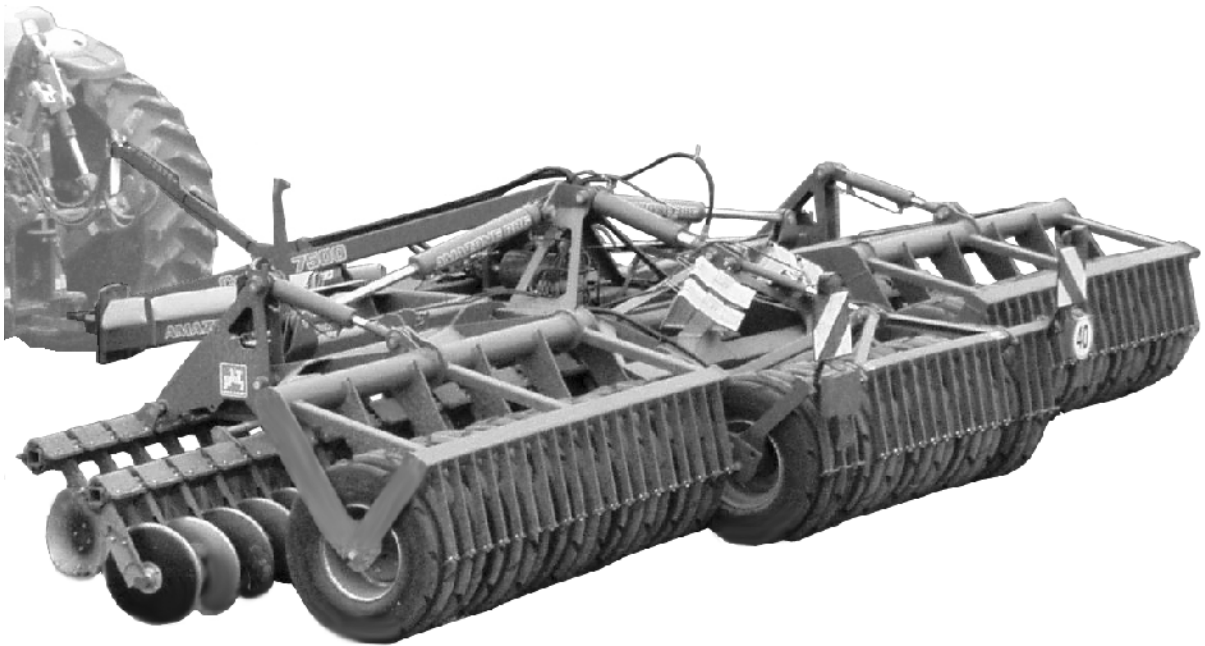


Operating Manual

AMAZONE

CATROS 7501-2T CATROS⁺ 7501-2T

Compact Disc Cultivator



MG2954
BAG0046.7 03.14
Printed in Germany

Please read and follow this
operating manual before
putting the machine into
operation.
Keep it in a safe place for
future use.

en



Reading the instruction

Manual and following it should seem to be inconvenient and superfluous as it is not enough to hear from others and to realize that a machine is good, to buy it and to believe that now everything should work by itself. The person in question would not only harm himself but also make the mistake of blaming the machine for possible failures instead of himself. In order to ensure success one should enter the mind of a thing, make himself familiar with every part of the machine and get acquainted with how it's handled. Only in this way could you be satisfied both with the machine and with yourself. This goal is the purpose of this instruction manual.

Leipzig-Plagwitz 1872. Rud. Sark.

Identification data

Enter the machine identification data here. You will find the identification data on the rating plate.

Machine identification number:
(ten-digit)

Type:

Catros

Year of manufacture:

Basic weight (kg):

Permissible total weight (kg):

Maximum load (kg):

Manufacturer's address

AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51

D-49202 Hasbergen

Phone: +49 5405 501-0

Fax: +49 5405 501-234

E-mail: amazone@amazone.de

Spare part orders

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

Please send orders to your AMAZONE dealer.

Formalities of the operating manual

Document number: MG2954

Compilation date: 03.14

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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. We thank you for your confidence in our products.

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Using the delivery note, check that the machine was delivered in full including the ordered special optional equipment. Replacement will be made only if a claim is filed immediately!

Please read and follow this operating manual—in particular, the safety instructions—before putting the machine into operation. Only after careful reading will you be able to benefit from the full scope of your newly purchased machine.

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

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

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

User evaluation

Dear Reader

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

AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51

D-49202 Hasbergen

Phone: +49 5405 501-0

Fax: +49 5405 501-234

E-mail: amazone@amazone.de

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1 User information

The "User information" section supplies information on using the operating manual.

1.1 Purpose of the document

This operating manual

- Describes the operation and maintenance of the machine.
- Provides important information on safe and efficient handling of the machine.
- Is a component part of the machine and should always be kept with the machine or the traction vehicle.
- Keep it in a safe place for future use.

1.2 Locations in the operating manual

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

1.3 Diagrams used

Instructions for action and reactions

Tasks to be carried out by the user are presented as numbered instructions. Always keep to the order of the instructions. The reaction to instructions is given by an arrow.

Example:

1. Instruction for action 1
- Reaction of the machine to instruction for action 1
2. Instruction for action 2

Lists

Lists without a mandatory sequence are presented as a list with bullet points.

Example:

- Point 1
- Point 2

Item numbers in diagrams

Numbers in round brackets refer to the item numbers in the diagrams. The first digit refers to the diagram; the second digit, to the item number in the illustration.

Example (Fig. 3/6)

- Figure 3
- Item 6

2 General safety instructions

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

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 machine operation.

Obligations of the operator

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

- Are aware of the basic workplace safety information and accident prevention regulations.
- Have been trained in working with/on the machine.
- Have read and understood this operating manual.

The operator is obliged

- To keep all the warning pictograms on the machine in a legible state.
- To replace damaged warning pictograms.

If you still have queries, please contact the manufacturer.

Obligations of the user

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

- To comply with the basic workplace safety instructions and accident prevention regulations.
- To read and understand the section "General safety information" of this operating manual.
- To read the section "Warning symbols and other labels on the machine" (page 17) of this operating manual and to follow the safety instructions represented by the warning symbols when operating the machine.
- To get to know the machine.
- 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 machine

The machine has been constructed to the state-of-the art and the recognised rules of safety. However, there may be risks and restrictions which occur when operating the machine

- For the health and safety of the user or third persons,
- For the machine,
- For other goods.

Only use the machine

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

Eliminate any faults that could impair safety immediately.

Guarantee and liability

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

- Improper use of the machine.
- Improper installation, commissioning, operation and maintenance of the machine.
- Operation of the machine with defective safety equipment or improperly attached or non-functioning safety equipment.
- Non-compliance with the instructions in the operating manual regarding commissioning, operation and maintenance.
- Independently-executed constructive changes to the machine.
- Insufficient monitoring of machine parts that are subject to wear.
- Improperly executed repairs.
- Catastrophic events as a result of the impact of foreign objects or 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 gravity of the risk and has the following significance:



DANGER

Indicates an immediate high risk, which will result in death or serious physical injury (loss of body parts or long term damage) if not avoided.

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 incur minor or medium level physical injury or damage to property if not avoided.



IMPORTANT

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

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



NOTE

Indicates handling tips and particularly useful information.

These instructions will help you to use all the functions of your machine to the optimum.

2.3 Organisational measures

The operator must provide the necessary personal protective equipment, such as:

- Safety glasses
- Protective shoes
- Protective suit
- Skin protection, etc.



The operating manual

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

Check all the available safety equipment regularly.

2.4 Safety and protection equipment

Before each commissioning of the machine, all the safety and protection equipment must be properly attached and fully functional. Check all the 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, then 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 machine. The operator must clearly specify the responsibilities of the people charged with operation, maintenance and repair work.

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

Activity \ People	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 through long term activity in the appropriate field of work.



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

2.7 Safety measures in normal operation

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

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

2.8 Dangers from residual energy

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

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 a timely manner.

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

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

Check all the screw connections for a firm seat. On completing maintenance work, check the function of safety and protection equipment.

2.10 Constructive changes

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

Any expansion or modification work shall require the written approval of AMAZONEN-WERKE. Only use the modification and accessory parts released by AMAZONEN-WERKE so that the operating permit, 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 being crushed, cut, caught, drawn in or struck if supporting parts break.

It is forbidden to:

- Drill holes in the frame or on the chassis.
- Increasing the size of existing holes on the frame or the chassis.
- Welding support parts.

2.10.1 Spare and wear parts and aids

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

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

AMAZONEN-WERKE accepts no liability for damage arising from the use of unapproved spare parts, wear parts or auxiliary materials.

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

2.13 Warning pictograms and other signs on the machine

2.13.1 Positioning of warning pictograms and other labels

The following diagrams show the arrangement of the warning pictograms on the machine.

