working intensity of the track discs.

The track discs are raised if no tramline is created.



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5.17 Work floodlights (optional)

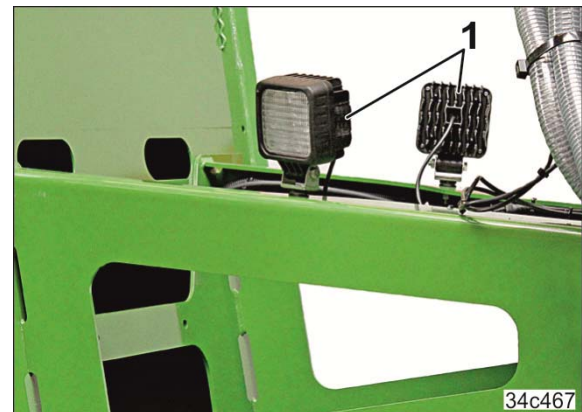
The work floodlights (1) at the rear of the combination make the worked area visible even in the dark.

The floodlights are switched on and off on the operating unit of the control terminal.



WARNING

When transporting the implement on public roads, switch off the work floodlights.



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5.18 Camera system (option)

The camera (1) at the rear of the combination makes the area hidden by the hopper visible. The large monitor in the tractor cab shows the work of the implement tools and the worked area.

The monitor is characterised by the clear, glare-free representation of multiple camera images simultaneously.

The camera system can be quickly mounted and dismantled with simple plug connections.



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6 Commissioning

This section contains information

- on initial operation of your implement.
- on how to check if you may mount/couple the implement on/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 information for the operator" 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.

6.1 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 mount or hitch the implement onto the tractor.
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 identification 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.

6.1.1 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

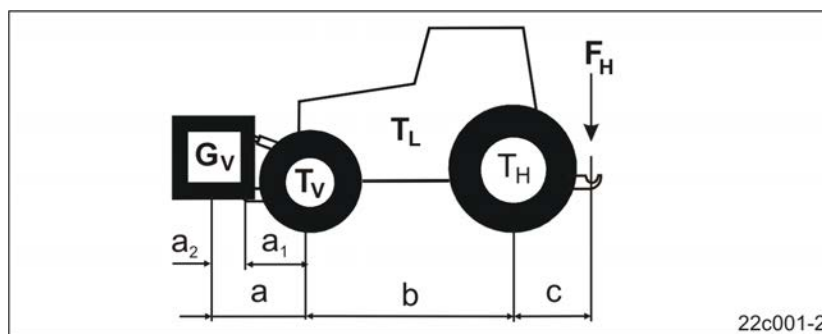
- tractor empty weight,
- ballast weight and
- total weight of the attached implement or noseweight of the hitched implement.



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.

6.1.1.1 Data required for the calculation (hitched implement)



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 technical data of the front weight, or weigh
F_H	[kg]	Maximum drawbar load	See section "Road transport data", page 54
a	[m]	Distance between the centre of gravity of the front machine mounting 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

6.1.1.2 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 6.1.1.7).

6.1.1.3 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 6.1.1.7).

6.1.1.4 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 6.1.1.7).

6.1.1.5 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 6.1.1.7).

6.1.1.6 Tractor 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 6.1.1.7).

6.1.1.7 Table

	Actual value according to calculation	Approved value according to tractor instruction 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 tyre loads in the tractor registration papers.
- The actually calculated values must be less than or equal to (≤) the permissible values!


WARNING

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

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

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



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

6.1.2 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 noseweight for the noseweight actually in question.
- that the axle loads and weights of the tractor altered by the drawbar load are within the approved limits. If necessary, weigh them.
- that the static actual rear axle load of the tractor does not exceed the permissible rear axle load.
- that the permissible total weight of the tractor is complied with.
- that the approved load capacities of the tractor tyres are not exceeded.

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



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 lowering of raised, unsecured parts of the implement.
- 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 implement.

It is forbidden to make any intervention in the implement, such as installation, adjustment, troubleshooting, cleaning, maintenance and repairs

- while the implement is being driven.
- as long as the tractor engine is running with the PTO shaft/hydraulic system connected.
- if the ignition key is inserted in the tractor and the tractor engine can be started unintentionally with the tractor PTO shaft/hydraulic system connected.
- if the tractor and implement have not each been prevented from unintentionally rolling away by applying their parking brakes and/or securing them with wheel chocks.
- if moving parts are not blocked against unintentional movement.

Coming in to contact with unsecured components poses a hazard during this kind of work in particular.

1. Park the tractor and the implement on solid, level ground only.
2. Lower any raised, unsecured implement/raised, unsecured implement parts.

→ This is how to prevent unintentional falling:

3. Switch off the tractor PTO shaft.
4. Shut down the tractor engine.
5. Remove the ignition key.
6. Apply the tractor parking brake.
7. Secure the implement with wheel chocks against unintentionally rolling away.

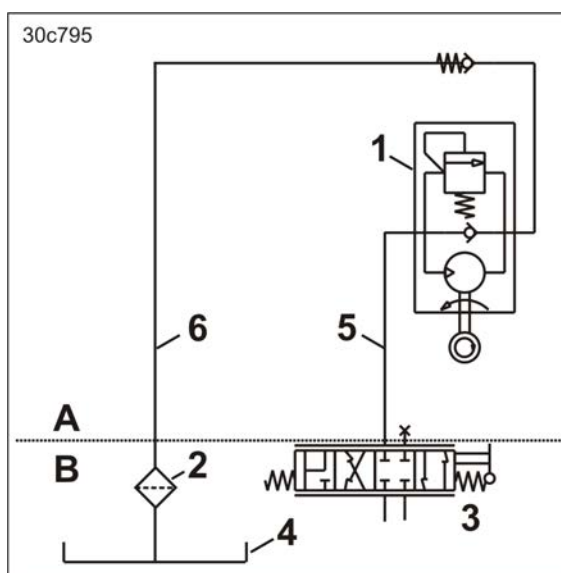
6.3 Installation regulations for the hydraulic fan drive connection

The back pressure of 10 bar must not be exceeded. The installation regulations therefore have to be complied with when connecting the hydraulic fan connection.

- Connect the hydraulic coupling of the pressure hose (5) to a single-acting or double-acting tractor control unit with priority.
- Connect the large hydraulic coupling of the return line (6) only to an unpressurized tractor connection with direct access to the hydraulic fluid tank (4).
To prevent the back pressure from exceeding 10 bar, do not connect the return line to a tractor control unit.
- For retro-installation of the tractor return line, use only piping with ND 16, e.g. 20 id. x 2.0 mm with a short return path to the hydraulic fluid tank.

For operation of all hydraulic functions, the tractor hydraulic pump output should be at least 80 l/min. at 150 bar.

- (A) On the implement face
(B) On the tractor face
- (1) Hydraulic fan motor
 $N_{max.} = 4000 \text{ rpm.}$
 - (2) Filter
 - (3) Single-acting or double-acting control unit
with priority
 - (4) Hydraulic fluid tank
 - (5) Feed line:
pressure line with priority (approx. 38 l/min)
(marking: 1x red)
 - (6) Return line:
pressureless line with "large" plug coupling
(marking: 2x red)



The hydraulic fluid must not overheat.

High oil flow rates in conjunction with small oil tanks encourage rapid heating-up of the hydraulic fluid. The capacity of the tractor's oil tank (4) should be at least twice the oil flow rate. If the hydraulic fluid heats up excessively, the installation of an oil cooler is required at a specialist workshop.

7 Coupling and uncoupling the implement



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



CAUTION

Switching off the control terminal

- before road transport.
- before adjustment, maintenance and repair work.

Risk of accident due to unintended movements of the metering unit or other implement components caused by radar pulses.



WARNING

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

When coupling or uncoupling the implement, secure the tractor and implement against unintentional start-up and rolling before entering the danger area between the tractor and implement.



WARNING

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

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

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



DANGER

Risk of contusions when coupling and uncoupling the implement!

With the implement extended, lower the rear frame or coulter completely before uncoupling the implement from the tractor. When the coulters are raised, the tensioned crosspiece may move rapidly upwards when the tractor's lower link is released.



DANGER

If the tractor has been separated from the implement, always secure with

- **2 wheel chocks.**
- **the parking brake (if fitted) of the implement.**

The implement may only be uncoupled from the tractor after being secured using 2 wheel chocks and with the implement parking brake applied (if fitted).



WARNING

Risk of contusions, cuts, dragging, catching or knocks from insufficient tractor brake power.

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

If the implement does not possess its own brake system:

- Then the actual tractor weight must be greater than or equal to (\geq) the actual weight of the connected implement.
Some countries have regulations that deviate. In Russia, for example, the weight of the tractor must be twice as high as that of the implement connected.
- the maximum permissible forward speed is 25 km/h. In Russia, for example, the maximum permissible forward speed is 10 km/h.

Before taking into operation, check the officially approved registration of your implement without service brake system.

7.1 Dual-circuit pneumatic service brake system



DANGER

Before uncoupling the implement from the tractor, secure it with wheel chocks and apply the implement's parking brake.

Only remove the wheel chocks once the implement has been coupled up to the tractor. Then release the implement's parking brake.



WARNING

If the implement, when uncoupled from the tractor, has full compressed air tanks, the compressed air from the air tanks acts on the implement brakes and the wheels are blocked.

The compressed air in the compressed air tank and hence the braking force will drop continuously until there is a complete brake failure, if the compressed air tank is not refilled. This is why the implement may only be parked using wheel chocks and with the implement's parking brake applied.

The implement brakes are released immediately with a full compressed air tank when the supply line (red) is connected to the tractor. For this reason, the implement must be connected to the lower links of the tractor and the parking brake of the implement and tractor must be applied before the supply line (red) is connected. Only then can the wheel chocks be removed.



Compliance with the maintenance intervals is essential for the correct function of the brake system.

Coupling and uncoupling the implement

The dual-circuit pneumatic service brake system has:

- one supply line (1) with coupling head (red)
- one brake line (2) with coupling head (yellow).



Once the implement has been properly coupled, the implement service braking system responds when the tractor brake pedal and the tractor parking brake are applied.

If the implement is uncoupled with a full compressed air tank, the service brake system (emergency brake) automatically controls the implement.

The air slowly but continuously escapes from the compressed air tank. This causes the braking force to drop, leading to complete brake failure unless the compressed air tank is refilled. This is why the implement may only be parked with the implement's parking brake applied and using 2 wheel chocks. Only release the parking brake again after the implement has been coupled to the tractor.

If the implement is uncoupled with an empty compressed air tank, the implement has no braking effect if the supply line (red) is released.

If the implement is coupled up with a full compressed air tank, the emergency brake is released as soon as the supply line (red) is connected. The brake is not released if the implement's parking brake is applied.

To make sure that the implement is braked after uncoupling, apply the implement's parking brake beforehand. Only release the parking brake once the implement has been coupled up to the tractor.

7.1.1 Coupling the brake and supply lines



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 hose couplings are clean.
 - the sealing rings of the hose couplings form a proper seal.
- Replace damaged sealing rings immediately.
- 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.

Couple the coupling head of the brake line (yellow) first, followed by the coupling head of the supply line (red).

The operating brake of the implement moves out of the brake position immediately the red coupling head has been coupled.

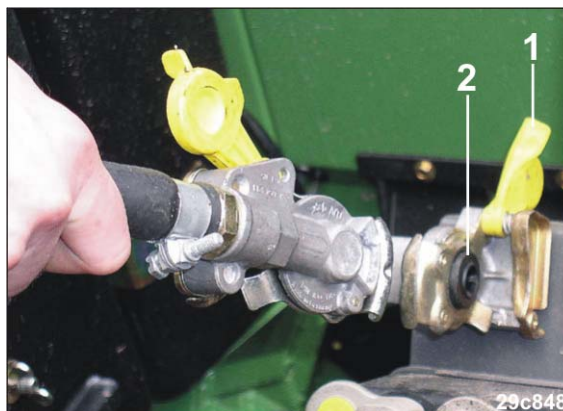


DANGER

Check the routing of the brake line. The brake line must not chafe on foreign parts.

Coupling and uncoupling the implement

1. Check if the implement is secured with 2 wheel chocks and the implement parking brake is applied.
2. Couple the implement to the tractor.
3. Apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
4. Open the covers (1) of the coupling heads on the tractor.
5. Check the sealing rings of the coupling heads for damage and cleanliness.
6. Clean dirty seals, replace damaged seals.
7. Properly fasten the coupling head of the brake line (yellow) in the coupling marked in yellow (2) on the tractor.
8. Fasten the coupling head of the supply line (red) in the coupling marked red on the tractor, in accordance with regulations.
9. Apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
10. Remove wheel chocks.
11. Release the implement parking brake.



7.1.2 Uncoupling the supply and brake line

**DANGER**

Before uncoupling the implement from the tractor, secure it with 2 wheel chocks and apply the implements parking brake.

**WARNING**

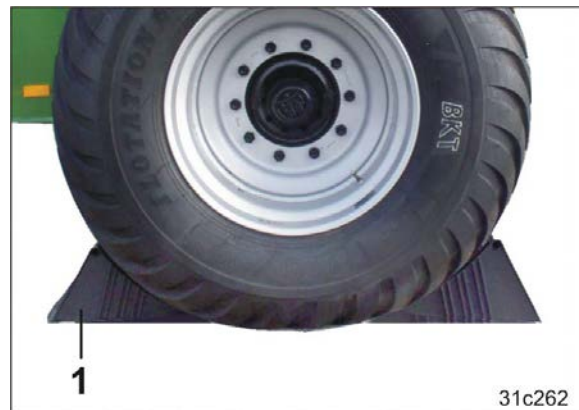
Risk of crushing, cutting, being caught or drawn in, or impact through the accidentally rolling implement, if the service brake is released.

Uncouple the coupling head of the supply line (red) first, followed by the coupling head of the brake line (yellow).

When the supply line (red) is uncoupled from the tractor, the service brake of the implement moves to braking position if the pressure tank is full. If the pressure tank is empty, the implement is unbraked when the supply line (red) is disconnected.

Apply the parking brake of the implement before uncoupling the implement from the tractor and do not release it until after the implement has been coupled to the tractor.

1. Secure the implement with wheel chocks (1).



2. Apply the implement's parking brake.



Coupling and uncoupling the implement

3. Release the coupling head (1) of the supply line (red).
4. Release the coupling head (2) of the brake line (yellow).
5. Fasten the hose couplings in the idle coupling points.
6. Close the tractor hose couplings caps.



7.1.3 Control element of the dual-circuit pneumatic service braking system



DANGER

Never release the service brake of the uncoupled implement on sloping ground.

If the implement is uncoupled from the tractor, the implement is braked

- via the parking brake.
- via the service brake (emergency brake), if the compressed air tank is filled. The service brake can be released, e.g., for manoeuvring in a workshop.

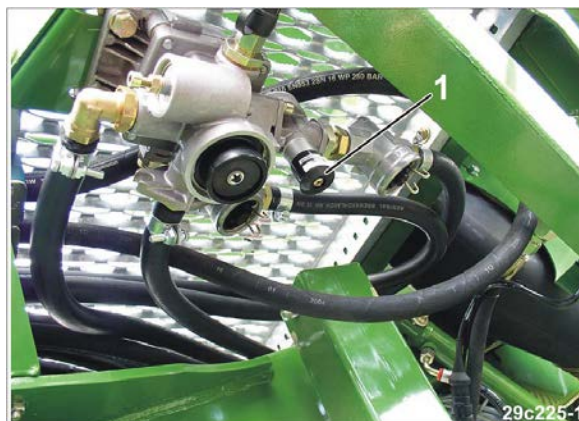
Releasing the service brake:
Press the button (1).

Engaging the service brake:
Pull out the button (1).



The braking effect when actuating the button (1) can only be achieved when the compressed air tank is filled. If the compressed air tank is empty, the implement is not braked.

With a full compressed air tank, the brakes are released immediately when the supply line (red) is connected to the tractor. The button (1) can then no longer be moved.



7.2 Hydraulic service brake system



WARNING

If the hydraulic socket is decoupled from the tractor, the service brake system of the implement has no braking effect.

Before uncoupling the implement from the tractor, secure it with 2 wheel chocks and apply the implements parking brake.

After decoupling the implement, first fill the hydro accumulator. Then remove the wheel chocks and release the implement parking brake.



Compliance with the maintenance intervals is essential for the correct function of the brake system.

The hydraulic service brake system is equipped with a hydraulic socket for coupling to the tractor.



7.2.1 Coupling the hydraulic service brake system



Only couple clean hydraulic sockets and connectors.



DANGER

Check the routing of the brake line. The brake line must not chafe on foreign parts.



The braking effect of the implement service brake system is not immediately available after coupling the hydraulic socket to the tractor.

After the implement has been coupled up and the hydraulic socket has been connected, actuate the tractor brake pedal for at least 10 seconds with the engine running. This fills the hydro accumulator.

When the hydro accumulator is full, the implement's service brake system responds when the tractor brake pedal or the tractor parking brake is applied.

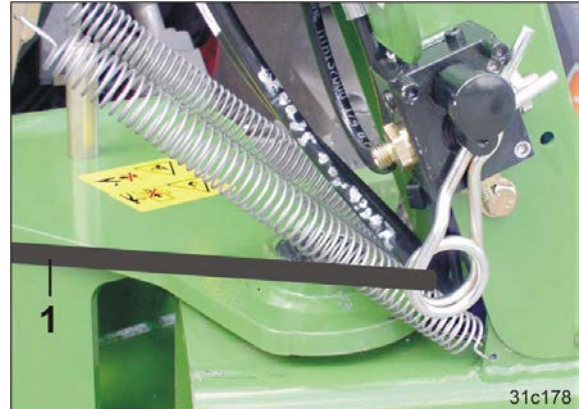
1. Check if the implement is secured with 2 wheel chocks and the implement parking brake is applied.
2. Couple the implement to the tractor.
3. Apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
4. Clean the hydraulic socket and the tractor-side hydraulic connector.
5. Couple the hydraulic socket to the tractor.



29c734

6. Connect the break-away valve to the tractor using the cable (1).

If the implement is separated from the tractor due to an accident, the implement will be braked.



7. Fill the hydro reservoir (1) before moving off.
 - 7.1 Release the tractor parking brake.
 - 7.2 Press the brake pedal of the tractor for at least 10 seconds with the engine running.

This fills the hydro accumulator.



To ensure the full effectiveness of the service brake system, fill the hydro reservoir before moving off.



8. Apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
9. Remove wheel chocks.
10. Release the implement parking brake.

7.2.2 Uncoupling the hydraulic service brake system



WARNING

If the hydraulic socket is decoupled from the tractor, the service brake system of the implement has no braking effect.

Before uncoupling the implement from the tractor, secure it with 2 wheel chocks and apply the implements parking brake.

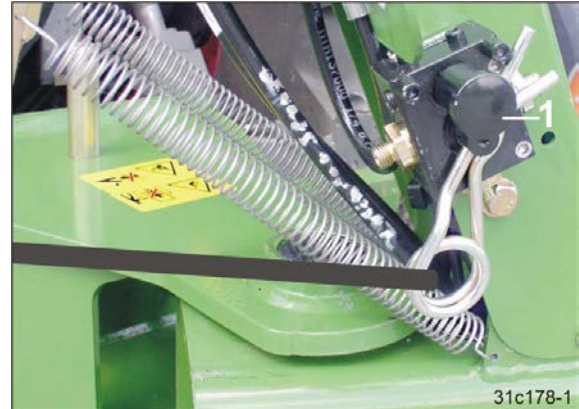
1. Secure the implement with wheel chocks (1).



2. Apply the implement's parking brake.



3. Empty the hydro accumulator.
 - 3.1 Actuate the valve (1).
This empties the hydro reservoir.



4. Uncouple the hydraulic socket.



The hydraulic socket cannot be coupled to the tractor again unless the hydro accumulator is empty.

5. Push the hydraulic socket onto the protective cap (1).
The protective cap is secured to the hose cabinet and protects the socket against soiling in the parking position.



7.3 Hydraulic hose lines



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 depressurized on both the implement and tractor sides.

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

7.3.1 Coupling the hydraulic hose lines



WARNING

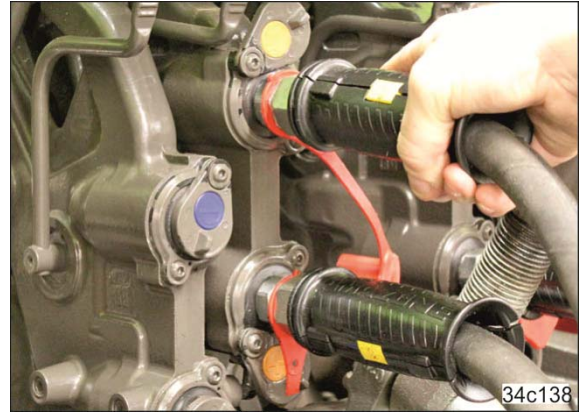
Risk of being crushed, cut, caught, drawn in or struck due to faulty hydraulic functions when the hydraulic hose lines are connected incorrectly!

When coupling the hydraulic hose lines, observe the coloured markings with the code number or code letters on the hydraulic plugs.



- Check the compatibility of the hydraulic fluids before connecting the implement to the hydraulic system of your 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. Minor oil contamination with particles can cause a failure of the hydraulic system.
- Push the hydraulic push-fit connector(s) into the hydraulic sockets until the hydraulic connector(s) perceivably lock(s).
- Check the coupling points of the hydraulic hose lines for proper fit and sealing.

1. Put all tractor control units in float position.
2. Clean the coupling part.
3. Connect the hydraulic lines to the tractor control units
(markings of the hydraulic lines, see section 4.4).



7.3.2 Uncoupling the hydraulic hose lines

1. Put all tractor control units in float position.
2. Release the hydraulic connectors from the hydraulic sockets.
3. Hang the hydraulic hose lines in the hose cabinet.



7.4 Coupling the implement to the tractor



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.



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 contusions, cutting, catching, drawing in and knocks when the implement unexpectedly releases from the tractor!

- Use the intended equipment to connect the tractor and the implement in the proper way.
- When coupling the implement to the tractor's three-point hydraulic system, ensure that the tractor mount categories of the tractor and the implement are the same.

**DANGER**

The lower link of the tractor must not have any lateral play so that the implement always runs centrically behind the tractor and does not knock back and forth!

**CAUTION**

Only establish the implement connections once the tractor and implement have been coupled, the tractor engine is switched off, the tractor parking brake is applied and the ignition key is removed!

**WARNING**

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

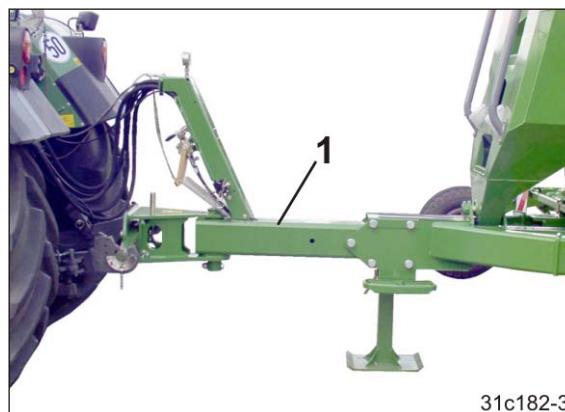
During coupling, check the course of the power lines. The supply lines

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

Coupling and uncoupling the implement

When turning the combination, the tractor tyre must not collide with the implement frame.

The implement is equipped with a telescopic drawbar tube (1). The distance between the lower link and the implement frame can be adjusted (see section 12.3.2).



Coupling the implement:

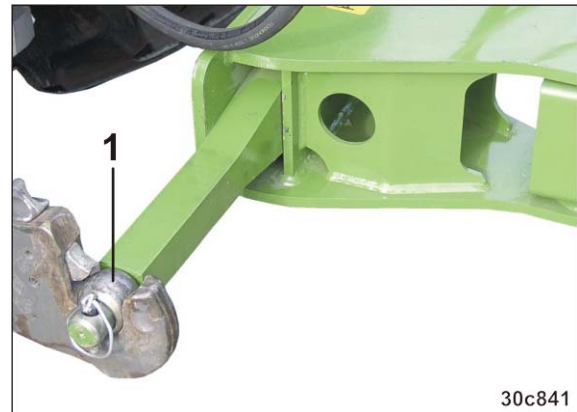
1. Secure the implement with wheel chocks (1).



2. Apply the implement's parking brake.



3. Equip the tensioned crosspiece with ball sleeves (1) with a catch shell.
 - o Tensioned crosspiece category (see the section "Technical Data").
 - o Design of the ball sleeve with catch shell (see the tractor operating manual).
4. Secure each ball sleeve with a lynch pin.

**CAUTION**

Danger of getting crushed in the area of the moving tensioned crosspiece.

5. Open the tractor lower link securing device, i.e. it must be ready for coupling.
6. Align the tractor lower link hooks so that they are flush with the pivot points of the implement.
7. Instruct persons to get out of the danger area between the tractor and the implement.
8. Drive the tractor in reverse up to the implement so that the lower link hooks of the tractor automatically pick up the ball sleeves of the implement.
→ The lower link hooks lock automatically.
9. Check whether the securing device of the tractor's lower link locking system is closed and secured (see tractor's operating manual).
10. Secure the tractor against unintentional start-up and unintentional rolling.
11. Connect the service brake system (see section 7.1.1 or section 7.2.1).
12. Connect all hydraulic supply lines on the tractor (see section 4.4, page 46).

Clean the hydraulic couplings before connecting them to the tractor. Minor oil contamination with particles can cause a failure of the hydraulic system.

During work, the tractor control unit (yellow) is actuated more frequently than all other control units. Assign the connections of the control unit (yellow) to an easily accessible control unit in the tractor cab.

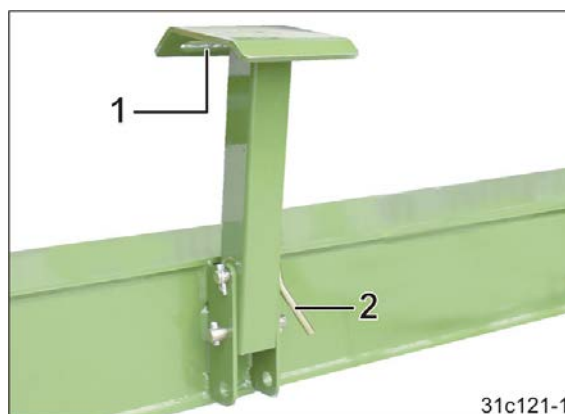
Coupling and uncoupling the implement

13. Raise the tractor's lower link until the stand comes free of the ground.
14. Remove the pin (1).



31c120-1

15. Fold up the jack (1), peg it with the pin (2) and secure with the linch pin.



31c121-1



In several countries, it is necessary to fasten the implement to the tractor with an additional safety chain with spring safety hooks. The safety chain prevents uncontrolled rolling of the implement if the drawbar were released from the tractor during an accident.

Implement approved for Germany are always equipped with an emergency brake function and do not require a safety chain.

16. Push the wheel chocks into the holders and secure.
17. Release the parking brake of the implement.
18. Before moving off:
 - o Check the function of the braking and lighting system.
 - o Carry out a brake test.



31c267

7.5 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 surface with solid ground.

Before decoupling the implement from the tractor

- completely fold the implement booms in or out.
- completely lower the rear frame, with implement booms folded out.

The implement is tail-heavy with the coulter frame half-raised. Once the tractor's lower link has been detached, the implement tilts over the axle onto the coulters and the tensioned crosspiece whips upwards.



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

1. Empty the hopper.
2. Align the tractor and implement straight and park the empty implement on a level parking surface on solid ground.
3. Fold the implement completely in or out.
4. Fold down the jack, peg it with the pin (1) and secure it with a linch pin.



31c120-1

Coupling and uncoupling the implement

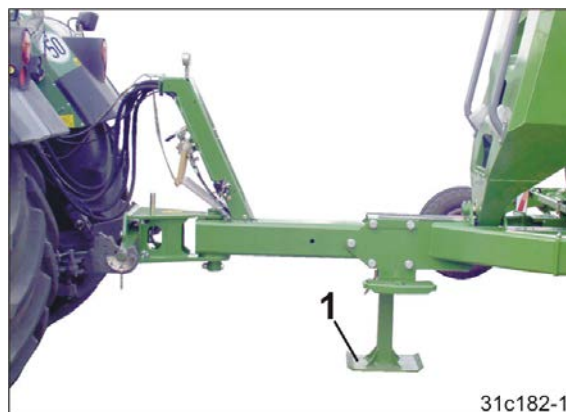
5. Set the implement down on the jack (1).



WARNING

Set the implement down on a horizontal, firm base only!

The stand must not sink into the ground. If the stand does sink into the ground, it will be impossible to recouple the implement.



31c182-1

6. Switch off the control terminal.
7. Disengage the tractor PTO shaft, engage the tractor parking brake, shut off the tractor engine and remove the ignition key.
8. Secure the implement with 2 wheel chocks (1).



31c262

9. Apply the implement's parking brake.



34c891-1

10. Uncouple the supply lines, starting with the service brake system
 - o Dual-circuit pneumatic service braking system:
see section Uncoupling the supply and brake line, page 107
 - o Hydraulic service brake system:
see section Uncoupling the hydraulic service brake system, page 112

11. Hang the supply lines in the hose cabinet.



12. Open the securing device of the tractor's lower link (see tractor operating manual).

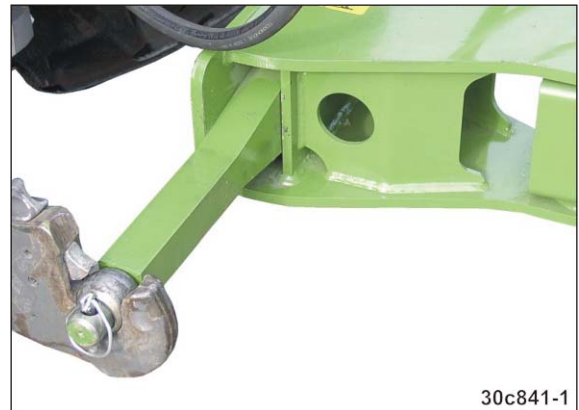
13. Uncouple the tractor's lower link.

14. Pull the tractor forwards.



DANGER

**While pulling the tractor forwards
no personnel are allowed to be
between the tractor and the
implement!**



7.6 Blower fan drive from on-board hydraulic system



DANGER

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

Only couple/uncouple the hydraulic pump and tractor PTO shaft if the tractor and implement are secured to prevent unintentional start-up and rolling.



WARNING

**Hot components can cause burns.
Wear gloves.**

7.6.1 Connecting the PTO shaft-driven hydraulic pump

1. Couple the implement to the tractor.
2. Switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
3. Wait until the tractor PTO shaft comes to a complete stop.
4. Clean and grease off the tractor PTO shaft.
5. Connect the hydraulic pump (1) to the tractor's PTO shaft.
The hydraulic pump is equipped with a QC fastener. Make sure that the QC fastener has engaged correctly.
6. Set the adjustment segments (2) so that the buffers rest against them.



7.6.2 Disconnecting the PTO shaft-driven hydraulic pump

1. Park the implement on a level surface on solid ground.
2. Switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.

Wait until the PTO shaft stops moving.

3. Remove the hydraulic pump (1) from the tractor's PTO shaft and insert it in the mount.



8 Settings



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 implement against unintentional start-up and rolling before working on the implement.



WARNING

Before working on the implement (unless otherwise specified)

- Couple the implement to the tractor.
- Unfold the implement booms.
- Switch off the tractor PTO shaft.
- Wait until the tractor PTO shaft comes to a complete stop.
- Apply the tractor's parking brake.
- Switch off the tractor's engine.
- Remove the ignition key.



CAUTION

Switching off the control terminal

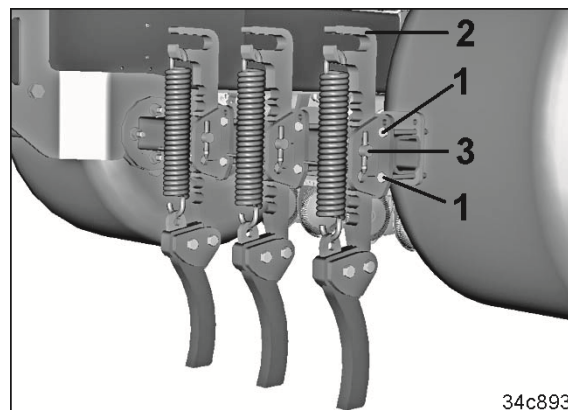
- before road transport.
- before adjustment, maintenance and repair work.

Risk of accident due to unintended movements of the metering unit or other implement components caused by radar pulses.

8.1 Tractor wheel mark eradicator (optional)

8.1.1 Moving the tractor wheel mark eradicator into working position (on the field)

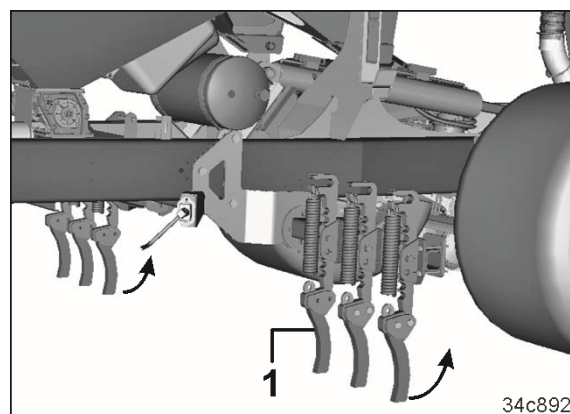
1. Move the wheel mark eradicators into working position.
 - 1.1 Set the valve lever to position "B" (see section "Tractor wheel mark eradicator", page 81).
 - 1.2 Actuate the tractor control unit (yellow).
 - The tractor wheel mark eradicators are swivelled from transport into working position.
2. Adjust the wheel mark eradicator horizontally.
 - 2.1 Loosen the bolts (1), move the wheel mark eradicator horizontally and retighten the bolts (1).
3. Adjust the wheel mark eradicator vertically.
 - 3.1 Hold the wheel mark eradicator by the handle (2).
 - 3.2 Remove the pin (3).
 - 3.3 Adjust the wheel mark eradicator vertically, peg with the pin and secure with the supplied linch pin.



34c893

8.1.2 Moving the tractor wheel mark eradicators into transport position

1. Swivel the wheel mark eradicators into transport position.
 - 1.1 Set the valve lever to position "B" (see section "Tractor wheel mark eradicator", page 81).
 - 1.2 Keep actuating the control unit (yellow) until the tractor wheel mark eradicators (1) have moved into transport position.
 - 1.3 Swivel the valve lever to position "A" (transport position) and leave it in this position during transport.



34c892



WARNING

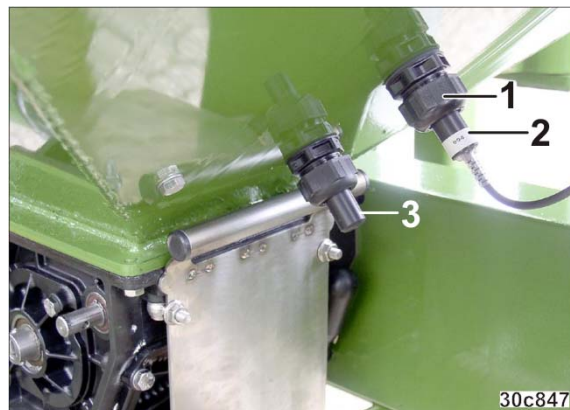
Move the valve lever to position A before road transport (see section "Tractor wheel mark eradicator", page 81), to prevent accidental swivelling of the tractor wheel mark eradicators.

8.2 Repositioning the fill level sensor



Reposition the fill level sensor only when the hopper is empty. The flow of seed prevents the attachment of the sensor.