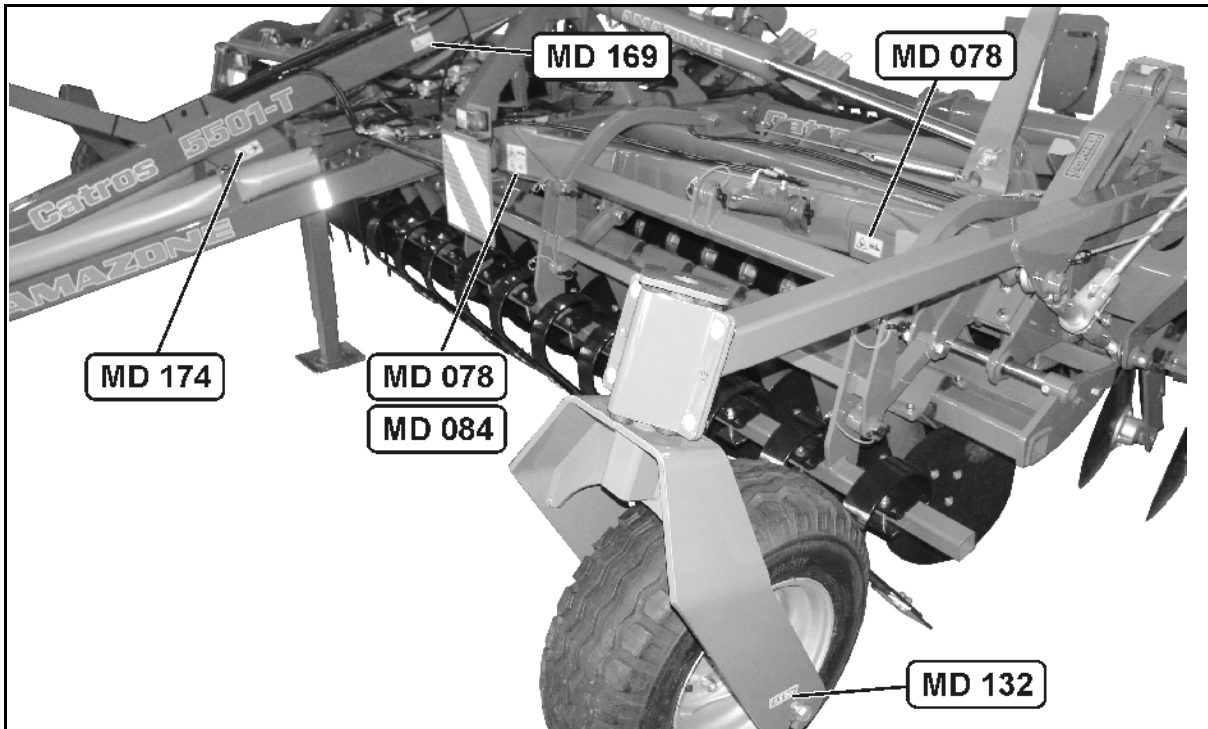


Fig. 1

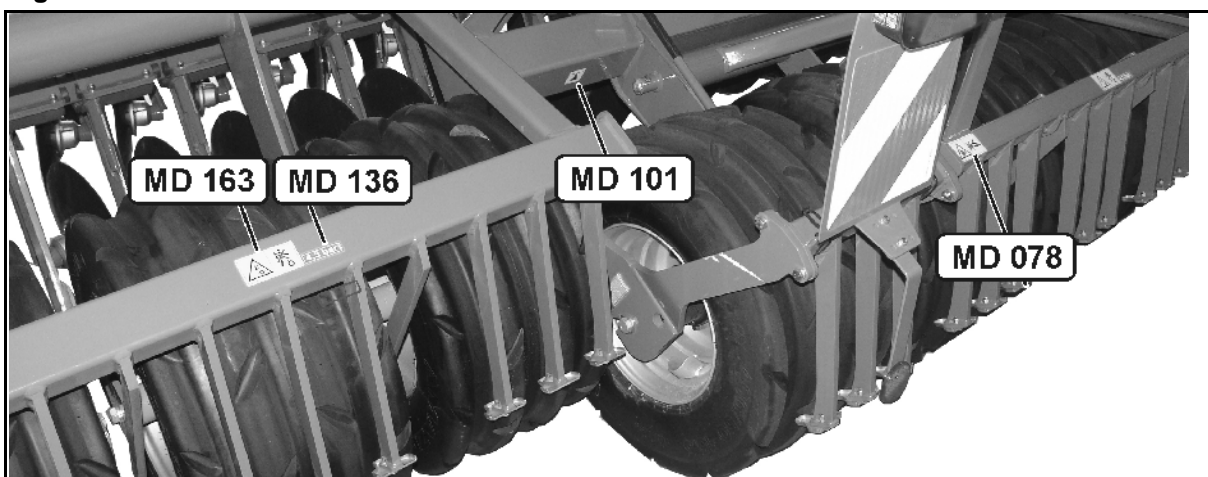


Fig. 2



Fig. 3



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

Warning pictograms - structure

Warning pictograms indicate dangers on the machine and warn against residual dangers. At these points, there are permanent or unexpected dangers.

A warning pictogram consists of two fields:



Field 1

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

Field 2

is a pictogram showing how to avoid the danger.

Warning pictograms - explanation

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

1. A description of the danger.
For example: danger of cutting!
2. The consequence of nonobservance of the danger protection instructions.
For example: causes serious injuries to fingers or hands.
3. Instructions for avoiding the danger.
For example: only touch machine parts when they have come to a complete standstill.

Order number and explanation

Warning pictograms

MD 078

Danger of crushing fingers or hands owing to accessible moving parts of the machine!

This danger can cause extremely serious injuries and loss of limbs.

Never reach into the danger area when the tractor engine is running with PTO shaft / hydraulic system / electronic system connected.



MD 082

Danger from falling when travelling on tread surfaces or platforms!

This danger can cause extremely serious and potentially fatal injuries.

It is forbidden to ride on the machine or climb the running machine. This ban also applies to machines with treads or platforms.

Ensure that no one rides with the machine.



MD 084

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

This danger can cause extremely serious and potentially fatal injuries.

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

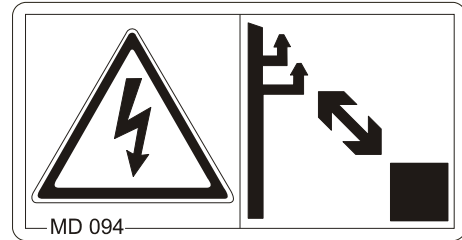


MD 094

Danger from electric shock or burns due to unintentional contact with electric transmission lines or from approaching high-voltage transmission lines without authorisation.

These dangers can cause extremely serious and potentially fatal injuries.

Maintain an adequate safety distance from transmission lines carrying high voltage.



Nominal voltage	Safety distance from transmission lines
-----------------	---

up to 1 kV	1 m
over 1 up to 110 kV	2 m
over 110 up to 220 kV	3 m
over 220 up to 380 kV	4 m

MD 095

Read and understand the operating manual safety information before starting up the machine!

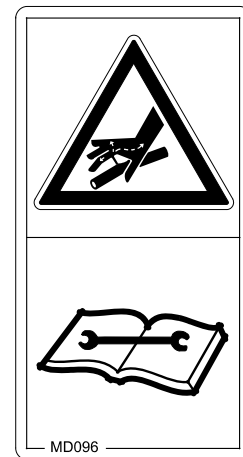


MD 096

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.

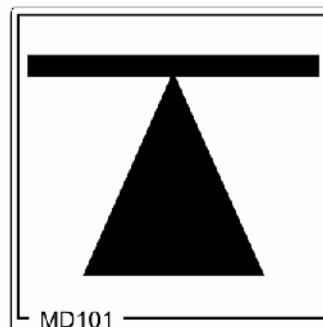
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.
- Read and observe the information in the operating manual before carrying out maintenance work on the hydraulic hose lines.
- If you are injured by hydraulic fluid, contact a doctor immediately.



General safety instructions

MD 101

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

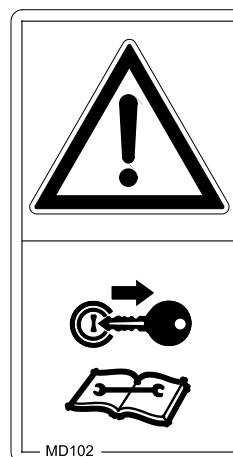


MD 102

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

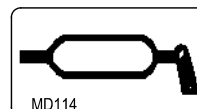
These dangers can cause extremely serious and potentially fatal injuries.

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



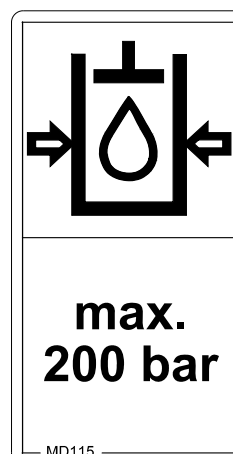
MD 114

This pictogram indicates a lubrication point



MD 115

The maximum operating pressure of the hydraulic system is 200 bar.



MD 132

The required tyre pressure is 1.8 bar.

**MD 136**

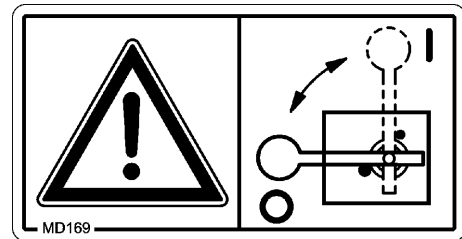
The required tyre pressure is 4.3 bar.

**MD 163**

Risk of falling caused by inadvertent turning of individual roller segments when climbing onto the supporting or packer rollers!

This danger can cause extremely serious and potentially fatal injuries.

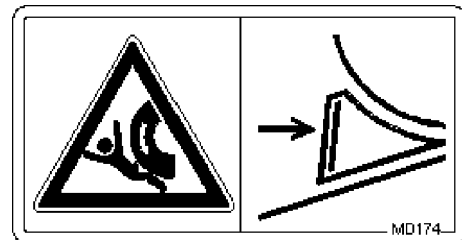
Never climb onto the roller segments of the supporting or packer rollers.

**MD 174**

Danger from unintended continued movement of the machine.