1. Check whether the hopper is empty.
2. Loosen the nut (1).
3. Insert the level sensor (2) to the stop in the intended connection and secure it into place.
4. Fit the dummy (3) into the vacated opening and secure it into place.



8.3 Installing/removing the metering roller



CAUTION

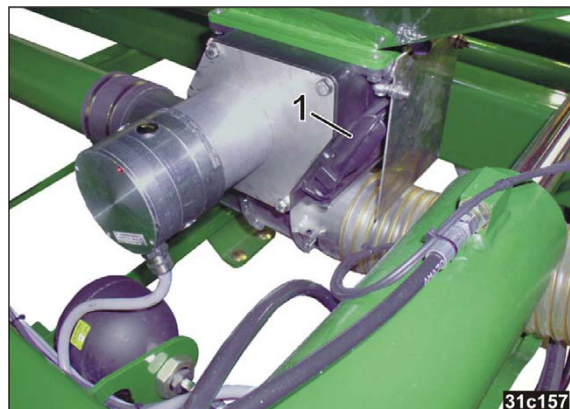
Switch off the control terminal!

Risk of accident due to unintended movements of the metering unit or other implement components caused by radar pulses.

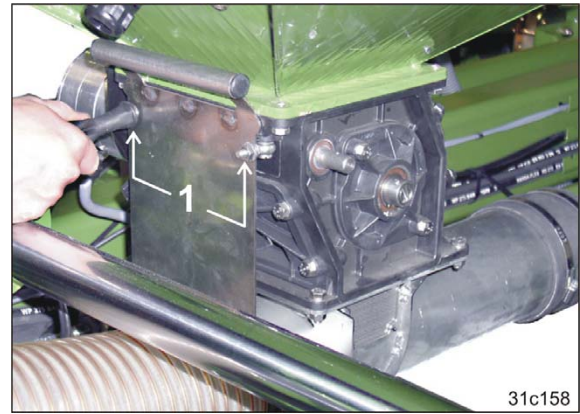


The metering roller can be replaced more easily if the hopper is empty.

1. Close the opening between the hopper and the metering unit (only necessary when the hopper is full).
 - 1.1 Remove the key (1) from the holder.

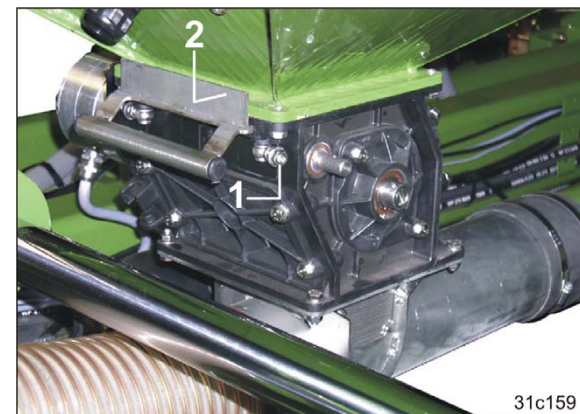


- 1.2 Loosen two nuts (1) but do not remove.



- 1.2 Swivel the bolts (1).

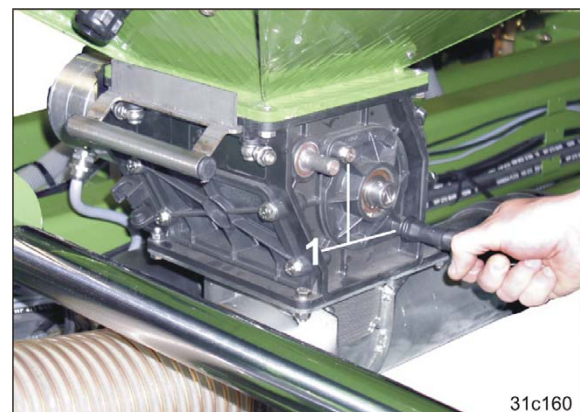
- 1.3 Push the shutter (2) into the metering unit up to the stop.



2. Insert the calibration trough (1) into the bracket beneath the metering unit.

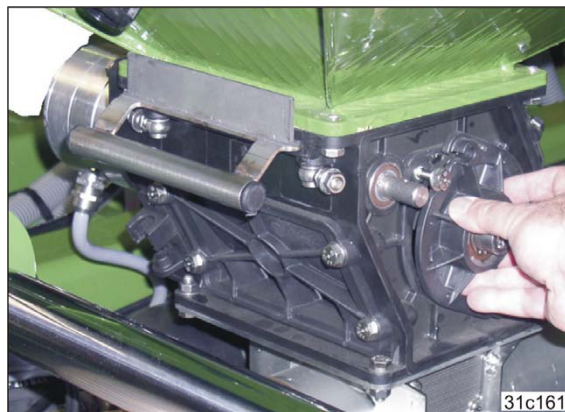


3. Loosen the two bolts (1) but do not remove.

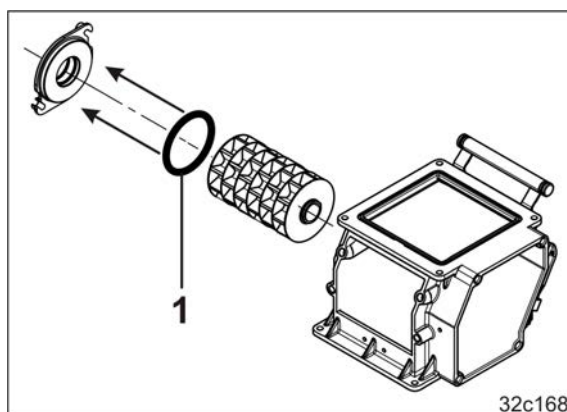


Settings

4. Turn the bearing cover and pull it off.

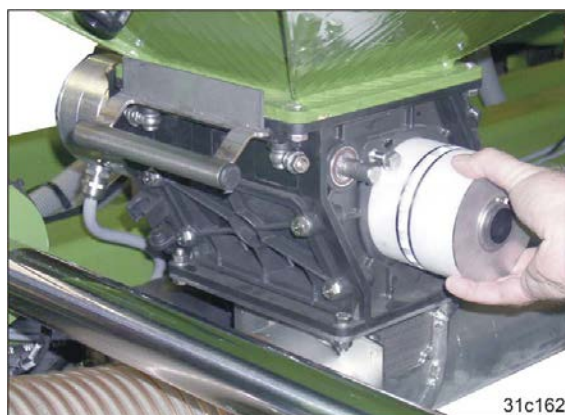


- !** The bearing cover is equipped with an O-ring (1). Replace the O-ring if it is damaged.

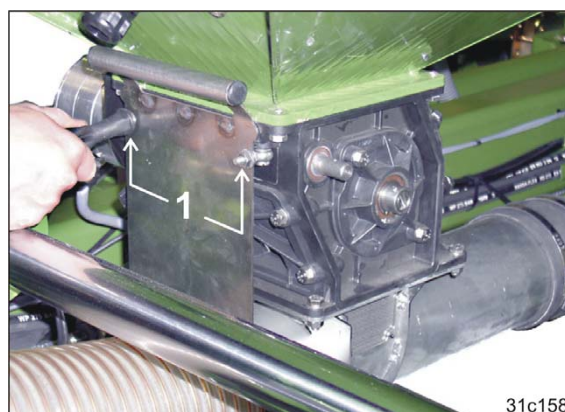


5. Remove the metering roller.

- i** Install the metering roller in the reverse sequence.



- !** Secure the shutter in the parking position.
Close the sealing flap/sealing plate.

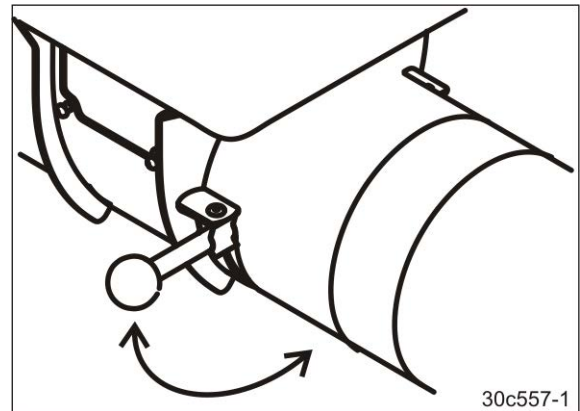


8.4 Setting the seeding rate with a calibration test

1. The seed hopper must be filled at least half full (correspondingly less with fine seeds).
2. Insert the calibration trough (1) into the bracket beneath the metering unit.



3. Open the rotary shutter of the injector sluice.



4. Repeat the calibration test on the basis of the control terminal operating manual until the desired spread rate is achieved.
5. Remove the calibration trough.
6. Close the rotary shutter of the injector sluice.
7. Fasten the calibration trough to the transport bracket and secure it with a lynch pin.

8.5 Setting the blower fan speed



DANGER

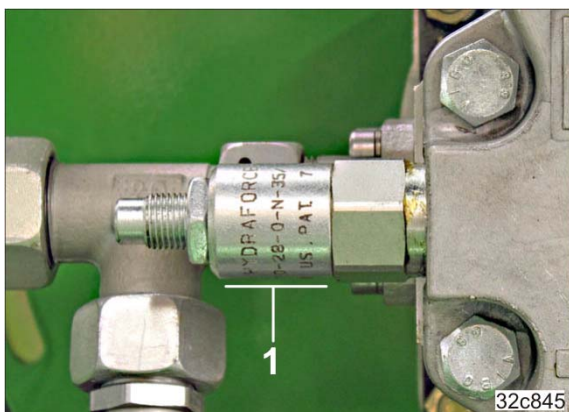
Do not exceed the maximum blower fan speed of 4000 rpm.



The blower fan speed changes until the hydraulic fluid has reached its operating temperature.

During initial operation, correct the blower fan speed until the operating temperature is reached.

If the blower fan is put back into operation after a longer standstill period, the set blower fan speed is only reached once the hydraulic fluid has heated up to operating temperature.



The pressure relief valve of the blower fan can be installed in two versions

- with round outer contour (1),
- with hexagonal outer contour (1).

The setting of the blower fan speed depends on the version of the pressure relief valve.

8.5.1 Setting the blower fan speed via the flow control valve of the tractor

1. Perform the basic setting of the pressure relief valve according to section 8.5.4.1 or section 8.5.5.1 (depending on the version of the pressure relief valve).
2. Read the required blower fan speed from the speed table (see section 5.9).
3. Set the blower fan speed via the flow control valve of the tractor.

8.5.2 Setting the blower fan speed on tractors without flow control valve

1. Read the required blower fan speed from the speed table (see section 5.9).
2. Set the blower fan speed according to section 8.5.4.2 or section 8.5.5.2 (depending on the version of the pressure relief valve).

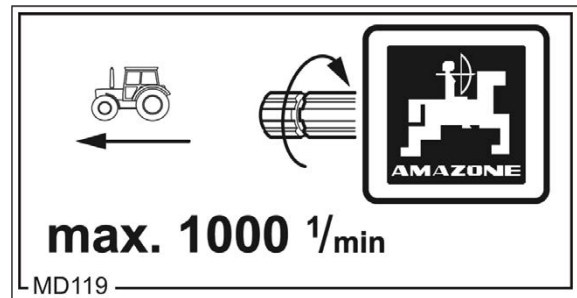
8.5.3 Set the blower fan speed when connecting the hydraulic motor to the tractor PTO shaft

1. Perform the basic setting of the pressure relief valve according to section 8.5.4.1 or section 8.5.5.1 (depending on the version of the pressure relief valve).
2. Read the required blower fan speed from the speed table (see section 5.9).
3. Set the blower fan speed during operation by adjusting the tractor PTO shaft speed.

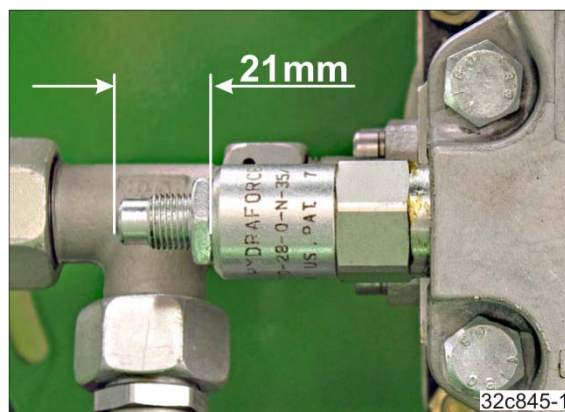
Do not exceed the following speeds:

- max. 1000 rpm PTO shaft speed,
- max. 4000 rpm blower fan speed.

The blower fan speed is displayed on the control terminal.



8.5.4 Pressure relief valve with round outer contour



8.5.4.1 Basic setting of the pressure relief valve

1. Loosen the lock nut.
2. Adjust the pressure relief valve to the factory-set dimension "21 mm".
 - 2.1. Turn the bolt with the hexagon socket wrench (1) accordingly.
3. Tighten the lock nut.

8.5.4.2 Blower fan speed setting

Only perform this setting when the blower fan hydraulic motor

- is connected to the tractor hydraulic system and the tractor is equipped with a flow control valve.
- is connected to the tractor PTO shaft.

1. Loosen the lock nut.
2. Use the hexagon socket wrench (1) to set the nominal blower fan speed on the pressure relief valve. Do not exceed the maximum blower fan speed of 4000 rpm.

Blower fan speed

Turning to the right: increases the nominal blower fan speed.

Turning to the left: reduces the nominal blower fan speed.

3. Tighten the lock nut.

8.5.5 Pressure relief valve with hexagonal outer contour



8.5.5.1 Basic setting of the pressure relief valve

1. Loosen the lock nut.
2. Fully screw in the bolt with the hexagon socket wrench (1) (to the right).
3. Using a hexagon socket wrench, unscrew the screw back by 3 turns.
4. Tighten the lock nut.

8.5.5.2 Blower fan speed setting

Only perform this setting when the blower fan hydraulic motor

- is connected to the tractor hydraulic system and the tractor is equipped with a flow control valve.
- is connected to the tractor PTO shaft.

1. Loosen the lock nut.
2. Use the hexagon socket wrench (1) to set the nominal blower fan speed on the pressure relief valve. Do not exceed the maximum blower fan speed of 4000 rpm.

Blower fan speed

Turning to the right: increases the nominal blower fan speed

Turning to the left: reduces the nominal blower fan speed.

3. Tighten the lock nut.

8.5.6 Setting the blower fan speed monitoring

The control terminal monitors the blower fan speed.

Set the nominal blower fan speed on the control terminal.

If the actual speed deviates by more than 10 % from the target speed, an acoustic signal is issued along with a screen display. It is possible to set the percentage deviation.

8.6 coulter pressure



WARNING

Direct people out of the danger area.

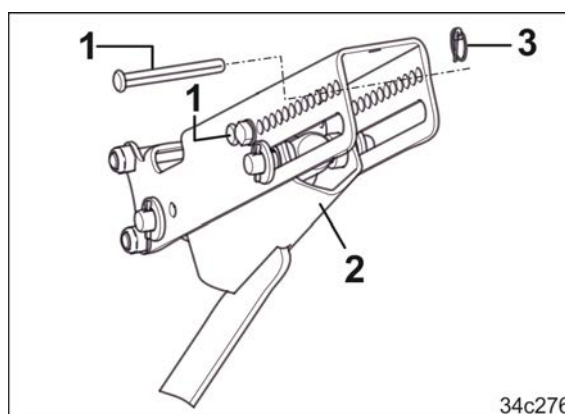
The hydraulic cylinder of the coulter and exact following harrow pressure adjustment are actuated at the same time.



This setting influences the planting depth of the seed.

Check the placement depth of the seed after each adjustment.

1. Pre-selection of the coulter pressure adjustment on the control terminal and actuation of the control unit (green)
 - 1.1 Extend and retract the piston rod of the hydraulic cylinder consecutively.
 - 1.2 Insert one pin respectively (1) below and above the stop (2) into the adjusting segment and secure with linch pins (3).



Each of the holes is identified with a number.

The greater the number of holes into which the pin is inserted, the greater the coulter pressure.

8.6.1 Adjusting the coulter discs



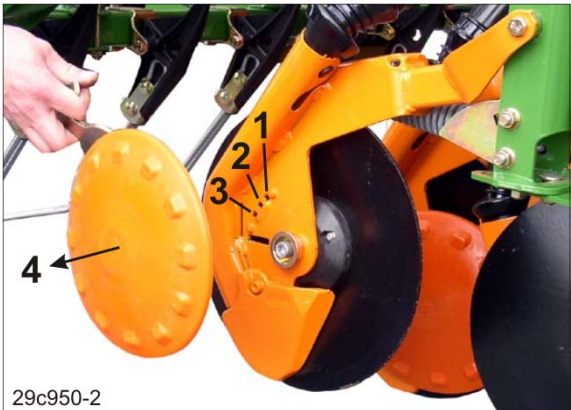
This setting influences the placement depth of the seed.
Check the placement depth of the seed after each adjustment.

If the desired placement depth cannot be achieved by adjusting the coulter pressure, adjust all coulter discs equally (see table below).

Each coulter disc can be engaged in three positions on the coulter or be removed from the coulter.

Then reset the placement depth by adjusting the coulter pressure.

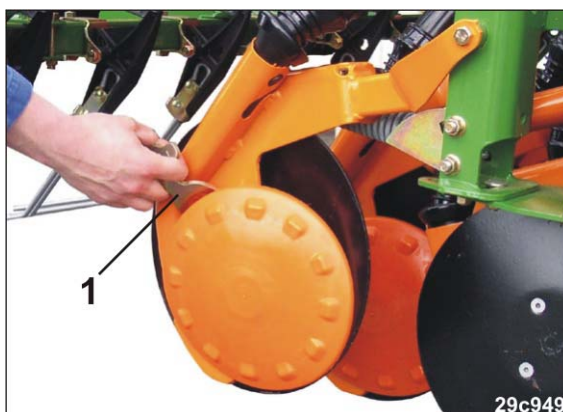
Engagement position	Delivery
1	Shallow ↓
2	
3	
Seeding without depth limiting disc	Deep



29c950-2

Engagement position 1 to 3

1. Engage the handle (1) in one of the 3 positions.



Seeding without coulters disc

1. Turn the lever beyond the engagement catch (1) and remove the coulters disc from the coulter.



Mounting the coulter disc



Attachment of the coulter disc with

- the marking "K" on the short coulter
- the marking "L" on the long coulter.