Causes serious, potentially fatal injuries anywhere on the body.

Secure the machine against unintended continued movement before uncoupling the machine from the tractor. For this, use the parking brake and/or the wheel chock(s).



2.14 Dangers if the safety information is not observed

Nonobservance of the safety information

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

Seen individually, non-compliance with the safety information could pose the following risks:

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

2.15 Safety-conscious working

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

Comply with the accident prevention instructions on the warning pictograms.

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

2.16 Safety information for users



WARNING

Risk of being crushed, cut, caught, drawn in or struck due to insufficient traffic and operational safety!

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

2.16.1 General safety and accident prevention information

- Beside these instructions, comply with the general valid national safety and accident prevention regulations.
- The warning pictograms and labels attached to the machine provide important information on safe machine operation. Compliance with this information guarantees your safety!
- Before moving off and starting up the machine, check the immediate area of the machine (children)! Ensure that you can see clearly!
- It is forbidden to ride on the machine 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 machine.

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

Connecting and disconnecting the machine

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

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.
- Secure the operating lever of the tractor hydraulic system so that unintentional raising or lowering is impossible, before connecting the machine to or disconnecting the machine from the tractor's three-point hydraulic system.



General safety instructions

- When coupling and uncoupling machines, 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 machine to the tractor or uncoupling it from the tractor! There are contusion and cutting points in the area of the coupling point between the tractor and the machine.
- It is forbidden to stand between the tractor and the machine when actuating the three-point hydraulic system.
- Coupled supply lines:
 - Must give without tension, bending or rubbing on all movements when travelling round corners.
 - May not scour other parts.
- The release ropes for quick action couplings must hang loosely and may not release themselves when lowered.
- Also ensure that uncoupled machines are stable!

Use of the machine

- Before starting work, ensure that you understand all the equipment and actuation elements of the machine and their function. There is no time for this when the machine is already in operation!
- Do not wear loose-fitting clothing! Loose clothing increases the risk over being caught by drive shafts!
- Only start-up the machine, when all the safety equipment has been attached and is in the safety position!
- Comply with the maximum load of the connected machine and the approved axle and drawbar loads of the tractor. If necessary, drive only with a partially-filled hopper.
- It is forbidden to stand in the working area of the machine.
- It is forbidden to stand in the turning and rotation area of the machine.
- There are contusion and cutting points at externally-actuated (e.g. hydraulic) machine points.
- Only actuate externally-actuated machine parts when you are sure that there is no-one within a sufficient distance from the machine!
- Secure the tractor against unintentional start-up and rolling before you leave the tractor.
For this:
 - Lower the machine onto the ground
 - Apply the parking brake
 - Switch off the tractor engine
 - Remove the ignition key

Machine transportation

- When using public highways, national road traffic regulations must be observed.
- Before moving off, check:
 - the correct connection of the supply lines
 - the lighting system for damage, function and cleanliness
 - the brake and hydraulic system for visible damage
 - that the parking brake is released completely
 - the proper functioning of the braking system
- Ensure that the tractor has sufficient steering and braking power. Any machines 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 payload of the connected machine and the approved axle and drawbar loads of the tractor.
- The tractor must guarantee the prescribed brake delay for the loaded vehicle combination (tractor plus connected machine).
- Check the brake power before moving off.
- When turning corners with the machine connected, take the broad load and balance weight of the machine into account.
- Before moving off, ensure sufficient side locking of the tractor lower links, when the machine is fixed to the three-point hydraulic system or lower links of the tractor.
- Before moving off, move all the swivel machine parts to the transport position.
- Before moving off, secure all the swivel machine parts in the transport position against risky position changes. Use the transport locks intended for this.
- Before moving off, secure the operating lever of the three-point hydraulic system against unintentional raising or lowering of the connected machine.
- Check that the transport equipment, e.g. lighting, warning equipment and protective equipment, is correctly mounted on the machine.
- Before transportation, carry out a visual check that the upper and lower link pins are firmly fixed with the lynch pin against unintentional release.
- Adjust your forward speed to the prevailing conditions.
- Before driving downhill, switch to a low gear.
- Before moving off, always switch off the independent wheel braking (lock the pedals).

2.16.2 Hydraulic system

- The hydraulic system is under a high pressure.
- Ensure that the hydraulic hose lines are connected correctly.
- When connecting the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the machine 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
 - necessarily require a float or pressure position to operate correctly
- Before working on the hydraulic system
 - Lower the machine
 - Depressurise the hydraulic system
 - Switch off the tractor engine
 - Apply the parking brake
 - Take out the ignition key
- Have the hydraulic hose lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if it is damaged or worn. Only use original **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 ageing, 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 from 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.
Danger 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 with too high a rating, the electrical system will be destroyed – danger 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. Contact with earth may cause an explosion
- Risk of explosion: avoid the production of sparks or the presence of naked flames in the vicinity of the battery.
- The machine can be equipped with electronic components, the function of which may be 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 of electrical units and/or components on the machine, with a connection to the on-board power supply, the user must check whether the installation might cause faults on the vehicle electronics or other components.
 - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 2004/108/EC in the appropriate version and carry the CE mark.

2.16.4 Attached machines

- Comply with the approved combination options for the attachment equipment on the tractor and the machine drawbar.
Only couple approved combinations of vehicles (tractor and attached machine).
- In the case of single axle machines, observe the maximum permitted drawbar load of the tractor on the attachment equipment.
- Ensure that the tractor has sufficient steering and braking power. Machines 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 machines 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 may carry out adjustment and repair work on the brake system.
- Have the brake system checked regularly.
- If there are any functional faults in the brake system, stop the tractor immediately. Have the malfunctions rectified immediately.
- Before performing any work on the braking system, park the machine safely and secure the machine against unintentional lowering or rolling away (wheel chocks)
- Be particularly careful when carrying out any welding, torch cutting or drilling work in the area of the brake lines.
- After carrying out any adjusting and repair work on the brake system, always carry out a brake test.

Pneumatic braking system

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

Hydraulic braking system for export machines

- 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 pressure. If the air pressure in the tyres is too high, then there is a risk of explosions!
- Park the machine in a safe place and lock the machine against unintentional falling and rolling (parking brake, wheel chocks), before carrying out work on the tyres.
- Tighten or retighten all the fixing screws and nuts in accordance with the specifications of AMAZONEN-WERKE!

2.16.7 Cleaning, maintenance and repairs

- Only carry out cleaning, maintenance and repair work on the machine when:
 - the drive is switched off
 - the tractor engine is at a standstill
 - the ignition key has been removed
 - the connector to the machine has been disconnected from the on-board computer
- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- If the machine or parts of the machine are raised, secure them against unintentional lowering before cleaning, maintaining or repairing the machine.
- 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 machines.
- 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

Loading and unloading with a tractor

**WARNING**

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



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

Pneumatic braking system:

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

If the machine is to be loaded onto a transportation vehicle or unloaded from such a vehicle, it must be coupled to a suitable tractor.

Loading:

A marshalling person is required for loading.

Secure the machine according to instructions.

Then disconnect the tractor from the machine.

Unloading:

Remove the transportation locks.

A person is required to help with manoeuvring when unloading.

After unloading, park the machine and uncouple the tractor.

4 Product description

This section:

- Provides a comprehensive overview of the machine structure.
- Provides the names of the individual modules and controls.

Read this section when actually at the machine. This helps you to understand the machine better.

The machine is composed of the following main components:

- Hydraulically foldable frame
- Two-row concave-disc arrangement
- Wedge ring rollers with integrated running gear

4.1 Overview of subassemblies

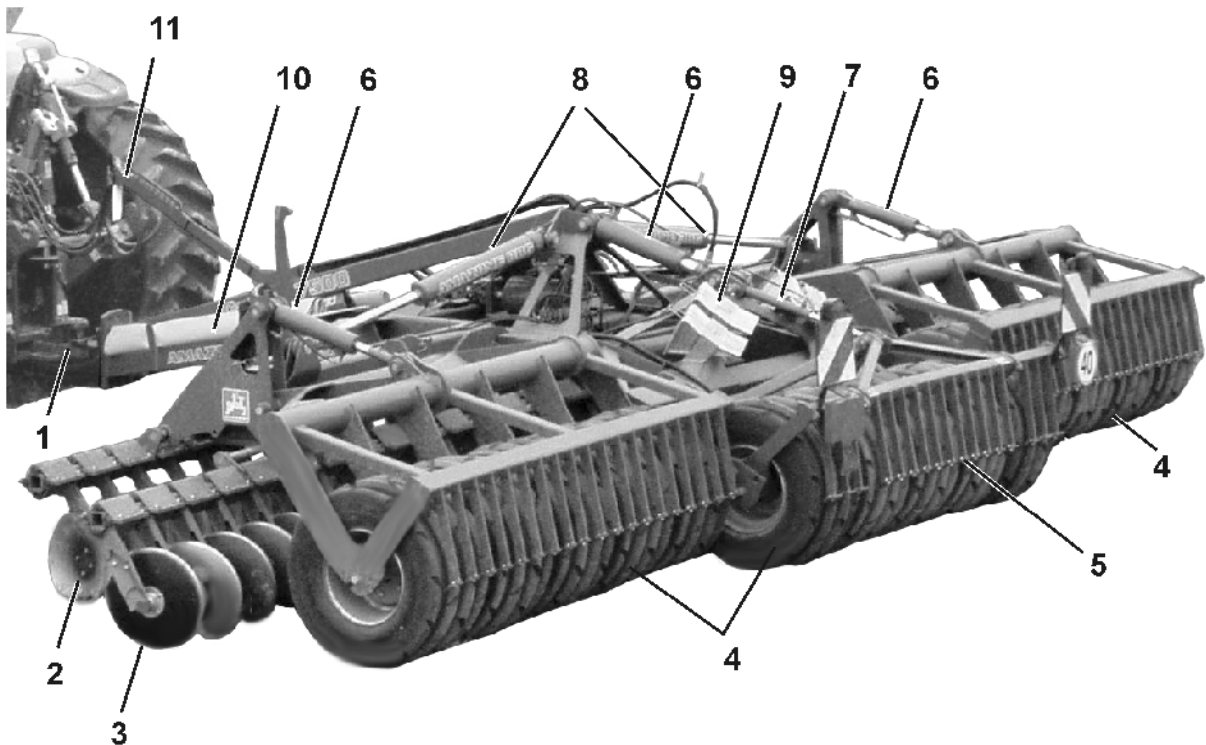


Fig. 4

- | | |
|---|---|
| (1) Adjustable drawbar attachment or lower link attachment | (7) Hydraulic cylinder for transport running gear |
| (2) 1. disc row | (8) Hydraulic cylinder for folding the machine wing |
| (3) 2. disc row | (9) Wheel chocks |
| (4) Wedge ring roller (in centre section with integrated running gear) | (10) Protective tarpaulins for road transport |
| (5) Scraper for wedge ring roller | (11) Hydraulic hoses for connection to tractor |
| (6) Hydraulic cylinder for raising and lowering the machine and for depth adjustment (optional) | |

4.2 Safety and protection equipment

- Retaining latch to secure the folded-in machine against unintentional folding out.



Fig. 5

- Stop tap to secure the transport width when raising the machine (against swivelling out of the rollers).
 - Stop tap in position **0** – Transport position
 - Stop tap in position **I** – Application position.

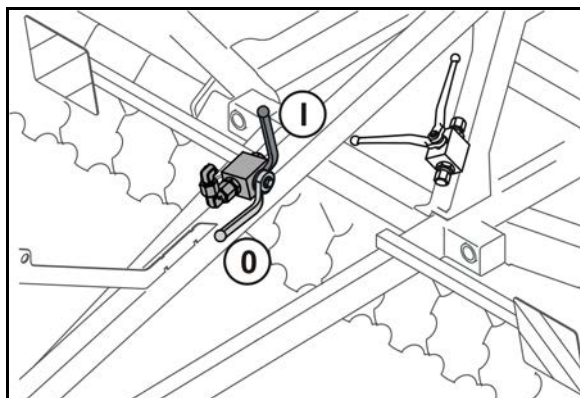


Fig. 6

- Protective tarpaulins for the discs during road transport

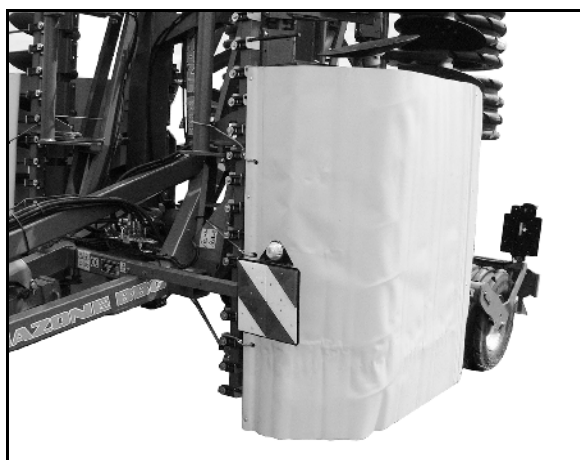


Fig. 7

Rear harrow (Fig. 8/1):

- Road safety bar (Fig. 8/2) for the rear harrow during road transport
- Transport position of the rear harrow

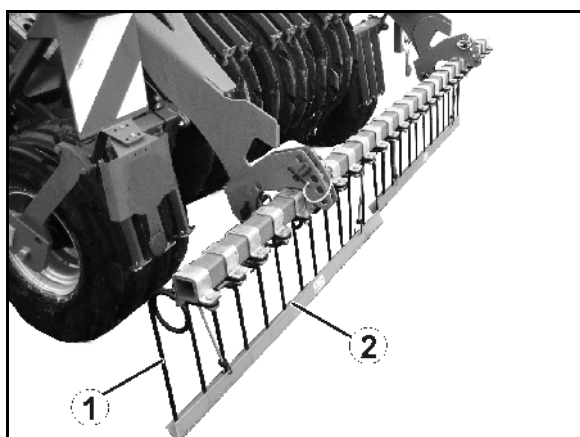


Fig. 8

4.3 Supply lines between the tractor and the machine

- Hydraulic hose lines
- Electric cable for lighting
- Connection to hydraulic brake or
- dual-circuit pneumatic braking system:
 - Brake line with coupling head (yellow)
 - Supply line with coupling head (red)

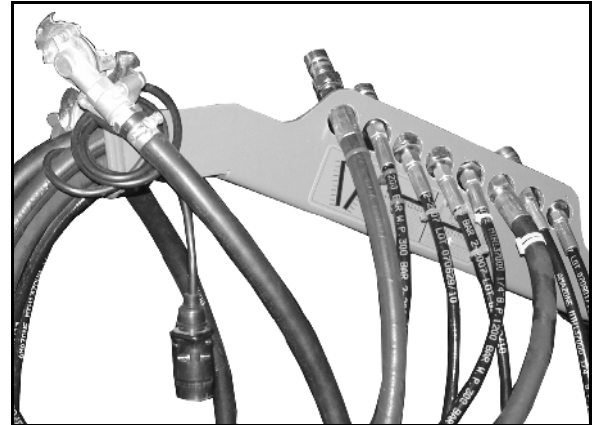


Fig. 9

4.4 Transportation equipment

Fig. 12: Rear lighting

- (1) Rear lights; brake lights; turn indicators
- (2) Warning signs (square)
- (3) Red reflectors (round)
- (4) Reflectors, yellow
- (5) Licence plate holder

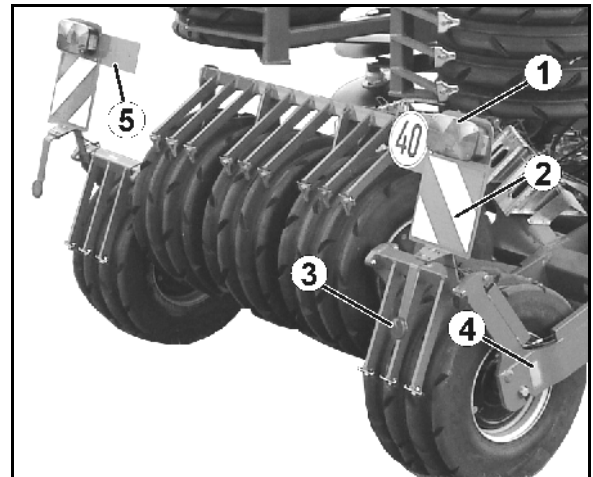


Fig. 10

- (1) 2 limiting lights; turn indicators
- (2) 2 warning signs
- (3) Reflectors, yellow

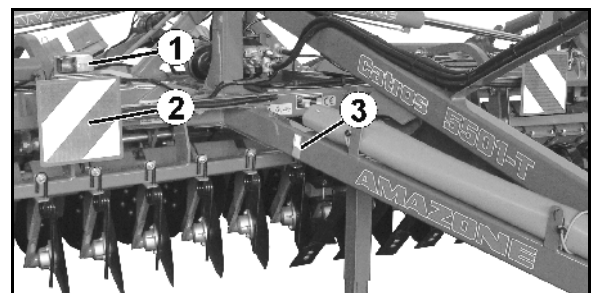


Fig. 11



- Check the lighting system for correct operation.
- The warning signs must be clean and undamaged.

4.5 Intended use

The machine

- is intended exclusively for normal use in intensive, shallow soil cultivation.
- is operated by one person.
- depending on equipment, is coupled to
 - a tractor drawbar
 - the tractor lower link, Category III
 - the tractor pin coupling D = 40/50.
 - the ball coupling

Slopes can be travelled

- Along the contours
 - Direction of travel to left 15 %
 - Direction of travel to right 15 %
- Along the gradient
 - Up the slope 15 %
 - Down the slope 15 %

The intended use also includes:

- Compliance with all the instructions in this operating manual.
- Execution 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 assumes no liability whatsoever.

4.6 Danger area and danger points

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

- By work movements made by the machine and its tools
- By materials or foreign objects ejected by the machine
- By tools rising or falling unintentionally
- By unintentional rolling of the tractor and the machine

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

No-one may stand in the machine danger area:

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

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

Danger points exist:

- between the tractor and the machine, especially when coupling and uncoupling.
- in the area of moving parts.
- when the machine is in motion.
- within the machine wings' pivoting range
- underneath raised, unsecured machines or parts of machines
- when folding the machine wing in the area of overhead cables

4.7 Rating plate and CE marking

The following diagrams show the location of the rating plate and CE marking.