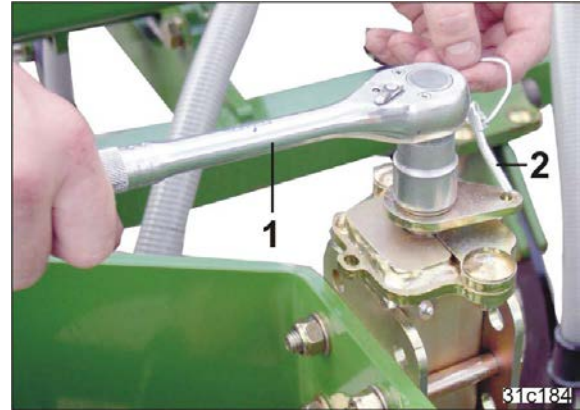
1. Press the coulter disc against the catch on the coulter from below.
The shoulder must grip in the slot.
2. Pull the lever to the rear and upwards beyond the notches.
A light knock on the centre of the disc helps to latch it into position.

8.7 Exact following harrow

8.7.1 Exact following harrow tine position

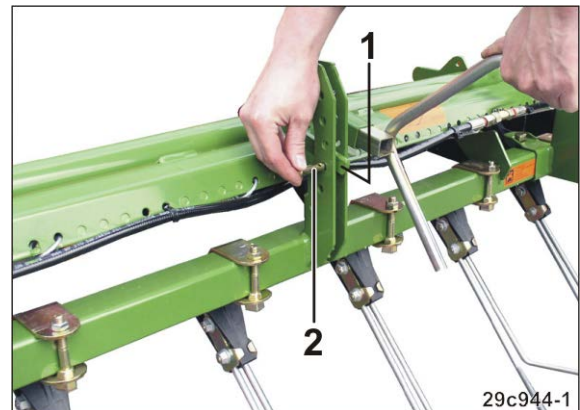
The harrow tines are adjusted (see section "Exact following harrow tine position", page 79) by turning the crank (1) equally on all adjuster segments.

1. Move the implement on the field to the working position.
2. Switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
3. Carry out the same settings on all adjuster segments.
4. Secure each adjustment by inserting a linch pin (2).



8.7.2 Mechanical exact following harrow pressure adjustment

1. Tension the lever (1).
2. Insert the pin (2) into a hole below the lever.
3. Relieve the lever.
4. Secure the bolt with a safety splint.
5. Apply the same setting to all adjuster segments.



8.7.3 Hydraulic exact following harrow pressure adjustment



WARNING

Direct people out of the danger area.

The hydraulic cylinder of the coulter and exact following harrow pressure adjustment are actuated at the same time.

1. Pre-selection of the exact following harrow pressure adjustment on the control terminal and actuation of the control unit (green).
 - 1.1 Extend and retract the piston rod of the hydraulic cylinder for the exact following harrow pressure adjustment consecutively.
 - 1.1 Insert one pin respectively (1) below and above the stop (2) into the adjusting segment and secure with linch pins.



8.8 Roller harrow

8.8.1 Adjusting and testing the roller pressure on the ground

1. Move the implement on the field to the working position.
2. The roller pressure is adjusted by turning the crank (1) evenly on all adjuster segments.

Direction of rotation anti-clockwise:
roller pressure to the soil increases

Direction of rotation clockwise:
roller pressure to the soil decreases



3. Secure the adjustment by inserting a linch pin (1).

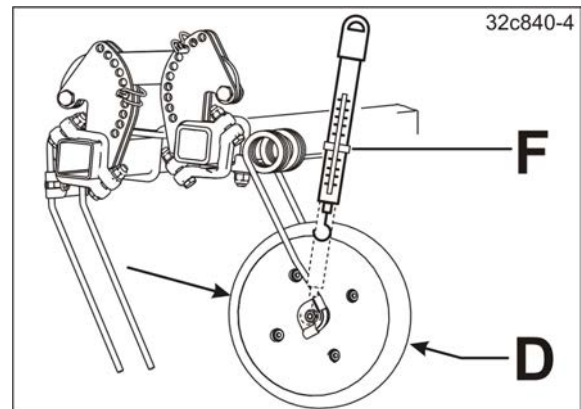


4. Check the roller contact pressure on the soil, e.g. with a spring scale.

Roller diameter D [mm]	Roller contact pressure F [kg]
330 mm	max. 35 kg



The roller contact pressure "F" must not exceed the table value.
Higher pressures than indicated may damage the roller harrow.

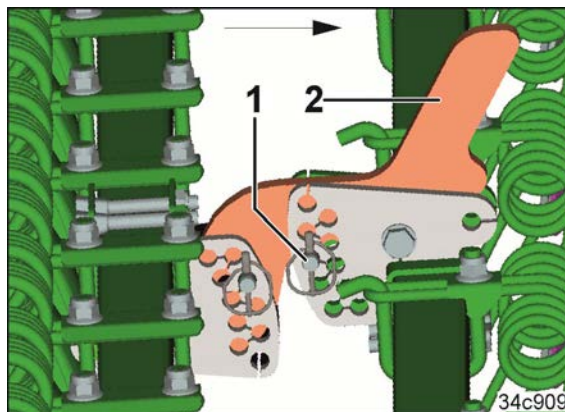


8.8.2 Adjusting the inclination of the harrow tines

1. Raise the coulter frame until the harrow tines are directly above the ground, but not touching it.
2. Switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
3. Change the contact angle of the tines to the ground by repositioning the pin (1)
 - o in all segments
 - o in the same hole.

Ensure that the pin (1) is positioned below the carrier arm (2) in the adjuster segment.

The deeper the pin (1) is inserted in the adjuster segment, the flatter the contact angle.

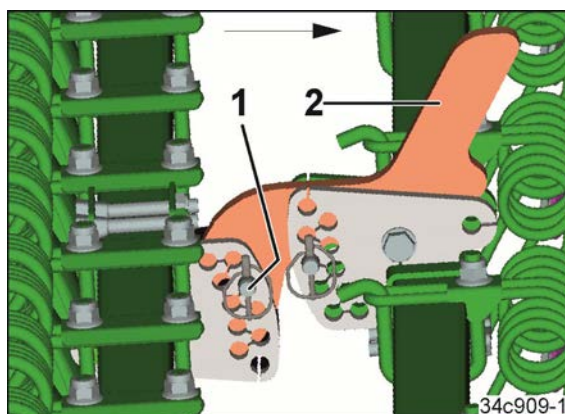


4. After each repositioning, secure the bolt with a linch pin.

8.8.3 Adjusting the working depth of the harrow tines

1. Raise the coulter frame until the harrow tines are directly above the ground, but not touching it.
2. Switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
3. Hold the harrow tine beam by the carrier handle (2).
4. Set the working depth of the harrow tines by positioning the carrying arm with the pin (1)
 - o in all segments
 - o in the same hole.

The lower the pin (1) is inserted in the adjuster segment, the greater the working depth.



5. After each repositioning, secure the bolt with a linch pin.

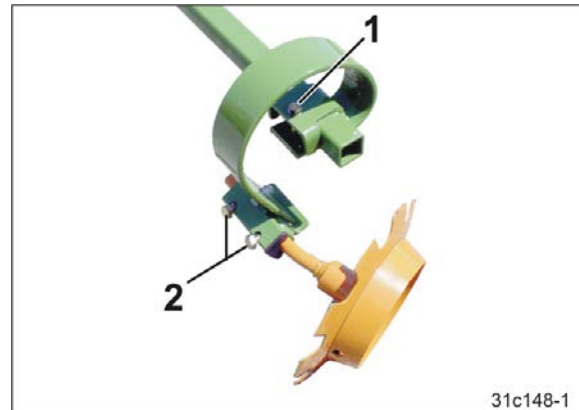
8.9 Track marker



DANGER

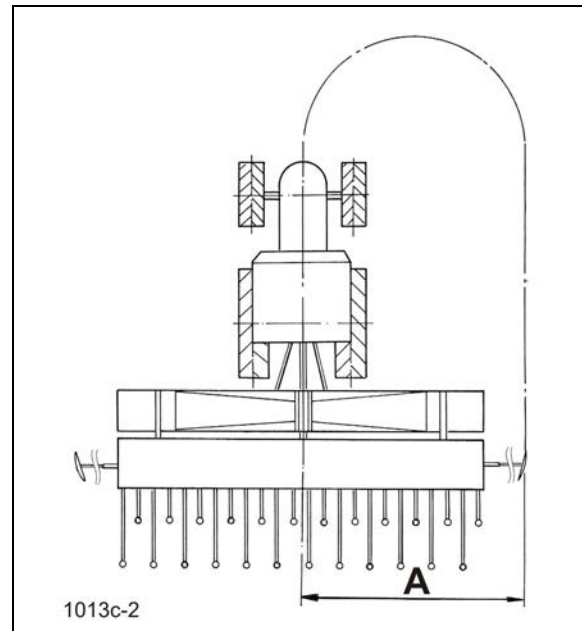
It is forbidden to stand in the swivelling area of the track marker!

1. Direct people out of the danger area.
2. Unfold one track marker.
The simultaneous unfolding of both track markers (if possible) makes the adjustment work easier.
3. Drive several metres in the field.
4. Disengage the tractor PTO shaft, engage the tractor parking brake, shut off the tractor engine and remove the ignition key.
5. Loosen the bolt (1).
6. Set the track marker length to distance "A" (see table below).
7. Tighten the bolt (1) firmly.
8. Loosen both bolts (2).
9. Turn the track marker disc to adjust the working intensity of the track marker so that it runs roughly parallel to the direction of travel on light soil and is more attuned to grip on heavier soil.
10. Tighten the bolts (2) firmly.



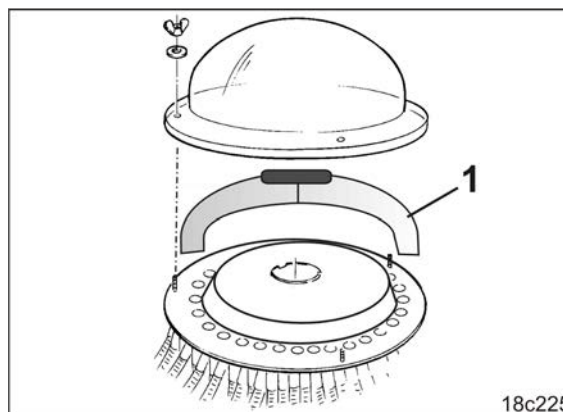
The table values indicate the distance "A" from the centre of the implement to the contact area of the track marker disc.

	Distance "A"
Citan 6000	6.0 m



8.10 Activate one-sided switching for implements with one distributor head

1. Mount the insert (1) in the distributor head in such a manner that the seed supply to the coulters on one side of the implement is interrupted.
2. Halve the spread rate.

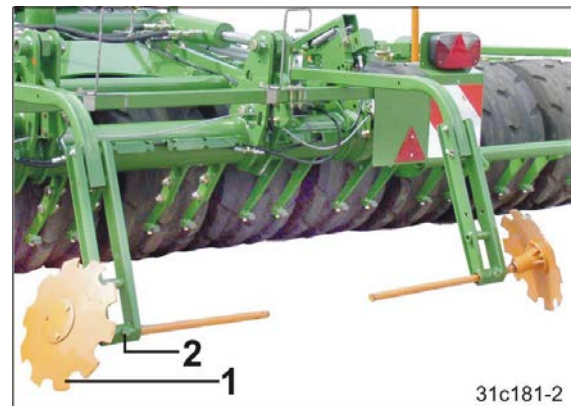


Remove the insert and set the full seeding rate before commencing the next run.

8.11 Moving the tramline marker into working/transport position

8.11.1 Move the tramline marker to working position

1. Swivel the track disc carriers manually into working position.
2. Position the track disc carrier with a pin (1) and secure with a linch pin.
3. Set the track discs (1) so that they mark the tramline.
4. Turn the track marker disc to adjust the working intensity of the track discs so that they run roughly parallel to the direction of travel on light soil and are more "on grip" on heavier soil.
5. Tighten all bolts (2) firmly.



When working with tramline rhythms 2 and 21, move only one of the two track discs into transport position.

The track width of the cultivating tractor is then scored on the field on a back and forth run.

8.11.2 Move the tramline markers to the transport position

1. Swivel the track disc carriers manually into transport position.
2. Peg the track disc carrier into transport position using a pin (1) and secure it using a linch pin.



9 Transportation



DANGER

The transportation of implements hitched to the tractor that are wider than 3.0 m on public roads and routes is not approved in Germany and many other countries.



34c262-1

9.1 Set the implement to road transport mode

1. Switch off the blower fan
2. Switch off the work floodlightsPage 91
3. Fold in the track marker.
4. Move the tractor wheel mark eradicators into transport positionPage 127
5. Empty the hopper.
The brake system is designed for driving with an empty hopper only.....Page 175
6. Close the roller tarpaulin.....Page 167
7. Press the STOP button (where required).
Pressing the STOP button before raising the rear frame prevents the tramline counter from advancing by one digit.
8. Raise the track disc of the tramline marker
9. Fold the sections (folding implements only).
10. Switch off the control terminal.
11. Move the tramline markers to the transport positionPage 145
12. Check the lighting system and warning signs for function and cleanliness.....Page 49
13. Disable the tractor control units (see tractor operating manual)
14. Read and observe section 9.2 with the legal guidelines and the safety instructions before and during transportation
15. Switch on the warning beacon (if present) prior to starting a journey and check operation.

9.2 Legal regulations and safety

When driving on public streets or roads, the tractor and implement must comply with the national road traffic regulations (in Germany the StVZO and the StVO) and the accident prevention regulations (in Germany those of the industrial injury mutual insurance organisation).

The vehicle keeper and driver are responsible for compliance with the statutory stipulations.

Furthermore, the instructions in this section have to be complied with prior to starting and during travel.

Transport width/Transport height

In Germany and in many other countries, the maximum transport width of the implement combination mounted on the tractor is approved up to 3.0 m.

The max. transport height of 4.0 m must not be exceeded!

Revolving beacon

As an option, the implement can be equipped with a revolving beacon. The revolving beacon is subject to approval in Germany.

In several countries, the implement and/or the tractor must be equipped with a revolving beacon. Ask your local importer/implement dealer about the legal guidelines.

Max. permissible speed

Depending on the equipment of the implement, the permitted maximum speed¹⁾ is as follows:

- 25 km/h
 - Implements with hydraulic. service brake system²
 - Implements without service brake system.
Note: in Russia and many other countries, the permissible top speed is 10 km/h.
- 40 km/h
 - Implements with dual-circuit pneumatic service braking system.

In particular on bad roads and ways driving may only take place at a considerably lower speed than specified!

- 1) The maximum permissible speed for hitched working implements varies depending on the road traffic regulations in each individual country. Ask your local importer/implement dealer about the maximum permitted speed for road travel.
- 2) Not permitted in Germany and some other EU countries



Before driving off, read the section "Safety information for the operator" and check:

- that the permissible weight is not exceeded.
- that the supply lines are connected correctly.
- the lighting system for damage, function and cleanliness.
- the warning signs and yellow reflectors must be clean and undamaged.
- the brake and hydraulic system for visible damage.
- that the brake system functions properly.
- that the tractor parking brake is completely released.



WARNING

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

On foldable implements, check that the transport locks are properly fastened.



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 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.
- Before road transport, fasten the side locking of the tractor lower link, so that the connected or coupled implement cannot swing back and forth.



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 support loads of the tractor.



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.

**DANGER**

Switch off the control terminal during road transport.

**DANGER**

Lock the tractor control units during road transport!



In bends take into consideration the wide sweep and the centrifugal mass of the implement.

10 Use of the implement

When using the implement, observe

- the section "Warning symbols and other labels on the implement"
- the section "Safety information for the operator".

Observing these sections is important for your safety.



WARNING

Only actuate the tractor control units from inside the tractor cabin!



WARNING

Risk of contusions, drawing in and catching during implement operation without the intended protective equipment!

Only ever start up the implement when the protective equipment is fully installed.



WARNING

Risk of cutting and impact injuries when swivelling the implement booms and the track marker up and down!

Instruct persons to maintain a minimum clearance of 20 m to the implement before you actuate the tractor control unit to swivel out the implement booms and the track marker.



WARNING

Risk of crushing, entrapment and entanglement and risk of foreign objects being hurled out in the danger area of the driven PTO shaft.

- Instruct everyone to leave the danger area of the implement before switching on the tractor PTO shaft.
- Stay at a safe distance from the driven PTO shaft.
- Before switching on, check to ensure that the tractor PTO shaft speed corresponds to the permitted drive speed of the implement.
- Shut down the tractor engine immediately in case of danger.

**WARNING**

Risk of slipping, stumbling or falling due to unauthorised climbing onto the implement and/or carrying persons on the implement, the loading board or the steps.

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

Instruct persons away from the walking and loading board before starting the implement.

**WARNING**

It is forbidden to transport the implement on public roads with full hopper without service brake system!

Fill the hopper of your implement without service brake system only immediately before starting work on the field.



Check the seed placement on all coulters when commencing work and then at regular intervals and, at the latest, when refilling the hopper.

Impurities in the seed delivery sections can cause erroneous seeding.

10.1 Work commencement

1. Move the implement to the working position at the start of the field
 - 1.1 Instruct any persons in the area to stand at a minimum distance of 20 m from the implement.