The rating plate shows:

- machine ID no.
- type
- permissible system pressure (bar)
- year of manufacture
- factory
- power output (kW)
- basic weight (kg)
- permissible total weight (kg)
- rear axle load (kg)
- front axle load drawbar load (kg)

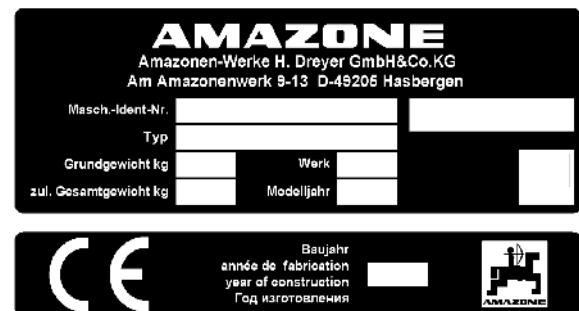


Fig. 12

4.8 Technical Data

Catros		7501-2T	
		Catros	Catros
Working width	[mm]	7500	
Version		foldable	
Transport running gear		2x 400/50-15,5	
Permissible max. speed	[km/h]	25	

Dimensions in basic equipment			
Rear axle load	[kg]	4500	4780
Drawbar load	[kg]	1400	1600
Total length	[mm]	5600	
Total width	[mm]	3000	
Transport height	[mm]	4000	
Disc spacing	[mm]	250	
Disc diameter			
Catros	[mm]	460	
Catros⁺	[mm]	510	
Number of discs		60	
Adjustment of disc offset		Mechanical	
Adjustment of working depth		Mechanical Hydraulic (optional)	
Working depth	[mm]	30 - 120	30 - 140

Weights			
Basic machine	[kg]	5900	6380
Rear harrow		480	



The basic weight (empty weight) is calculated from the total individual weights of the modules.

4.9 Necessary tractor equipment

For the machine to be operated as intended, the tractor must fulfil the following requirements:

Tractor engine power

Catros 7501-2T from 160 kW (240 bhp) upwards

Catros⁺ 7501-2T from 205 kW (280 bhp)

Electrical system

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

Hydraulic system

- | | |
|-----------------------------|--|
| Maximum operating pressure: | • 200 bar |
| Tractor pump capacity: | • At least 15 l/min at 150 bar |
| Machine hydraulic fluid: | <ul style="list-style-type: none"> • Transmission/hydraulic fluid Utto SAE 80W API GL4 <p>The machine hydraulic/transmission fluid is suitable for the combined hydraulic/transmission fluid circuits of all standard makes of tractor.</p> |
| Control units | <ul style="list-style-type: none"> • Depending on version, 2 to 4 double-acting control units, see on page 39 |

Service brake system

- | | |
|------------------------------------|--|
| Dual-circuit service brake system: | <ul style="list-style-type: none"> • 1 hose coupling (red) for the supply line • 1 hose coupling (yellow) for the brake line |
| Hydraulic braking system: | <ul style="list-style-type: none"> • 1 hydraulic coupling in accordance with ISO 5676 |



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

4.10 Noise production data

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

Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5 Structure and function

The following section provides information on the machine structure and the functions of the individual components.

5.1 Function

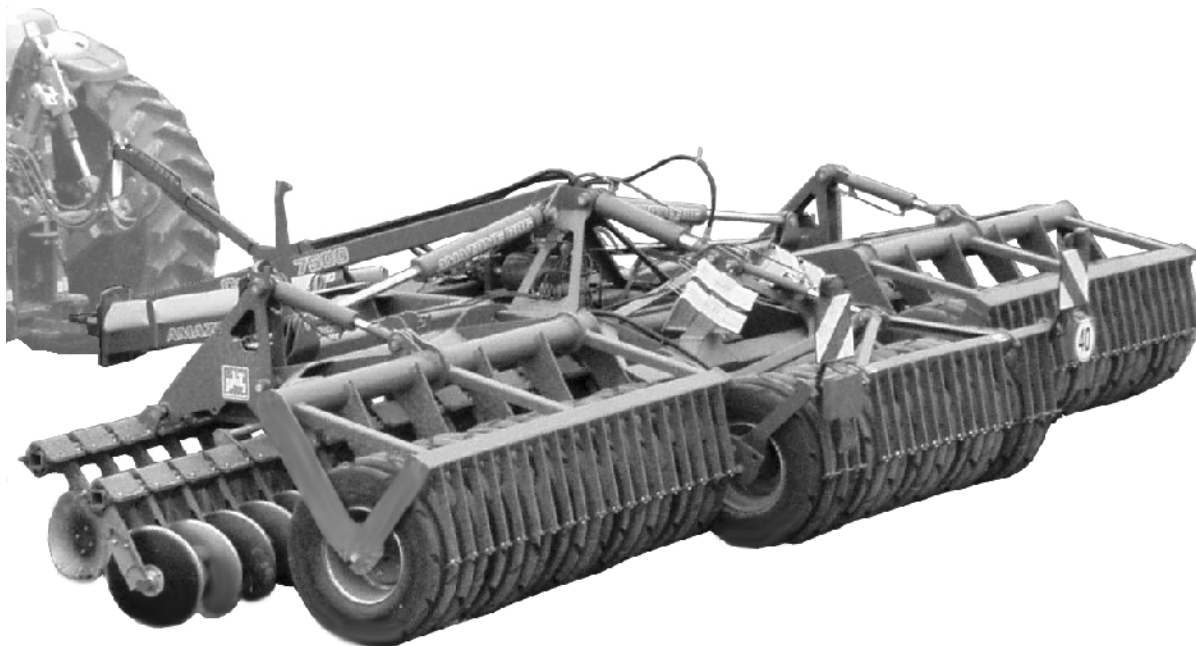


Fig. 13

The **Catros** compact disc cultivator is suitable for

- shallow stubble cultivation directly after threshing
- seed bed preparation in spring for maize or sugar beet
- incorporation of catch crops, e.g. yellow mustard
- incorporation of liquid manure.

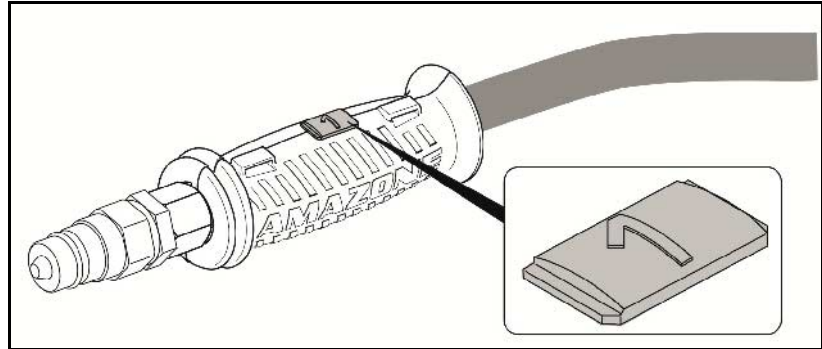
The two-row disc arrangement ensures soil cultivation and rotavation. The trailing roller wheels serve to re-consolidate the soil and to adjust the depth of the discs.

5.2 Hydraulic joints

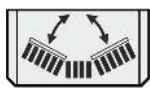
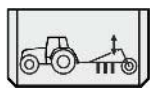
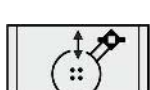


All hydraulic hose lines are equipped with gripping sections.

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



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

Tractor control units		Function		Hose identifica- tion
	Double-acting	Machine	• Fold out	1 – blue
			• Fold in	2 - blue
	Double-acting	Machine	• Lower	1 – yellow
			• Raise	2 - yellow
	Double-acting	Set working depth (Optional)	• Increase	1 - green
			• Decrease	2 - green



WARNING

Danger of infection from escaping hydraulic fluid at high pressure!

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

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

5.2.1 Coupling the hydraulic hose lines



WARNING

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

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



- Check the compatibility of the hydraulic fluids before connecting the machine to the hydraulic system of the tractor.
Do not mix any mineral oils with biological oils.
- Observe the maximum approved hydraulic fluid pressure of 200 bar.
- Only couple clean hydraulic connectors.
- Push the hydraulic connector(s) into the hydraulic sockets until the hydraulic connector(s) is (are) felt to lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

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

5.2.2 Uncoupling the hydraulic hose lines

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

5.3 Dual-circuit service brake system



Compliance with the maintenance intervals is essential for the correct function of the dual-circuit service brake system.



The machine has no parking brake!

Always secure the machine with the wheel chocks before you uncouple the machine from the tractor!



Dual-circuit pneumatic braking system

The machine is equipped with a dual-circuit pneumatic braking system with hydraulically actuated braking cylinder for the brake shoes in the brake drums.



WARNING

If the machine is parked uncoupled from the tractor with a full compressed air tank, the compressed air of the compressed air tank acts on the brakes and the wheels are then 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. The machine must therefore be parked only with wheel chocks.

The brakes are released immediately with a full compressed air tank when the supply line (red) is connected to the tractor. Before connection of the supply line (red) the machine must therefore be connected to the tractor's lower links and the tractor's handbrake must be applied. The wheel chocks must also not be removed until the machine is connected to the tractor's lower links and the tractor's handbrake is applied.

To activate the dual-circuit pneumatic braking system, the tractor requires a pneumatic braking system which is also dual circuit.

- Supply line with coupling head (red)
- Brake line with coupling head (yellow)

Structure and function

Fig. 14/...

- (1) Line filter
- (2) Release valve with actuator button:
 - If the actuator button
 - is pressed in to the stop, the service brake system is released, e.g. for manoeuvring the uncoupled machine.
 - is pulled out to the stop, the machine is braked by the supply pressure coming from the air reservoir.
- (3) Brake valve

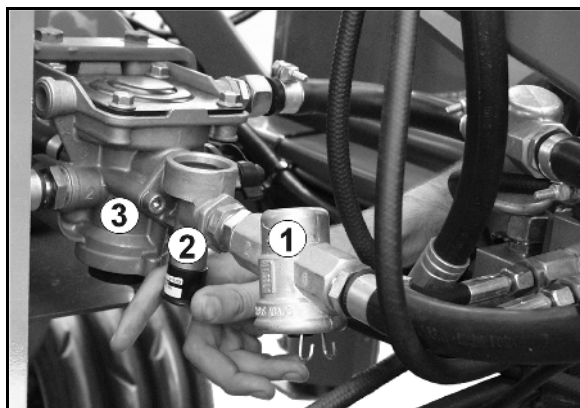


Fig. 14

Fig. 15/...

- (1) Brake cylinder
- (2) Equalising tank for brake fluid

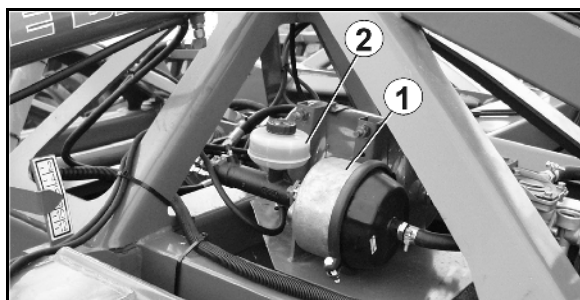


Fig. 15

Fig. 16/...

- (1) Compressed air tank
- (2) Test connection for pressure gauge.
- (3) Drain valve.

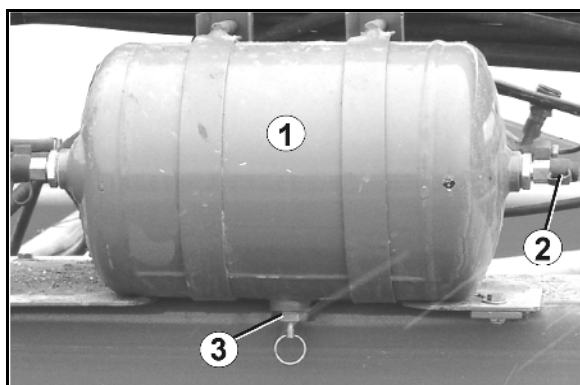


Fig. 16

Automatic load-dependent brake force regulator



WARNING

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

You must not alter the setting dimension (L) on the automatic load-dependent brake force regulator. The setting dimension (L) must correspond to the specified value of the Haldex ALB sign.

5.3.1 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 coupling head seals are clean.
 - the sealing rings of the hose couplings form a proper seal.
- Always replace damaged seals immediately.
- Drain the air reservoir before the first journey each day.
- Only move off with the machine connected when the pressure gauge on the tractor shows 5.0 bar.



WARNING

Risk of contusions, cuts, dragging, catching or knocks from unintentionally rolling machine with the operating brake released!

Always couple the hose coupling of the brake line (yellow) first, followed by the hose coupling of the supply line (red).

The operating brake of the machine moves out of the brake position immediately the red hose coupling has been coupled.

1. Open the tractor coupling head caps.
2. Remove brake line coupling head (yellow) from the idle coupling.
3. Check coupling head seals for damage and cleanness.
4. Clean dirty seals, replace damaged seals.
5. Fasten the brake line coupling head (yellow) as directed in the tractor coupling with the yellow marking.
6. Remove the supply line coupling head (red) from the idle coupling.
7. Check coupling head seals for damage and cleanness.
8. Clean dirty seals, replace damaged seals.
9. Fasten the supply line coupling head (red) in the tractor coupling with the red marking, as instructed.
- On coupling the supply line (red), the supply pressure coming from the tractor automatically pushes out the actuator button for the release valve on the trailer brake valve.
10. Remove wheel chocks.

5.3.2 Uncoupling the brake and supply lines

**WARNING**

Risk of contusions, cuts, dragging, catching or knocks from unintentionally rolling machine with the operating brake released!

Always uncouple the hose coupling of the supply line (red) first followed by the hose coupling of the brake line (yellow).

The operating brake of the machine only moves into the brake position when the red hose coupling has been uncoupled.

Always keep to this order, as otherwise the service brake system will trip and may set the unbraked machine moving.



When the machine is uncoupled or pulled away from the trailer, air is vented from the trailer brake valve supply line. The trailer brake valve is automatically switched and operates the service braking system independently of the automatic, load-dependent braking force regulator.

1. Secure the machine against unintentionally rolling away.
Use wheel chocks.
2. Release supply line coupling head (red).
3. Release brake line coupling head (yellow).
4. Fasten coupling heads in the idle coupling points.
5. Close tractor coupling head caps.

5.4 Hydraulic service brake system



The machine has no parking brake!

Always secure the machine with the wheel chocks before you uncouple the machine from the tractor!

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

5.4.1 Coupling the hydraulic service brake system



Only couple clean hydraulic couplings.

1. Remove the protective caps.
2. If necessary, clean the hydraulic connector and hydraulic socket.
3. Connect the hydraulic socket on the machine face with the hydraulic connector on the tractor face.
4. Tighten the hydraulic screw union hand tight (if present).



Fig. 17

5.4.2 Uncoupling the hydraulic service brake system

1. Release the hydraulic screw union (if present).
2. Protect the hydraulic connectors and hydraulic sockets against soiling with the dust protection caps.
3. Place the hydraulic hose line in the hose cabinet.

5.4.3 Emergency brake

In event of the machine being released from the tractor during travel, the emergency brake will brake the machine.

Fig. 18/...

- (1) Pulling cable
- (2) Brake valve with pressure accumulator
- (3) Hand pump to relieve the brake
- (A) Brake released
- (B) Brake applied

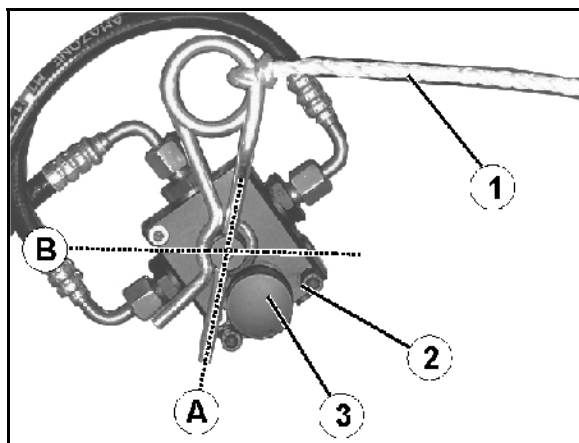


Fig. 18



DANGER

Before travel, set the brake to the application position.

For this purpose:

1. Secure the pulling cable to a fixed point on the tractor.
2. Apply the tractor brake with the tractor engine running and hydraulic brake connected.

→ Pressure accumulator of the emergency brake is being charged.



DANGER

Risk of accident through brake malfunction!

After withdrawing the safety splint (e.g. when activating the emergency brake), it is essential to insert the safety splint into the brake valve from the same side (Fig. 18). Otherwise the brake will not function.

After reinserting the safety splint, carry out a brake test for the service brake and the emergency brake.



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

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

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

5.5 Parking brake



Depending on the regulations in the country where it is used, the implement is equipped with a parking brake.

When the parking brake is on, it secures the uncoupled machine against unintentional rolling. The parking brake is operated by turning the crank, which in turn operates the spindle and bowden cable.

- (A) Apply the tractor parking brake.
- (B) Release parking brake.

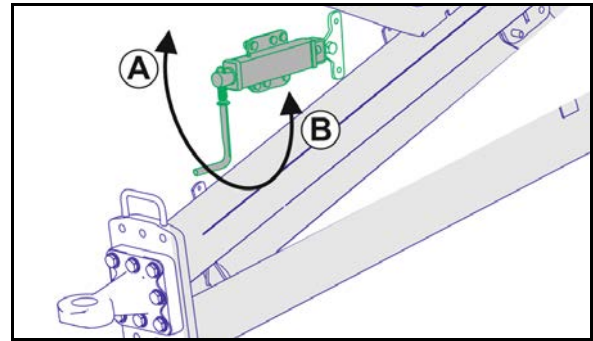


Fig. 19



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

5.6 Two-row disc cultivator

Fig. 20: **Catros⁺** disc cultivator with serrated discs and 510 mm diameter.

Fig. 21: **Catros** disc cultivator with round discs and 460 mm diameter.

The concave discs (Fig. 21/1) are arranged offset to the direction of travel by an angle of 17° at the front and 14° at the rear.

The mounting of the concave discs (Fig. 21/2) consists of a two-row angular-contact ball bearing with slide seal and oil filling and is maintenance-free.

The following can be adjusted:

- The offsetting of the two disc rows, which can be coordinated via the offset slide with regard to working depth and speed. Adjustment is made with the **AMAZONE** eccentric pins.
- The working intensity of the discs via the working depth.
The depth is set mechanically or hydraulically (optional).
- The two outside discs in vertical direction.
The working depth of the outer discs can be reduced in order to prevent dam or furrow formation.

The elastic rubber sprung suspension of the individual discs enables

- adaptation to soil unevenness
- evasion by the discs when hard obstacles are encountered, e.g. stones. This protects the individual discs against damage.