- 1.2 Unfold the implement booms (if fitted) Page 155
- 1.3 Completely lower the coulter frame.
Pull the implement forward slightly, immediately before lowering the tools into the ground.
- 1.3 Lower/raise the tractor's lower link until the implement frame is positioned horizontal.
2. Fill the hopper Page 166
3. Move the tramline marker into working position Page 145
4. Check all implement settings Page 126
5. Run the blower fan up to nominal speed Page 132
6. Unfold the active track marker Page 155
7. Check the tramline rhythm, correct if necessary..... Page 86
8. Set the tramline counter just before commencing the first field pass Page 86
9. Instruct any people in the area to stand at a minimum distance of 20 m from the implement.
10. Start.

10.2 Folding/unfolding the implement booms and track markers



Before folding and unfolding the implement booms

- align the tractor and implement straight on a level surface
- connect all hydraulic supply lines to the tractor
- connect and switch on the control terminal.

If the pressure-free return flow is not connected up, the swivelable rear lighting can collide with the rear swivel frame.



Before executing the hydraulic function with the corresponding tractor control unit, the desired hydraulic function must be

- selected by repositioning a valve lever on the implement, if the implement is equipped with a control terminal without job computer (e.g. AMADRILL+)
- selected on the control terminal, if the implement is equipped with a control terminal with job computer.

Accordingly, the folding and unfolding of the implement booms and track markers is described separately in the following.

10.2.1 Unfolding the implement booms (control terminal with job computer)



Pull the implement forward slightly when lowering the tools into the ground.

1. Position the tractor and the implement on a horizontal surface.
2. On the control terminal, select: "Unfold implement".
3. Lift the implement booms (1) out of the catching sockets (2).



Use of the implement

- 3.1 Keep actuating the control unit (yellow) until both implement booms are released.

When a suitable position for the unfolding the implement booms is reached, the lifting procedure automatically stops and an acoustic signal is issued.



4. Unfold the implement booms.

- 4.1 Keep actuating the control unit (green) until the implement booms are completely unfolded.

5. Put the tractor control unit (green) into neutral position and leave it in neutral position during operation.



6. Lower the rear frame into working position.

- 6.1 As soon as the complete unfolding of the implement booms has been confirmed on the control terminal, the control unit (yellow) is activated.



- 6.2 Keep actuating the control unit (yellow) until the rear frame is lowered into working position.

- 6.3 Pull the implement forward slightly when lowering the tools into the ground.

7. Put the tractor control unit (yellow) into neutral position and leave it in neutral position during operation.



10.2.2 Folding the implement booms (control terminal with job computer)

1. Position the tractor and the implement on a horizontal surface.
2. On the control terminal, select: "Fold track marker".
3. Keep actuating the control unit (yellow) until both track markers are folded (parking position).



4. On the control terminal, select: "Fold implement".
5. Keep actuating the control unit (yellow) until the rear frame is raised.



As soon as the rear frame is about 10° from the vertical position

- o The lifting operation ends automatically
- o The control terminal reports when the 10° position has been reached.



6. Fold the implement booms in.



Use of the implement

- 6.1 Keep actuating the control unit (green) until both implement booms (1) rest against the rockers (2) of the catching sockets.



7. Lower the implement booms (1) into the transport brackets (2).



Beware of possible collisions with the implement.

Correct the tilt of the rear frame if necessary.

- 7.1 Keep actuating the control unit (yellow) until the implement booms are lowered into the catching sockets.



DANGER

The catching sockets represent the mechanical transport locking mechanism of the implement booms.

Check the implement booms for proper seating in the catching sockets.

- 7.2 Keep actuating the control unit (yellow) until the rear carrier with the light fittings and the warning signs is swivelled into road transport position.



30c645-1

8. Move the implement into a horizontal position by actuating the tractor lower links.



The implement requires sufficient ground clearance in all driving situations.



31c966-5

10.2.3 Working without track markers (control terminal with job computer)

1. Press the "Park" button (see control terminal operating manual).
2. Keep actuating the control unit (yellow) until both track markers rest against the implement booms.



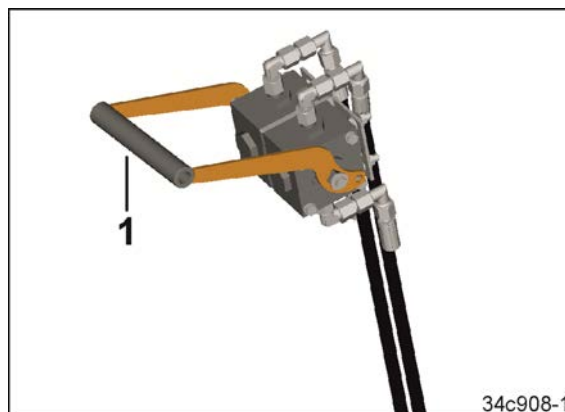
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10.2.4 Unfolding the implement booms (control terminal without job computer)



Pull the implement forward slightly when lowering the tools into the ground.

1. Position the tractor and the implement on a horizontal surface.
2. Set the valve lever (1) in the up position.



3. Lift the implement booms (1) out of the catching sockets (2).



- 3.1 Keep actuating the control unit (yellow) until both implement booms are released.



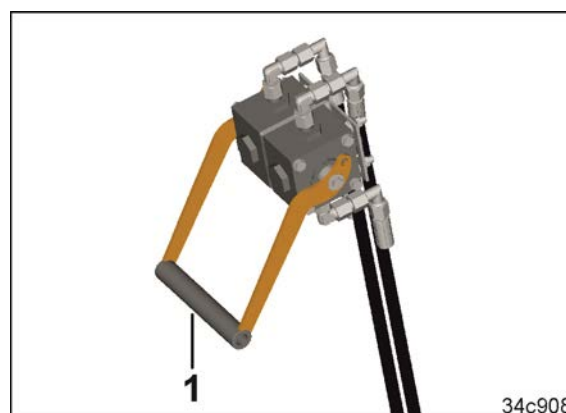
4. Unfold the implement booms.
 - 4.1 Keep actuating the control unit (green) until the implement booms are completely unfolded.
5. Put the tractor control unit (green) into neutral position and leave it in neutral position during operation.



6. Lower the rear frame into working position.



- 6.1 Keep actuating the control unit (yellow) until the rear frame is lowered into working position.
- 6.2 Pull the implement forward slightly when lowering the tools into the ground.
7. Put the tractor control unit (yellow) into neutral position and leave it in neutral position during operation.
8. Set the valve lever (1) in the down position and leave down during operation.



10.2.5 Folding the implement booms (control terminal without job computer)

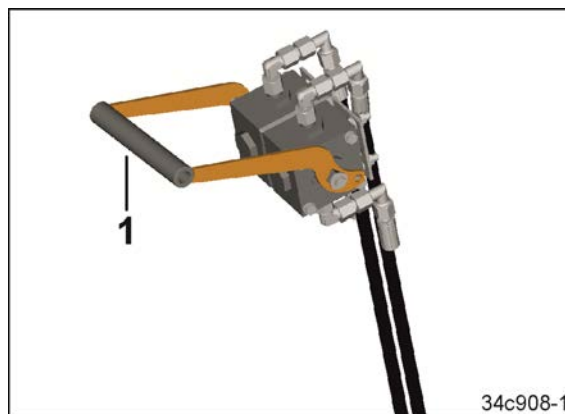
1. Position the tractor and the implement on a horizontal surface.



2. Set the valve lever (1) in the down position.
3. Actuate the control unit (green) until both track markers are folded in (parking position).



4. Set the valve lever (1) in the up position.



5. Keep actuating the control unit (yellow) until the rear frame is raised.



6. Keep actuating the control unit (yellow) until the rear frame is approx. 10° before the vertical position.



7. Fold the implement booms in.



- 7.1 Keep actuating the control unit (green) until both implement booms (1) rest against the rockers (2) of the catching sockets.



Use of the implement

8. Lower the implement booms (1) into the transport brackets (2).



Beware of possible collisions with the implement.

Correct the tilt of the rear frame if necessary.

- 8.1 Keep actuating the control unit (yellow) until the implement booms are lowered into the catching sockets.



DANGER

The catching sockets represent the mechanical transport locking mechanism of the implement booms.

Check the implement booms for proper seating in the catching sockets.

- 8.2 Keep actuating the control unit (yellow) until the rear carrier with the light fittings and the warning signs is swivelled into road transport position.



9. Move the implement into a horizontal position by actuating the tractor lower links.

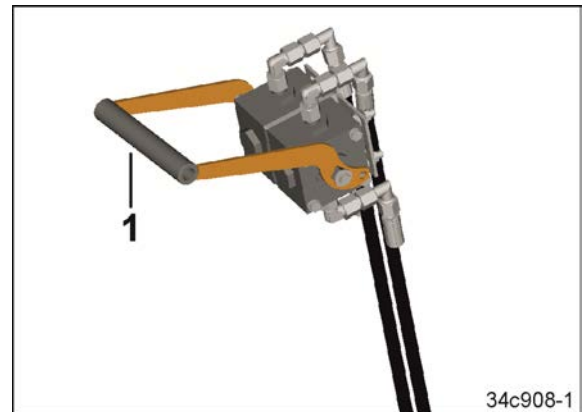


The implement requires sufficient ground clearance in all driving situations.



10.2.6 Working without track markers (control terminal without job computer)

1. Raise both track markers.
2. Move the valve lever (1) to the up position during operation and lock the control unit (green).



10.3 Filling the hopper



DANGER

Dressing dust is toxic and must not be inhaled or come into contact with the body.

Dressing dust may escape when filling the implement. Wear a face mask and protective goggles and gloves.



Should the control part trip an alarm if the theoretically calculated residual amount is reached in the hopper,

- enter the filling quantity [kg] in the control terminal.
- log off the fill level indicator of the implement in the control terminal.

This function is only possible on a control unit with job computer.

1. Couple the implement to the tractor.
2. Switch on the interior lighting of the hopper when working at night.

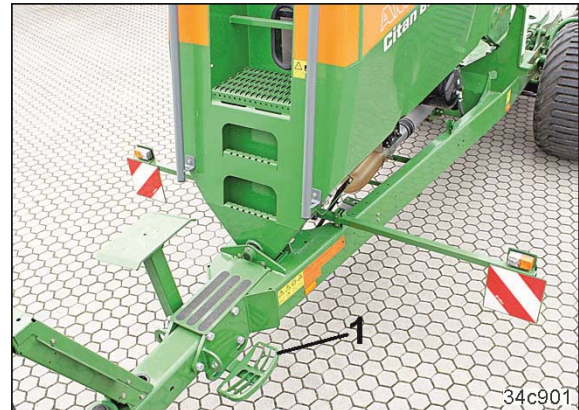
The interior lighting (optional) is coupled with the driving lights of the tractor.



3. Unfold the implement (see section 10.2, page 155).
4. Switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
5. Reposition the fill level sensor if necessary (see section 8.2, page 128). The flow of seed and fertiliser prevents the attachment of the sensor when the hopper is full.
6. Determine and install the required metering roller (see section 8.3, page 128).
7. Open the roller tarpaulin (see section 10.3.1).
8. Fill the hopper
 - o with bagged goods from a supply vehicle
 - o with a filling auger (see section 10.3.2, page 168)
 - o from Big Bags.
9. Close the tarpaulin.
10. If known, enter the filling quantity [kg] in the control terminal.
This function is only possible on a control unit with job computer.

10.3.1 Opening/closing tarpaulin

1. Switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
2. Climb the steps (1) to access the hopper.



When closed, the roller tarpaulin is secured with two clamping elements (1).

The belt (2) serves to open and close the roller tarpaulin.



3. Slowly pull the belt out of the belt holder.
- The roller cover opens as the belt is released.



10.3.2 Filling with the filling auger

10.3.2.1 Move the filling auger into the filling position

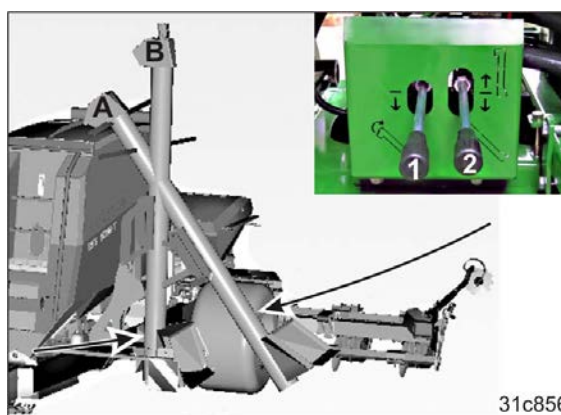
1. Couple the implement to the tractor.
2. Unfold the implement booms into working position (see section "Use of the implement", page 152).
3. Open the roller tarpaulin (see section "Opening/closing tarpaulin", page 167).
4. Apply the tractor parking brake.
The tractor engine must be running when the filling auger is actuated.

5. Direct persons out of the swivel area of the filling auger.
During seeding operation and for transport, the filling auger is resting closely on the hopper.

6. Move the filling auger into the filling position (A).

- 6.1 Pressurise the tractor control unit (red).

- 6.2 Press the lever (2) down until the filling auger is folded into filling position (A).



The tractor must not be moved or uncoupled when in the filling position.

10.3.2.2 Switching the filling auger on/off

7. Remove the tarpaulin cover (1) from the filling funnel.



8. With the supply vehicle, drive backwards until you reach the filling funnel.

**DANGER**

Make sure nobody is standing between the supply vehicle and filling funnel during manoeuvring.



Use of the implement

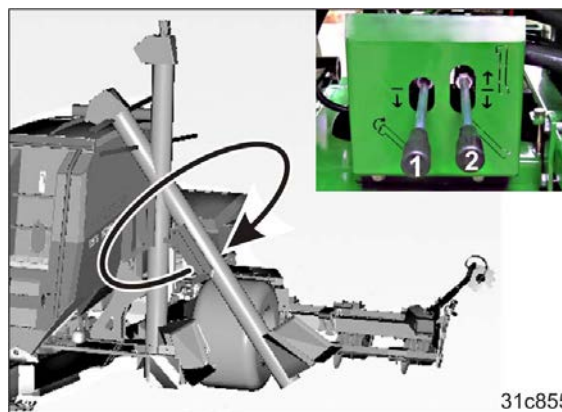
9. Switch on the filling auger.

- 9.1 Pressurise the tractor control unit (red).
- 9.2 Press the lever (1) down and ensure that it engages.
 - The filling auger conveys for as long as the lever is engaged.

10. Fill the filling funnel of the filling auger.



Do not fill the filling funnel faster than the auger can convey.



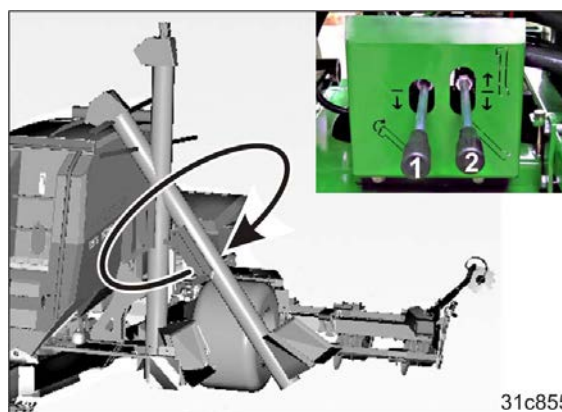
31c855

11. Switch off the filling auger.

- 11.1 Raise the lever (1) and ensure that it engages.
 - The filling auger comes to a stop.
- 11.2 Move the tractor control unit (red) into neutral position.



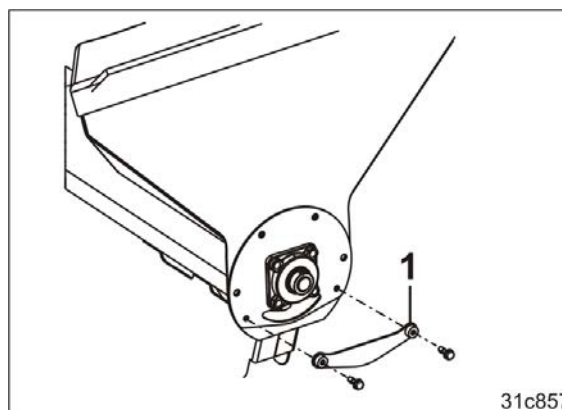
When the hopper is full, allow the filling auger to keep running until the filling funnel and the delivery tube are empty.



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10.3.2.3 Residual emptying of the filling auger

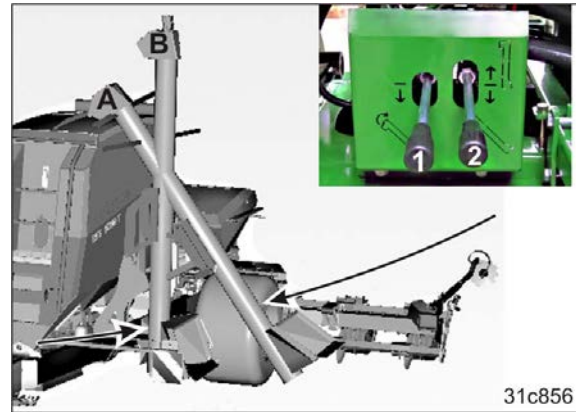
1. Move the filling auger into the filling position.
2. Disengage the tractor PTO shaft, engage the tractor parking brake, shut off the tractor engine and remove the ignition key.
3. Screw off the cap (1).



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10.3.2.4 Moving the filling auger into the transport position

1. Couple the implement to the tractor.
2. Apply the tractor parking brake.
The tractor engine must be running when the filling auger is actuated.
3. Direct people out of the swivel area of the filling auger.
4. Swivel the lever (2) up until the filling auger is in transport position (B).
5. Move the tractor control valve (red) into neutral position.
6. Close the roller tarpaulin (see section "Opening/closing tarpaulin", page 167).



10.4 During the work

10.4.1 Overview of checks

Checks after the first 100 m travelled at working speed have been completed	Placement depth of the seed	Section 10.4.1.1
	Working intensity of the exact following harrow	
	Working intensity of the seed pressure rollers	
Check the seed placement on all coulters at regular intervals and, at the latest, when refilling the hopper.	Placement depth of the seed	Section 10.4.1.1
Check after changing from light soil to heavy soil and vice versa	Placement depth of the seed	Section 10.4.1.1
	Working intensity of the exact following harrow	
	Working intensity of the seed pressure rollers	
Check after adjusting the coulter pressure	Placement depth of the seed	Section 10.4.1.1
	Working intensity of the exact following harrow	
	Working intensity of the seed pressure rollers	
Check after adjusting the coulter discs on the coulters	Placement depth of the seed	Section 10.4.1.1
	Working intensity of the exact following harrow	
	Working intensity of the seed pressure rollers	
Check the distributor head for impurities	By an intensive visual inspection from outside through the distributor hood	
	<ul style="list-style-type: none"> When filling up the hopper each time After finishing work 	



Impurities may block the distributor heads and must be removed immediately (see section "Clean the distributor head", page 182).



The tramline counter is coupled with the working position sensor. When the rear frame is raised, the tramline counter advances to the next number.

Pressing the tramline STOP button prevents the tramline counter from advancing (see control terminal operating manual).

10.4.1.1 Checking the placement depth of the seed

1. Drive approx. 100 m at working speed.
2. Expose the seed at a number of points, including the area of the outside coulters.
3. Check the seed placement depth.

10.4.2 Turning at end of the field



DANGER

After turning, with the corresponding pre-selection and when the control unit (yellow) is actuated, the opposite track marker is moved to working position.

1. Slow down your travel speed.
2. Do not reduce the tractor's rotational speed too far so that the hydraulic functions continue without interruption at the headland.
3. Actuate the tractor control unit (yellow) until the following are lifted completely
 - o the active track marker
 - o the coulter.
4. Turn the combination as soon as the implement tool has been lifted out of the ground.



Actuating the control unit (yellow) before turning causes

- Raising of the coulter frame
 - Raising of the active track marker
 - the advancement of the tramline counter.
 - raising of the track disc of the tramline marker.
5. After turning, keep actuating the tractor control unit (yellow) until the following are lowered completely
 - o the coulters
 - o the active track marker
 6. Start the field pass before the coulters touch the ground.
 7. Actuate the tractor control unit (yellow) for another 15 seconds and then put it in the neutral position.

10.5 End of work in the field

Move the implement into transport position Set the implement to road transport mode (see section 9.1, page 147).



Empty and clean the metering unit after use!

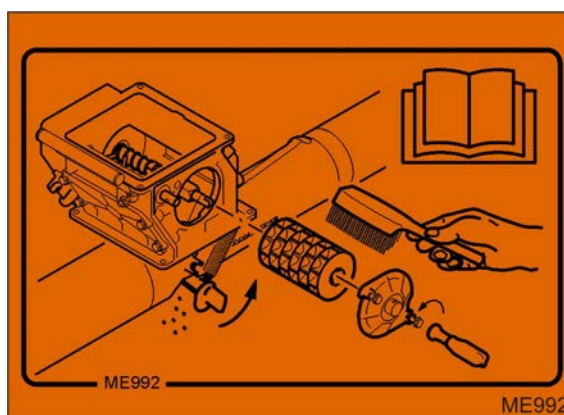
In metering units that are neither emptied nor cleaned,

- a viscous to solid mass may form there is water enters under the metering roller. The metering roller is braked strongly and deviations may occur between the preset and actual seeding rates.
- seed residues and fertiliser may swell or germinate in the metering units. As a result, rotation of the metering rollers is blocked and damage can be caused to the drive!

The sticker should remind the tractor driver to empty and clean the metering unit after finishing the seeding work.



The metering unit must always be emptied and cleaned after completing the seeding work (see section 10.6, page 175).



10.6 Emptying the hopper and/or the metering unit



DANGER

Switch off the control terminal, switch off the tractor PTO shaft, apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.



DANGER

Dressing dust is toxic and must not be inhaled or come into contact with the body.

When emptying the hopper and metering housing or when removing dressing dust, e.g. with compressed air, wear a protective suit, face mask, safety goggles and gloves.

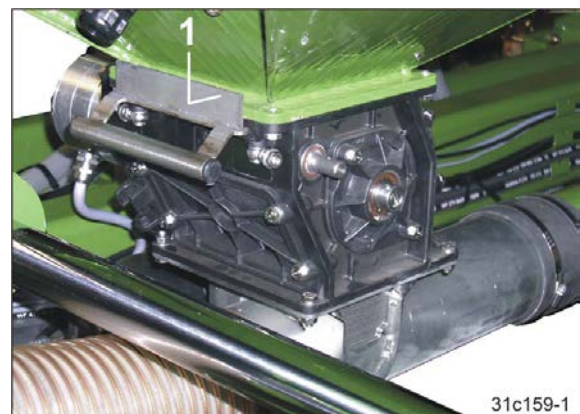


The hopper is emptied through the metering unit opening.

1. Insert the calibration trough (1) into the bracket beneath the metering unit.

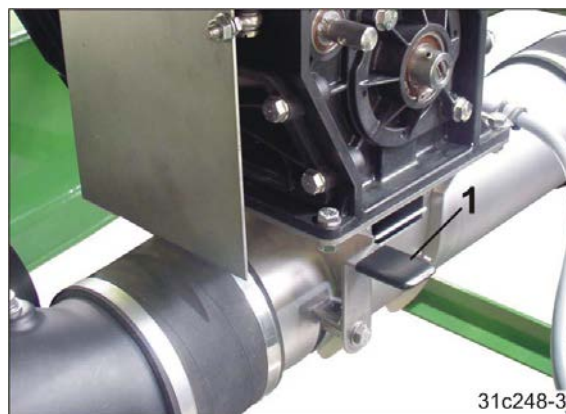


2. Close the opening of the hopper above the metering unit with the shutter (1) (see section "Settings").

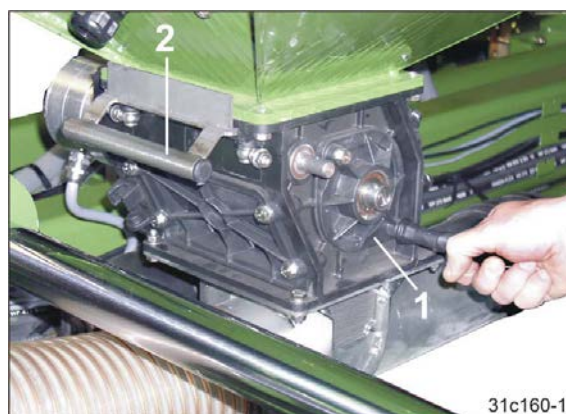


Use of the implement

3. Open the rotary shutter (1) of the injector sluice.
→ The metered material drops into the calibration trough.
4. Remove the metering roller (see section "Settings").



5. Close the housing cover (1).
6. Pull the shutter (2) slowly out of the metering unit.
→ The contents of the hopper drops into the calibration trough.
7. Reassembly occurs in the reverse sequence.



11 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 implement against unintentional start-up and rolling before eliminating faults on the implement.

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

11.1 Deviations between the preset and actual seeding rates

Possible causes that can lead to a deviation between the preset and actual seeding rates:

- For recording the worked area and the required seed spread rate, pulses of the radar are required over a calibration distance of 100 m.

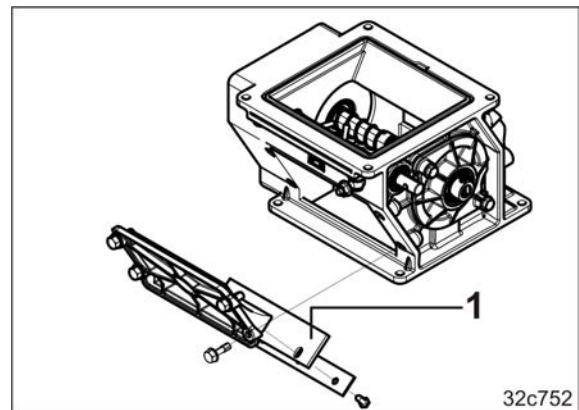
Field surfaces change during work, e.g. when changing from dry, light soil to wet, heavy soil.

This can also alter the calibration value "Pulse/100 m".

If there are differences between the preset and actual seeding rates, the calibration value "Pulse/100 m" has to be re-determined by travelling a measured distance.

- When seeding with moist dressed seeds, deviations between the preset and actual seeding rates may occur if there is a period of less than 1 week (2 weeks recommended) between the dressing and seeding.
- A defective or wrongly set metering lip (1) will cause metering errors.

Set the metering lip so that it is lying lightly up against the metering roller.



11.2 Residual seed volume indicator

When the residual amount in the hopper falls below (with filling level sensor set correctly) is indicated visually and acoustically.

The residual quantity should be large enough to prevent fluctuations in the spread rate.

11.3 Fault table

Fault	Possible cause	Remedy
Track marker not changing	Working position sensor is not correctly set	Adjust the sensor
	Working position sensor defective	Replace the sensor
Track marker switches too early	Working position sensor is not correctly set	Adjust the sensor
Alarm despite correct blower fan speed	Alarm limit is not correctly set	Alter the alarm limit
	Oil volume too low or too high	Set the oil volume
	Fan sensor defective	Replace the fan sensor
Shutter in the distributor head (tramlining control system) not functioning		Clean the distributor head
		Clean the control disc

12 Cleaning, maintenance and repairs

12.1 Fuse



WARNING

Before working on the implement (unless otherwise specified)

- Couple the implement to the tractor.
- Fold or unfold the implement booms completely.



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 implement against unintentional start-up and rolling before working on the implement.



CAUTION

Switching off the control terminal

- before road transport.
- before adjustment, maintenance and repair work.

Risk of accident due to unintended movements of the metering unit or other implement components caused by radar pulses.



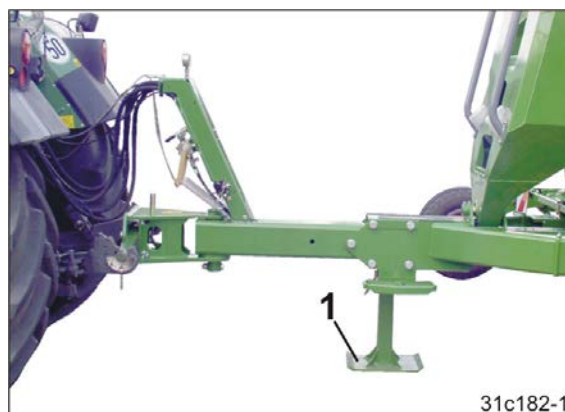
WARNING

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.
- Never crawl under a raised, unsecured implement.

12.1.1 Securing the connected implement

Before working on the implement, place the implement connected to the tractor on the jack (1) to prevent unintentional lowering of the tractor's lower link.



12.2 Cleaning the implement

**DANGER**

Dressing dust is toxic and must not be inhaled or come into contact with the body.

When emptying the hopper and metering housing or when removing dressing dust, e.g. with compressed air, wear a protective suit, face mask, safety goggles and gloves.

**DANGER**

Unfold or fold the implement completely before cleaning it.

Never clean the implement if the implement booms are not completely folded.



Empty the hopper of the metering unit before cleaning.



- Pay particular attention to the brake, air and hydraulic hose lines.
- Never treat brake, air and hydraulic hose lines with fuel, benzene, petroleum or mineral oils.
- After cleaning, grease the implement, in particular after cleaning with a high pressure cleaner/steam jet or liposoluble agents.
- Observe the statutory requirements for the handling and removal of cleaning agents.



Clean the dirty blower fan guard screen to ensure an unobstructed air flow.

If the required quantity of air is not reached, faults may occur in the seed delivery and distribution.



Clean the blower fan of any deposits. Deposits lead to imbalance and damage to the bearing.

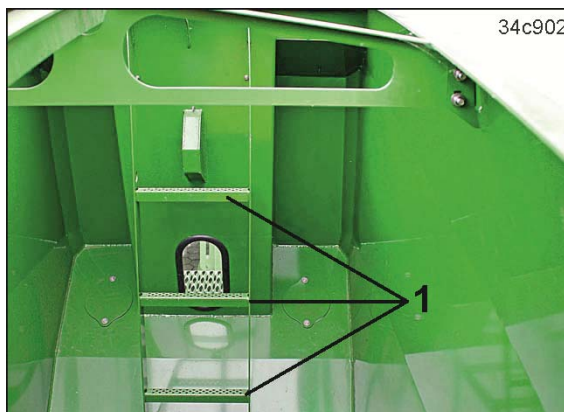


Always observe the following points when using a high-pressure cleaner/steam jet cleaner:

- Do not clean any electrical components.
- Never aim the cleaning jet from the nozzle of the high pressure cleaner/steam jet directly on lubrication and bearing points.
- Always maintain a minimum nozzle distance of 300 mm between the high pressure cleaner or steam jet cleaner nozzle and the implement.
- Comply with safety regulations when working with high pressure cleaners.

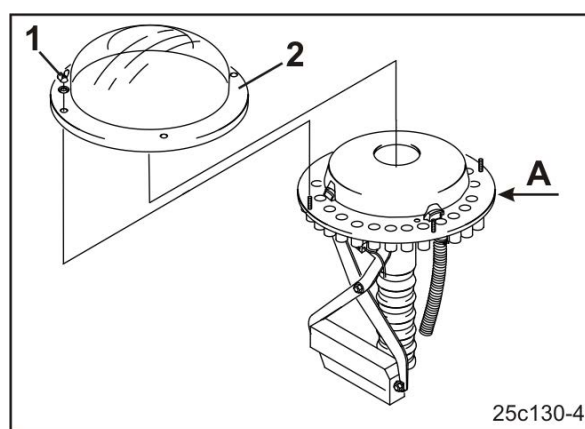
Cleaning, maintenance and repairs

The steps (1) are used to climb into the empty hopper. Only enter the hopper when cleaning.



12.2.1 Clean the distributor head

1. Loosen the winged nuts (1) and remove the clean plastic flap (2) from the distributor head.
2. Remove any impurities with a brush, and wipe out the distributor head and plastic cap with a dry cloth.
3. Clean impurities between the base plate and the control plate (A) with compressed air.
4. Refit the plastic cap (2).
5. Fix the plastic cap with winged nuts (1).



Intensive cleaning requires the slides to be removed.

12.2.2 Shutdown of the implement over a long period of time

1. Set down the coulters on firm ground.
2. Thoroughly clean and dry the coulters.
3. To prevent rust, conserve the seeding discs with an environment-friendly anti-corrosion agent.



12.3 Setting and repair work (specialist workshop)

12.3.1 Pellet sealing cap

The front hopper area must be filled with pellets to achieve the required drawbar load. When you open the sealing cap (1), the pellets may pour out uncontrollably.



Never open the sealing cap.



12.3.2 Drawbar pipe length adjustment (specialist workshop)



DANGER

While pulling out the drawbar pipe, nobody may be standing between the tractor and the implement!

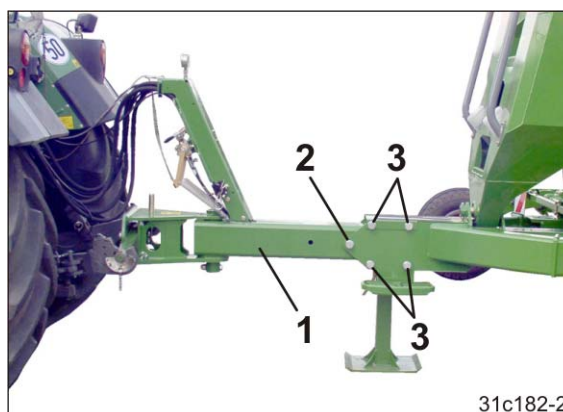
The drawbar tube does not have a stop. Do not extend the drawbar tube any further than required.



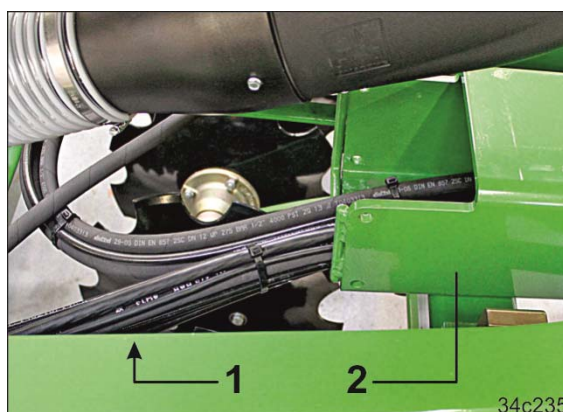
WARNING

Park the implement on the parking supports and secure against rolling with wheel chocks.

1. Loosen the 5 bolts on the drawbar tube (1).
2. Adjust the required length of the drawbar tube (1). Do not extend the drawbar tube any further than required.



Always adapt the supply lines (1) in the drawbar tube (2) to the changing length of the drawbar in order to avoid damage.



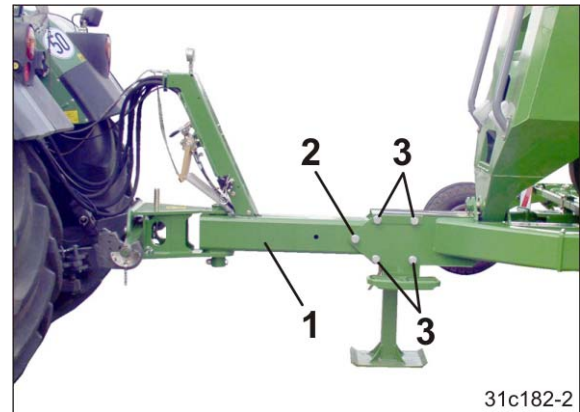
The drawbar tube can be fastened in three positions.