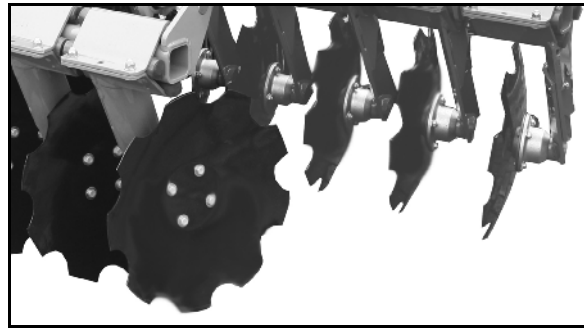


Fig. 20

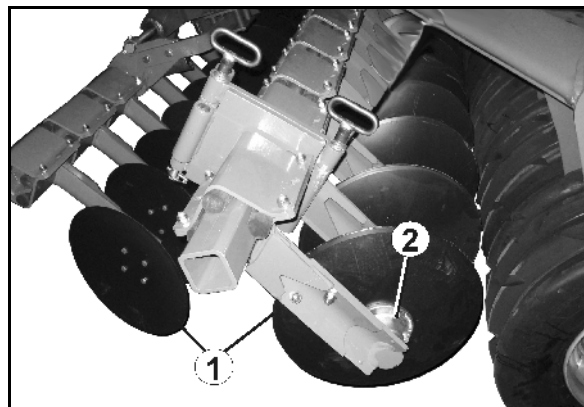


Fig. 21

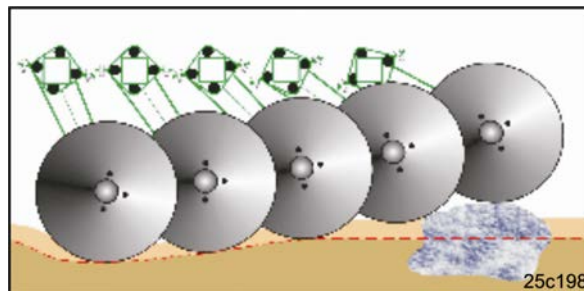


Fig. 22

5.7 Running gear wheels / Roller wheels

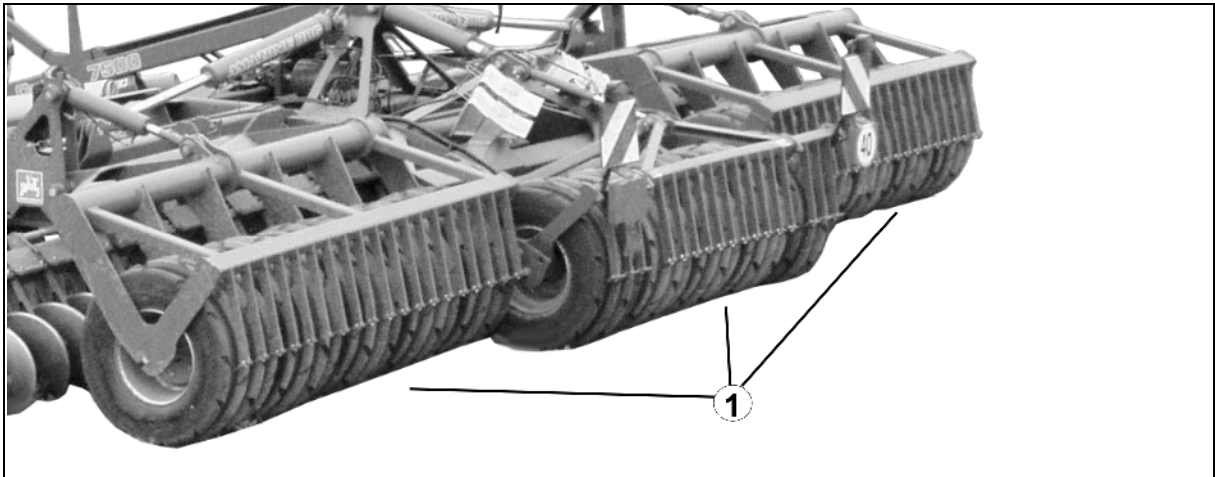


Fig. 23

The wedge ring tyre roller (Fig. 23) with a diameter of 800 mm

- consists of individual, adjacently arranged wedge ring tyres
- compacts the cultivated soil in strips
- takes over the depth control of the concave discs
- forms the running gear during transportation.

Fig. 23/1 - Roller wheels

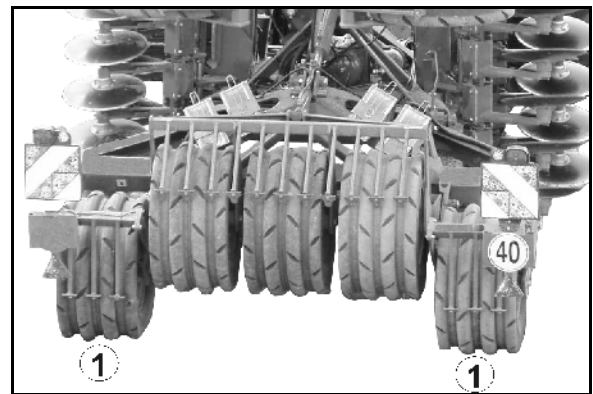


Fig. 24

Fig. 24/1 - Running gear wheels for road transport

During use, the machine runs on the roller wheels and running gear wheels.

During transport and in the headland, the machine runs on the running gear wheels.

Locking of the centre roller wheels

Lock the centre roller wheels hydraulically before operation.

- To do so, close the stop tap on the hydraulic cylinder.

Unlock the centre roller wheels hydraulically after operation.

- To do so, open the stop tap on the hydraulic cylinder.

Stop tap

- Position 0 – closed
- Position I – open

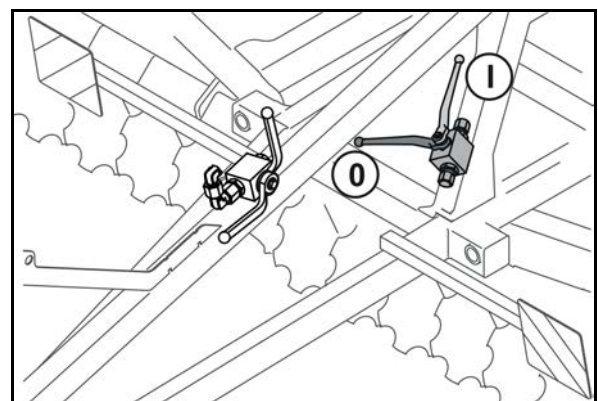


Fig. 25

5.8 Coupling the towing eye/ ball bracket

For coupling the towing eye / ball bracket to the tractor connecting device, see page 60.

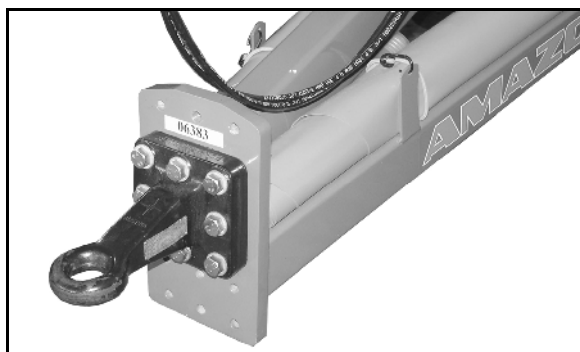


Fig. 26

Coupling

1. Direct people out of the danger area between the tractor and machine before you approach the machine with the tractor.
2. First connect the supply lines before coupling the machine and the tractor.
 - 2.1 Drive the tractor up to the machine to leave a clearance of approximately 25 cm between tractor and machine.
 - 2.2 Secure the tractor against unintentional starting and unintentional rolling away.
 - 2.3 Connect the supply lines to the tractor.
3. Now reverse the tractor further towards the machine so that the connecting device can be coupled.
4. Connect the connecting device to the tractor.
5. Raise the stand.
6. Remove the wheel chocks.

Uncoupling

1. Park the empty machine on a horizontal space with a hard surface.
2. Disconnect the machine from the tractor.
 - 2.1 Secure the machine against unintentionally rolling away. See page 62.
 - 2.2 Lower the stand to the parking position.
 - 2.3 Uncouple the connecting device.
 - 2.4 Pull the tractor forward approx. 25 cm.
 - The resulting free space between the tractor and the machine provides better access to the supply lines when disconnecting them.
 - 2.5 Secure the tractor and machine against unintentional starting and unintentional rolling away.
 - 2.6 Uncouple the supply lines.

5.9 Connecting the lower link attachment

The lower link attachment Category III, IV or V provides an alternative coupling option if the tractor

- has no drawbar, no pin coupling, no ball coupling
- has a blockable three-point lifting device



CAUTION

Owing to the danger of negative drawbar loads, under extremely hard soil conditions the drawbar attachment should be used in preference to the lower link attachment!

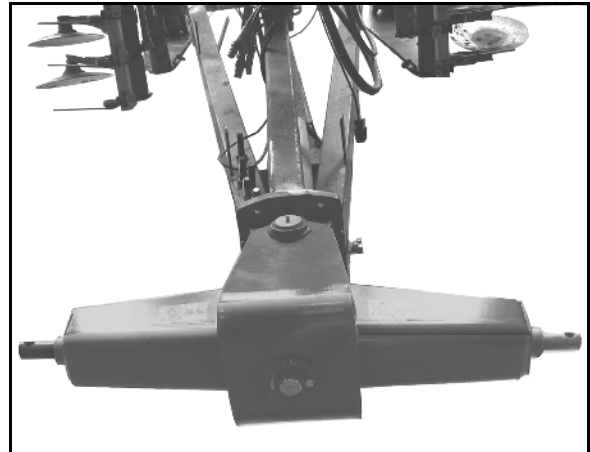


Fig. 27



WARNING

Risk of accident when disconnecting the machine from the tractor!

It is essential to use ball sleeves with sockets and integrated clip pins.