3. Fasten the drawbar tube (1) with 5 bolts.

Tightening torques:

Bolt (2): 450 Nm

Bolt (3): 700 Nm

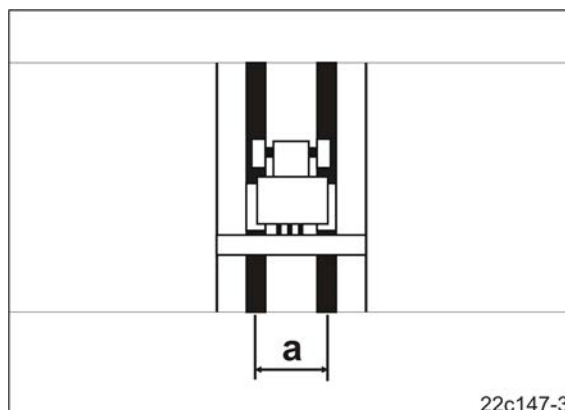


Only for control terminal with job computer:

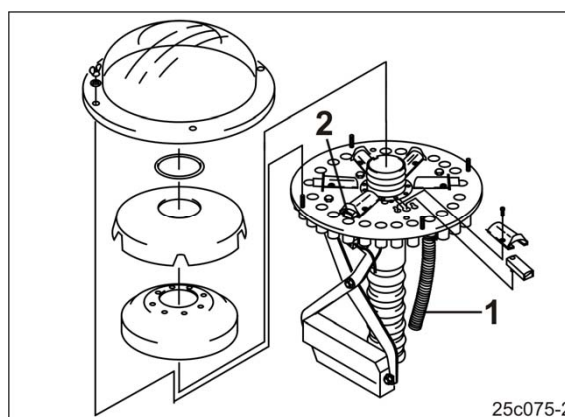
Enter the changed geometry of the implement on the control terminal after each drawbar tube length adjustment (see control terminal operating manual).

12.3.3 Adjusting the tramline track width of the cultivating tractor (specialist workshop)

When the implement is delivered or when buying a new cultivating tractor, check that the tramline is set to the track width (a) of the tractor.



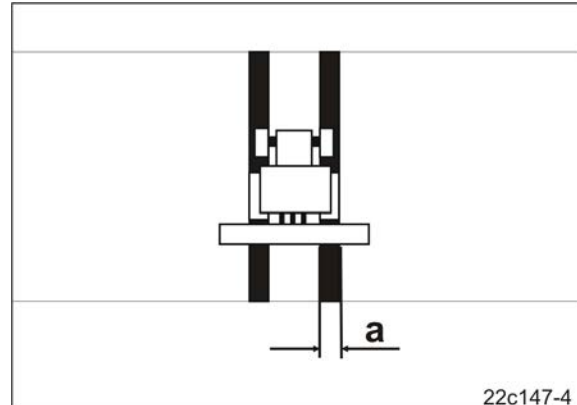
The seed line tubes (1) of the tramline coulter must be attached to the distributor head openings, which can be closed by the shutters (2). If necessary, interchange the seed line tubes.



Adjust the track discs of the tramline marker (if fitted) to the new track width.

12.3.4 Adjusting the tramline track width of the cultivating tractor (specialist workshop)

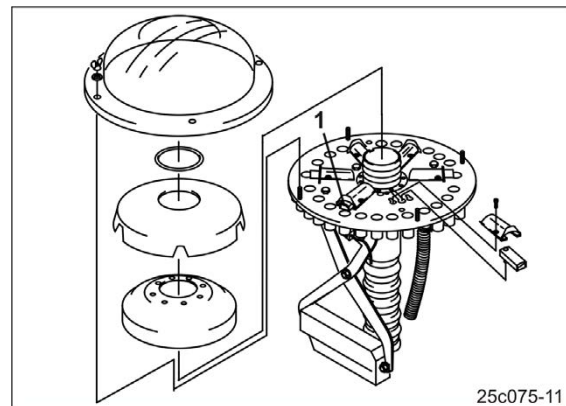
When the implement is delivered or when buying a new cultivating tractor, check that the tramline is set to the track width (a) of the tractor.



The track width changes with the number of coulters arranged next to one-another not applying seed when the tramlines are created.

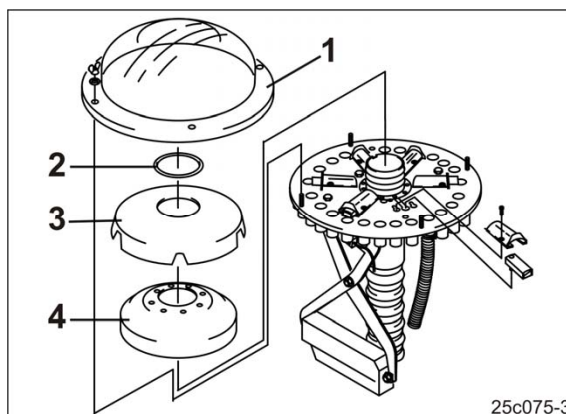
Deactivate shutters (1) that are not required. Deactivated shutters do not close the feed lines to the tramline coulters.

Always activate or deactivate pairs of shutters positioned opposite each other on the base plate.



Activating or deactivating shutters:

1. Apply the tractor parking brake, switch off the tractor engine, and remove the ignition key.
2. Set the tramline counter to "0" as when creating tramlines.
3. Switch off the control terminal.
4. Remove the outer distributor hood (1).
5. Dismount the ring (2).
6. Dismount the inner distributor hood (3).
7. Dismount the foam insert (4).
8. Loosen the bolts (1).
9. Remove the shutter tunnel (2).

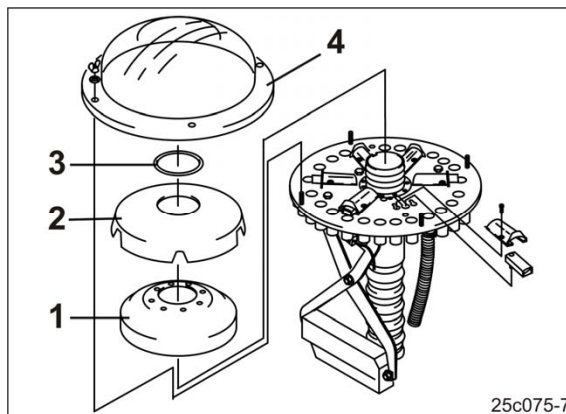
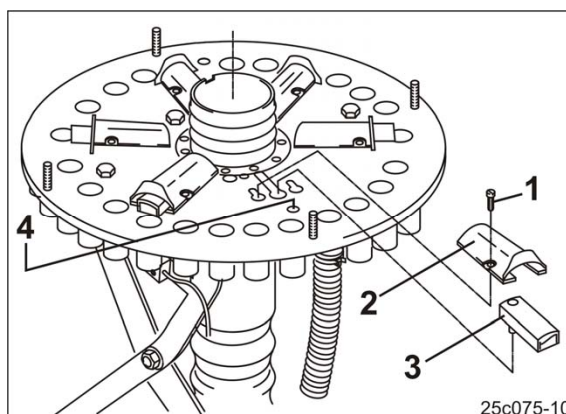


Activating the shutters:

10. The shutter (3) is inserted in the guide as shown.

Deactivating the shutters:

11. Turn the shutter (3) around and insert it into the hole (4).
12. Screw the shutter tunnel (2) onto the base plate.
13. Install the foam insert (1).
14. Install the inner distributor hood (2).
15. Install the ring (3).
16. Install the outer distributor hood (4).
17. Check the functioning of tramline control.



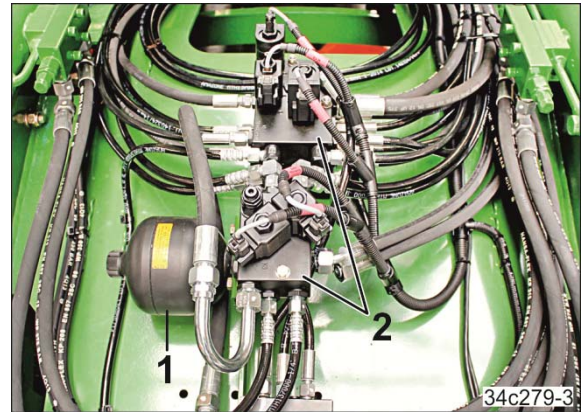
12.3.5 Repairs to the pressure tank (workshop)

In the event of a repair observe the following:

The hydraulic system and the pressure tank (1) connected to it are under a constant high pressure (approx. 100 bar).

In the event of repairs, the following tasks may only be performed in a specialist workshop with suitable tools.

- Removing the hydraulic hose lines or unscrewing or opening the pressure tank (1).
- Repair work on the electro-hydraulic control block (2).



For all work on the pressure tank and the hydraulic system connected to it observe the standard EN 982 (safety requirements for fluid systems).



DANGER

The hydraulic system and the pressure tank connected to it are under a constant high pressure (approx. 100 bar).

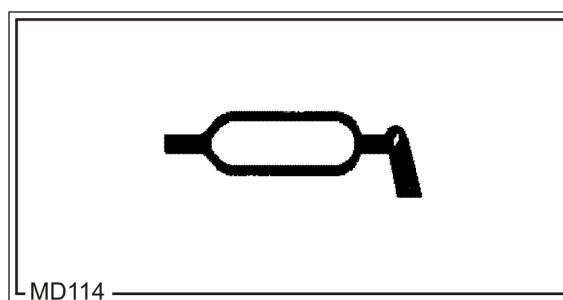
12.4 Lubrication



Lubricate the implement in accordance with the specifications of the manufacturer.

Carefully clean the lubrication nipple and grease gun before lubrication so that no dirt is pressed into the bearings. Press the dirty grease completely into the bearings and replace it with new grease.

The lubrication points on the implement are marked with a sticker.



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

Company	Lubricant designation
ARAL	Aralub HL2
FINA	Marson L2
ESSO	Beacon 2
SHELL	Ratinax A

12.4.1 Overview of lubrication points

Figure	Number of lubrication nipples	Lubrication interval	Notes
Fig. 1/1	1	50 h	
Fig. 1/2	1	50 h	
Fig. 2/1	2	50 h	
Fig. 2/2	2	50 h	
Fig. 3/1	2	50 h	
Fig. 4/1	2	50 h	



Fig. 1



Fig. 2



Fig. 3



Fig. 4

12.5 Maintenance schedule – overview



Carry out maintenance work when the first interval is reached.

The times, continuous services or maintenance intervals specified in any third party documentation shall have priority.

Before initial commissioning		
Specialist workshop	Check and perform maintenance on the hydraulic hose lines. This inspection has to be recorded by the operator.	Section 12.5.6
	Check the tyre inflation pressure	Section 12.5.1
After the first 10 operating hours		
Specialist workshop	Check and perform maintenance on the hydraulic hose lines. This inspection has to be recorded by the operator.	Section 12.5.6
	Check all the components of the hydraulic system for leaks.	
Specialist workshop	Check all bolted connections for tight fit	Section 12.6
Specialist workshop	Check tightening torques of wheel nuts	Section 12.5.2
Before each start-up (daily)		
	Visual inspection of the tensioned crosspiece	Section 12.5.3
	Check the hydraulic hose lines using the inspection criteria.	Section 12.5.5
	Check all the components of the hydraulic system for leaks.	
	General visual inspection of the service brake system	Section 12.5.7.1
Immediately after beginning work		
	Checking the seed placement depth	Section 10.4.1.1
Hourly (e.g. when refilling the seed hopper)		
	Checking the seed placement depth	Section 10.4.1.1
	Check for and remove any impurities: <ul style="list-style-type: none"> • Metering unit • Delivery sections and hoses • Distributor head/distributor heads • Blower fan suction protective screen 	

After finishing work (daily)		
	Emptying the metering unit	Section 10.6
	Clean the spaces between the fins of the oil cooler (optional) with compressed air (danger of overheating). Under extremely dusty conditions, clean the spaces between the multi-discs several times daily.	
	Clean the blower fan (risk of unbalancing)	
	Clean the implement (if required)	Section 12.2
Every 2 weeks (at least every 100 operating hours)		
	Check the tyre inflation pressure	Section 12.5.1
	Check the on-board hydraulic system (oil quantity and oil filter)	Section 12.5.4
Every 3 months (at least every 500 operating hours)		
Specialist workshop	Check and perform maintenance on the hydraulic hose lines. This inspection has to be recorded by the operator.	Section 12.5.6
Specialist workshop	Exterior inspection of the compressed air tank	Section 12.5.8.1
Specialist workshop	Check the pressure in the compressed air tank	Section 12.5.8.2
Specialist workshop	Leak tightness check	Section 12.5.8.3
Specialist workshop	Clean the line filter	Section 12.5.8.4
Before the start of the season		
Specialist workshop	Check and perform maintenance on the hydraulic hose lines. This inspection has to be recorded by the operator.	Section 12.5.6
	Check the tyre inflation pressure	Section 12.5.1
Every 12 months		
Specialist workshop	Check the service brake system for safe operating condition. This inspection has to be recorded by the operator.	Section 12.5.7.2
After changing the tyres		
Specialist workshop	10 hours after changing a wheel, check the wheel nuts tightening torque.	
	Check the tyre inflation pressure	Section 12.5.1

12.5.1 Checking the inflation pressure of the running gear tyres



Check compliance with specified tyre inflation pressure

Adhere to the inspection intervals
(see section Maintenance schedule – overview, page 192).

Tyres	Nominal tyre inflation pressure
700/40-22.5 (diagonal)	1.8 bar
710/40-R22.50 (radial)	1.8 bar



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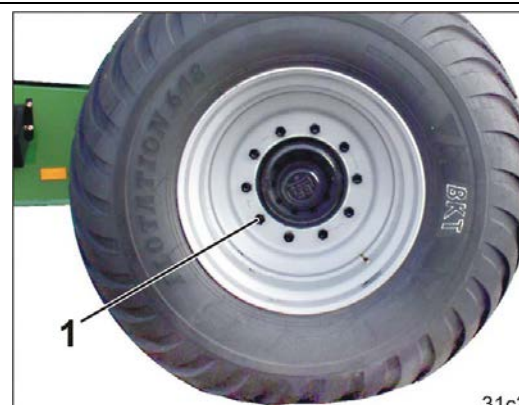
12.5.2 Check tightening torques of wheel nuts (specialist workshop)



Check compliance with tightening torques.

Observe test intervals
(see section "Maintenance and care schedule – overview").

	Wheel nut	Tightening torques
(1)	M22x1.5	610 Nm



31c262-2

12.5.3 Visual inspection of the tensioned crosspiece

**WARNING**

Risk of contusions, catching, and knocks when the implement unexpectedly releases from the tractor!

Check the tensioned crosspiece of the drawbar for conspicuous defects whenever the implement is coupled. Replace the tensioned crosspiece if there are clear signs of wear.

12.5.4 On-board hydraulics – Oil check and oil filter change

Check the filling level in the oil tank of the on-board hydraulics (blower fan connection on the tractor PTO shaft) when the implement is parked horizontally.

The oil level must be visible in the window (1).

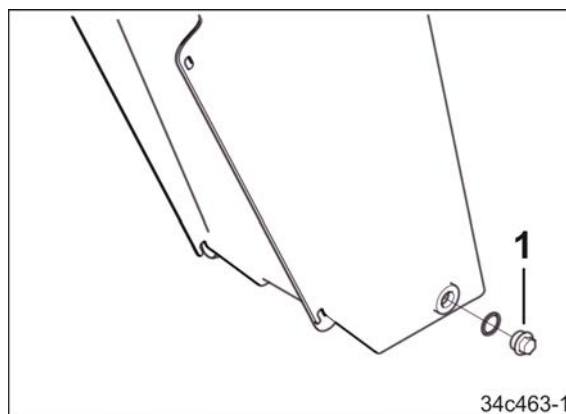


Refill hydraulic fluid HLP 68, DIN 51524 as required in the oil filler neck (1).



There is no need to change the oil.

The filling plug (1) serves to empty the oil tank. Collect the escaping oil in a tray.

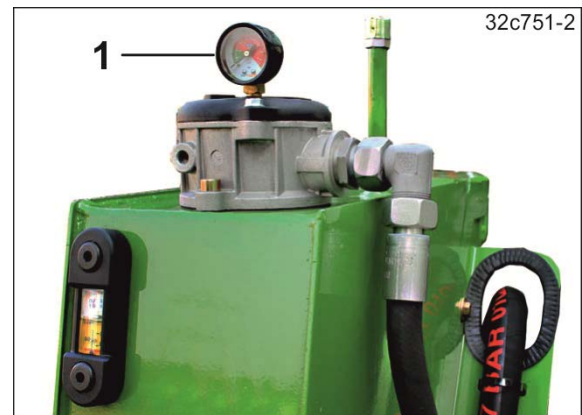


Oil filter change

The on-board hydraulic system has an oil tank with an oil filter change indicator (1).

During operation, the pointer is in the green area.

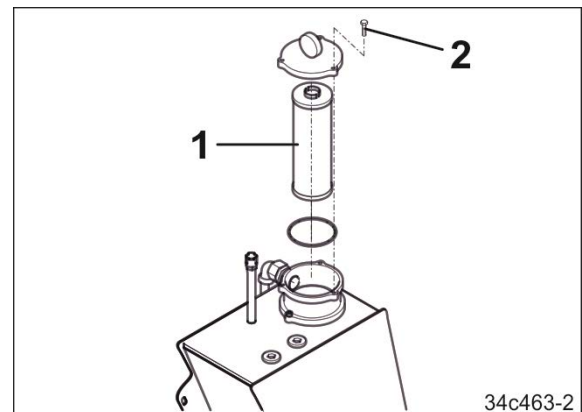
The indicator changing to the red area indicates that the oil filter must be replaced.



Replace the oil filter (1) with a new oil filter.

Loosen the two hexagon head bolts 6 x 25 (2).

Pull the oil filter out of the oil tank and replace.
Collect the escaping oil in a tray.



12.5.5 Inspection criteria for hydraulic hose lines before every start-up

- Check the hydraulic hose lines for visible defects.
- Repair any areas of chafing on the hydraulic hose lines and pipes.
- Have any worn or damaged hydraulic hose lines immediately replaced at a specialist workshop.

12.5.6 Inspection criteria for hydraulic hose lines using the maintenance schedule

Have hydraulic hose lines replaced by a specialist workshop when finding any of the following inspection criteria during the inspection:

- 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 which do not match the natural shape of the hose or the hose line. Both in a depressurized and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
- Leak points. Tighten the screwed connections if necessary.
- Damage or deformation of the hose assembly (sealing function restricted); minor surface damage is not a reason for replacement.
- Movement of the hose out of the assembly.
- Corrosion of assembly, reducing the function and tightness.
- Installation requirements not complied with.
- Life span of 6 years has been exceeded.

The date of manufacture of the hydraulic hose line on the assembly plus six years is decisive. If the date of manufacture on the assembly is "2015", then the hose should not be used after February 2021. For more information, see "Identification of hydraulic hose lines".



WARNING

Risk of infection through the high pressure hydraulic fluid of the hydraulic system entering the body.

- Only a specialist workshop may perform work on the hydraulic system.
- Depressurize the hydraulic system before performing 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!

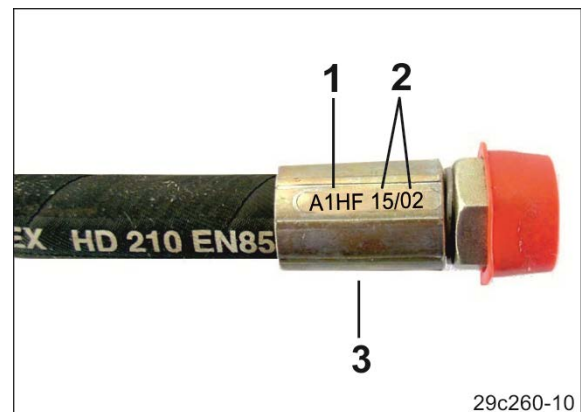


- When connecting the hydraulic hose lines to the hydraulic system of the tractor, ensure that the hydraulic system is depressurized on both the tractor side and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose lines checked for proper functioning by a specialist at least once a year.
- Replace the hydraulic hose lines if they are damaged or worn. Use only 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.

12.5.6.1 Identification 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 (15/02 = year/month = February 2015)
- (3) Maximum approved operating pressure (210 bar).



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12.5.6.2 Installing and removing hydraulic hose lines



When installing or removing hydraulic hose lines, be sure to observe the following instructions:

- Only a specialist workshop may perform work on the hydraulic system.
 - Use only genuine AMAZONE hydraulic hose lines!
 - Ensure cleanliness.
 - As a matter of principle, you must install the hydraulic hose lines such that, in all implement situations,
 - 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.
 - Attach the hydraulic hose lines onto the specified attachment points. There, avoid hose clips, which impair the natural movement and length changes of the hoses.
 - It is forbidden to paint hydraulic hose lines!

12.5.7 Service brake system (all variants)

valid for

- Dual-circuit pneumatic service brake system
- Hydraulic service brake system

12.5.7.1 General visual inspection of the service brake system

Perform the general visual inspection at regular intervals (see section Maintenance schedule – overview, page 192)

Test points:

- Piping, hose lines and hose couplings must not be externally damaged or rusted.
- Hinges, e.g. on fork heads, must be properly secured, easy to move, and not worn out.
- Ropes and cables
 - must be properly run.
 - must have no visible cracks.
 - may not be knotted.
- Check the brake cylinder piston stroke.



If the visual inspection, function or action testing of the service brake system shows any signs of deficiencies, have a thorough inspection of all components performed immediately at a specialist workshop.



DANGER

Only specialist workshops or recognised brake service companies may perform adjustment and repair work on the brake system.

12.5.7.2 Checking the service brake system for safe operating condition (specialist workshop)

Have the service brake system checked for safe operating condition by a specialist workshop at regular intervals (see section Maintenance schedule – overview, page 192).



In Germany Section 57 of the regulation BGV D 29 of the industrial injuries mutual insurance organisation requires as follows: the keeper has to have vehicles tested as required, however at least once annually, by an expert as to their safe operating condition.

Observe the legal regulations for all service work. Only genuine spare parts may be used.

12.5.8 Service brake system (Dual-circuit pneumatic service brake system)

12.5.8.1 Exterior inspection of the compressed air tank

If the compressed air tank moves in the tensioning bands (1)

→ tension or replace the compressed air tank

If the compressed air tank has any external corrosion damage or is damaged

→ replace the compressed air tank.

If the rating plate (2) is rusty, loose or the rating plate is missing from the compressed air tank

→ replace the compressed air tank.



The compressed air tank may be replaced in a specialist workshop only.

12.5.8.2 Checking the pressure in the compressed air tank (specialist workshop)

1. Connect a pressure gauge to the test connection on the compressed air tank.
2. Run the tractor engine (approx. 3 mins.) until the compressed air tank has filled.
3. Check whether the pressure gauge is displaying the setpoint range 6.0 to 8.1 bar.
4. If the setpoint range is exceeded, go to a specialist workshop.

12.5.8.3 Leak tightness check (specialist workshop)

Checklist and steps for action:

- Test all connections, pipe, hose and screw unions for seal-tightness
- Eliminate any abrasion points on pipes and hoses
- Replace any porous or damaged hoses via a specialist workshop
- The dual-circuit pneumatic service brake system is considered free of leaks if the pressure drop within 10 minutes with the engine switched off is no greater than 0.10 bar, i.e. about 0.6 bar per hour.

If the values are exceeded, go to a specialist workshop.

12.5.8.4 Cleaning the line filters (specialist workshop)

The dual-circuit pneumatic brake system has

- One brake line filter (1)
- One supply line filter (2).

Cleaning the line filters:

1. Press the two lugs (3) together and take out the closure piece complete with O-ring, compression spring and filter insert.
2. Clean the filter insert with petrol or thinner (wash it) and dry with compressed air.
3. To reassemble, reverse the procedure and make sure that the O-ring seal is not twisted in the guide slot.



12.6 Screw tightening torques

Thread	Width across flats [mm]	Tightening torques [Nm] as a function of the bolt/nut grade		
		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

Tightening torques of the wheel and hub bolts

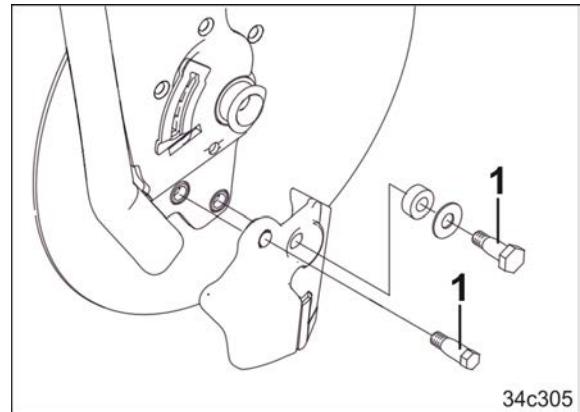


Tightening torques of the wheel and hub bolts (see section Checking the inflation pressure of the running gear tyres , page 194).

Tightening torques of the furrow former

The bolts (1) of the furrow former are coated (protection) and should only be used once.

The tightening torque for the bolts (1) is 75 Nm.

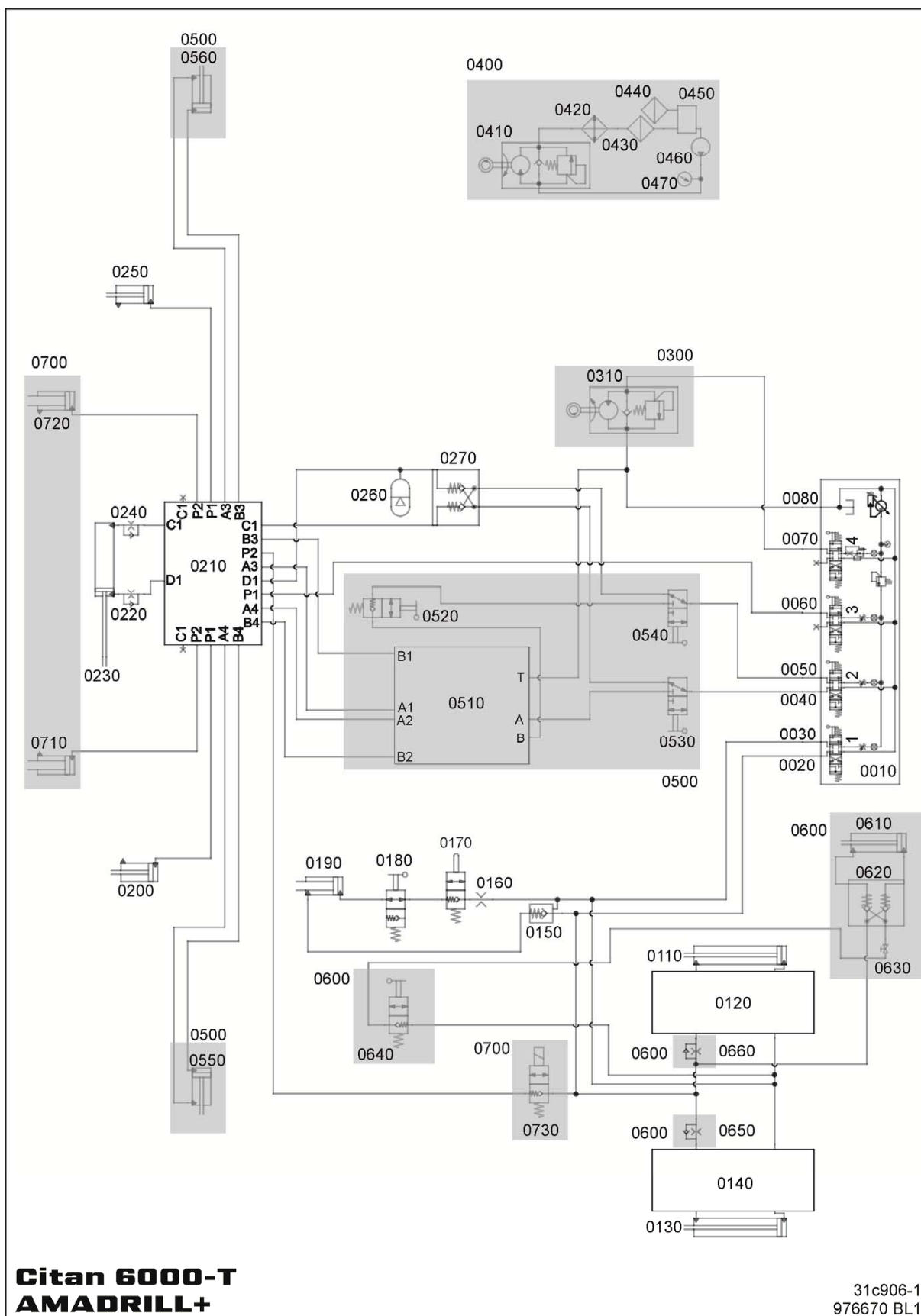


13 Hydraulic diagram

13.1 Hydraulic diagram Citan 6000 (implement with AMADRILL+)

0010	Tractor hydraulics	0400	On-board hydraulic system blower fan drive (optional equipment)
0020	Marking 2 yellow	0410	Blower fan drive 8.5 ccm
0030	Marking 1 yellow	0420	Oil cooler
0040	Marking 2 green	0430	Return filter
0050	Marking 1 green	0440	Ventilation filter
0060	Marking 2 blue	0450	Oil tank
0070	Marking 1 red	0460	Pump 45 cm ³
0080	Marking 2 red	0470	System pressure pressure gauge (max. 210 bar)
0110	Lift-out, left (rear frame)	0500	Track markers (optional)
0120	Rate-of-lower valve	0510	Track marker control block
0130	Lift-out, right (rear frame)	0520	Track marker control valve
0140	Rate-of-lower valve	0530	Control valve, rod side
0150	Track marker non-return valve	0540	Control valve, bottom side
0160	Lamp folding throttle	0550	Track marker, right
0170	Lamp folding control valve	0560	Track marker left
0180	Lamp folding control valve	0600	Wheel mark eradicator (optional equipment)
0190	Lamp folding	0610	Wheel mark eradicator lift-out
0200	Coulter pressure, right	0620	Wheel mark eradicator locking block
0210	Distributor – rear	0630	Wheel mark eradicator check valve
0220	Throttle check valve – folding	0640	Wheel mark eradicator control valve
0230	Boom folding	0650	Throttle check valve lift
0240	Throttle check valve – folding	0660	Throttle check valve lift
0250	Coulter pressure, left	0700	PEM (optional equipment)
0260	Folding pressure accumulator	0710	PEM, right (optional)
0270	Flaps locking block	0720	PEM, left (optional)
0300	Blower fan drive from tractor (optional equipment)	0730	PEM valve
0310	Blower fan drive 8.5 ccm		

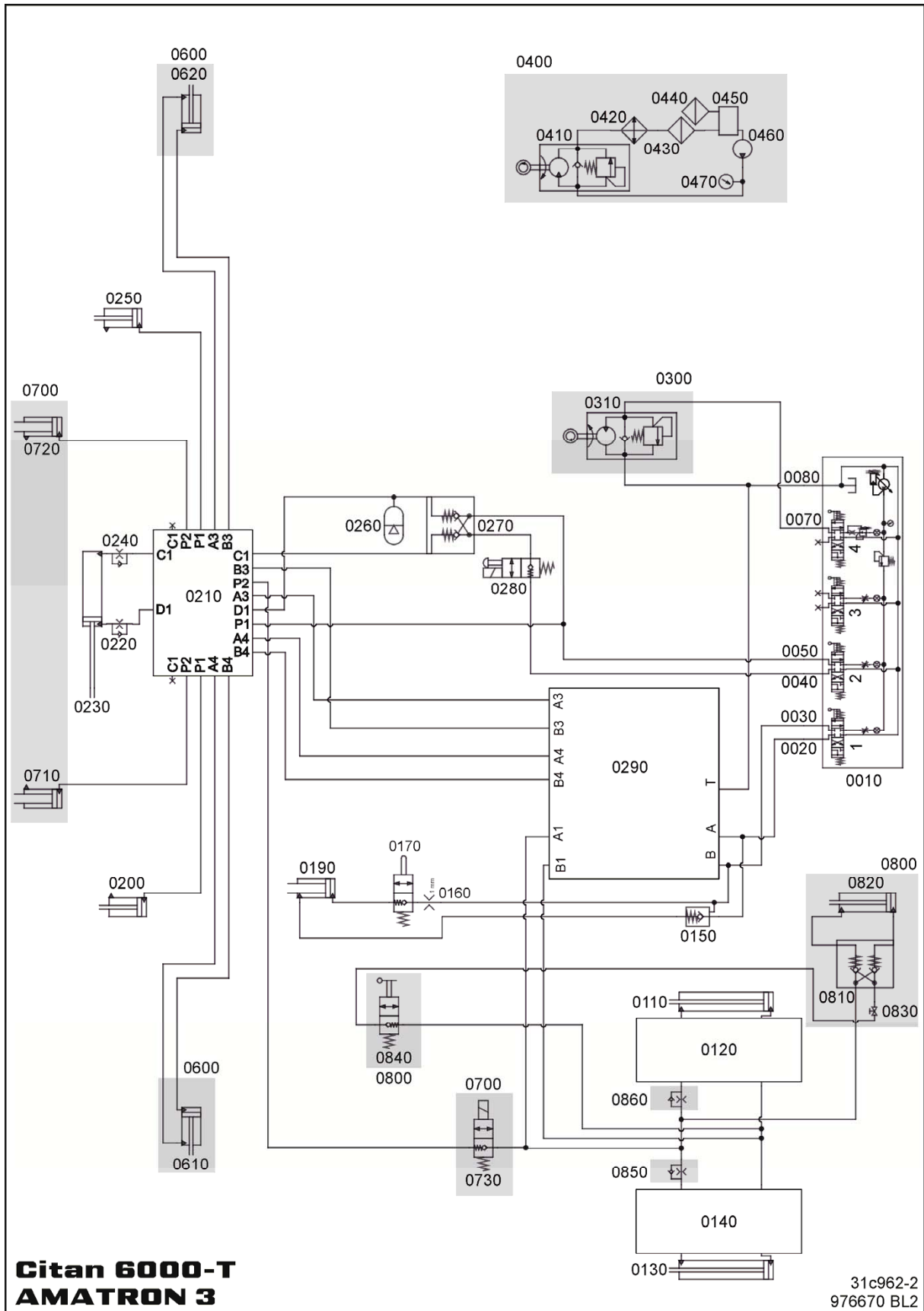
All position specifications in direction of travel



13.2 Hydraulic diagram Citan 6000 (implement with job computer)

0010	Tractor hydraulics
0020	2 cable ties, yellow
0030	1 cable tie, yellow
0040	2 cable ties, green
0050	1 cable tie, green
0070	1 cable tie, red
0080	2 cable ties, red
0110	Lift, left
0120	Rate-of-lower valve
0130	Lift, right
0140	Rate-of-lower valve
0150	Track marker non-return valve
0160	Lamp folding throttle
0170	Lamp folding control valve
0190	Lamp folding
0200	Coulter pressure, right
0210	Distributor – rear
0220	Throttle check valve – folding
0230	Boom folding
0240	Throttle check valve – folding
0250	Coulter pressure, left
0260	Folding pressure accumulator
0270	Flaps locking block
0280	Folding control valve
0290	Control block – track markers
0300	Blower fan drive from tractor (optional equipment)
0310	Blower fan drive 8.5 ccm
0400	Blower fan drive from on-board hydraulic system (optional equipment)
0410	Blower fan drive 8.5 ccm
0420	Oil cooler
0430	Return filter
0440	Ventilation filter
0450	Oil tank
0460	Pump 45 ccm
0470	System pressure pressure gauge (max. 210 bar)
0600	Track markers (optional)
0610	Track marker, right
0620	Track marker left
0700	Pre-emergence marker (optional)
0710	PEM, right (optional)
0720	PEM, right (optional)
0730	PEM valve
0800	Wheel mark eradicator (optional)
0810	Wheel mark eradicator locking block
0820	Wheel mark eradicators
0830	Wheel mark eradicator check valve
0840	Wheel mark eradicator control valve
0850	Throttle check valve lift
0860	Lift-out throttle non-return valve

All position specifications in direction of travel





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