Coupling

1. Secure the ball sleeve via the lower link pins of the machine.
2. Secure each of the lower link pins with lynch pins to ensure that they do not accidentally become loose.
3. Direct people out of the danger area between the tractor and machine before you approach the machine with the tractor.
4. First connect the supply lines before coupling the machine and the tractor.
 - 4.1 Drive the tractor up to the machine to leave a clearance of approximately 25 cm between tractor and machine.
 - 4.2 Secure the tractor against unintentional starting and unintentional rolling away.
 - 4.3 Connect the supply lines to the tractor.
 - 4.4 Position the lower link hooks so that they are aligned with the lower hinging points on the machine.
5. Now, reverse the tractor all the way to the machine so that the lower link hooks of the tractor automatically pick up the ball sleeves of the lower hinging points of the machine.

→ The lower link hooks lock automatically.
6. Visually check that the lower link hooks are correctly locked before you drive off.
7. Raise the stand.
8. Remove the wheel chocks.

Uncoupling

1. Park the empty machine on a horizontal space with a hard surface.
2. Disconnect the machine from the tractor.
 - 2.1 Secure the machine against unintentionally rolling away. See page 62.
 - 2.2 Lower the stand to the parking position.
 - 2.3 Relieve the load from the lower link.
 - 2.4 Unlock and uncouple the lower link hooks from the tractor seat.
 - 2.5 Draw the tractor approximately 25 cm forwards.

→ The resulting free space between the tractor and the machine provides better access to the supply lines when disconnecting them.
 - 2.6 Secure the tractor and machine against unintentional starting and unintentional rolling away.
 - 2.7 Uncouple the supply lines.

5.10 Stand

- Stand raised during use.
 - Stand lowered with machine uncoupled.
- Raise the stand (Fig. 28/1):**
1. Use the crank handle (Fig. 28/2) to raise the stand.
 2. Pull out the pin (Fig. 28/3).
 3. Swivel the stand up and secure with the pin.

Lower the stand (Fig. 28/1):

1. Pull out the pin (Fig. 28/3).
2. Swivel the stand down and secure with the pin.
3. Use the crank handle (Fig. 28/2) to lower the stand.

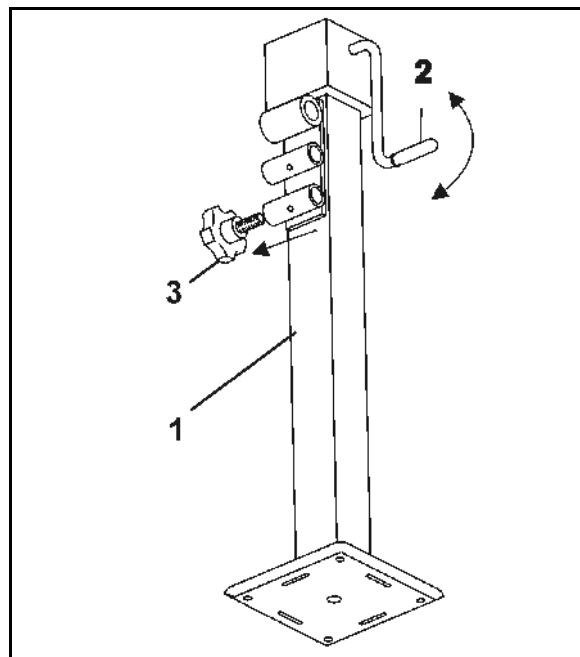


Fig. 28



Check the locking of the stand in its end position.

5.11 Roller feelers

(Optional)

The swivelable roller feelers (Fig. 29/1) stabilise the machine on uneven soil conditions and prevent increased shaking and wave formation.

The roller feelers must be adjusted to the working depth.



CAUTION

The roller feelers can touch the ground, but must not support the weight of the machine. They are not designed as load-bearing elements.

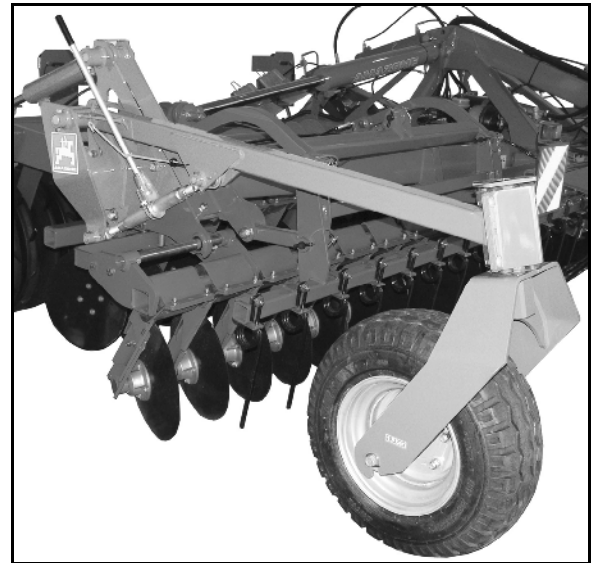


Fig. 29

5.12 Safety chain for machines without brake systems

Machines without brake systems are equipped with a safety chain according to the regulations in each country.

The safety chain must be mounted on an appropriate location of the tractor as prescribed before setting the vehicle in motion.

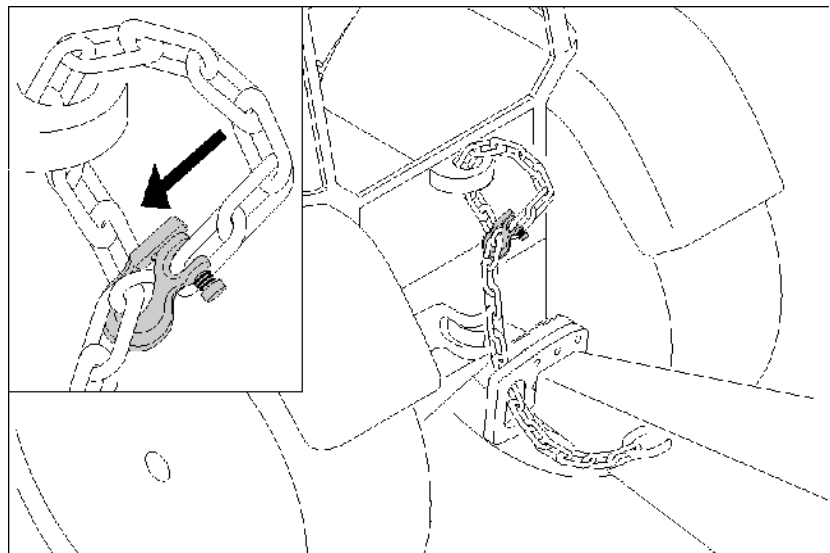


Fig. 30

5.13 Rear harrow

(Optional)

The rear harrow (Fig. 31/1) creates a fine soil structure as seeding preparation. For the purpose of mechanical weed control, it places cut plants on the soil surface, so that they dry out and die.

Lifting and using the rear harrow are mechanically connected with the headland operation of the machine.

The working intensity of the rear harrow can be adjusted, see page 70.



The rear harrow is only suitable for seed bed preparation after ploughing.

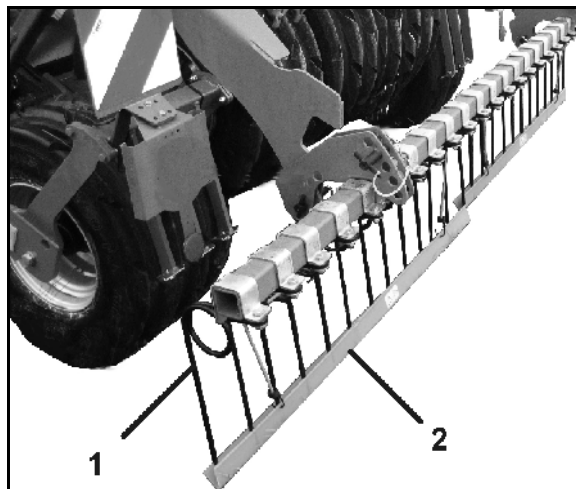
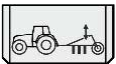


Fig. 31

Moving rear harrow to transport position

1. Actuate the tractor control unit :
 - The rear harrow is raised and the adjusting pin is relieved.
2. Secure the tractor against unintentional starting and unintentional rolling away.
3. Secure the rear harrow with pin (Fig. 32/1) in transport position and secure with clip pin.

For this purpose use adjusting pin.

4. Secure road safety bars (Fig. 31/2) with tensioning belts above the tines of the harrow.

Secure two safety bars in the centre section and two on each boom.

Before use:

- Move rear harrow to operational position
- Secure the road safety bars on the drawbar

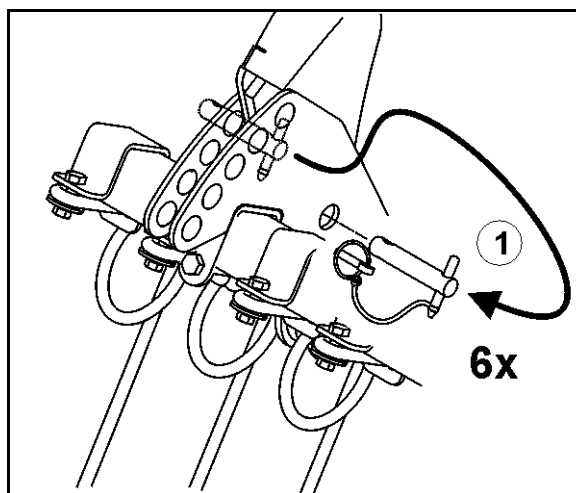


Fig. 32

6 Commissioning

This section contains information

- on operating your machine for the first time.
- on checking how you may connect the machine to your tractor.



- Before operating the machine for the first time the operator must have read and understood the operating manual.
- Follow the instructions given in the section "Safety instructions for the operator" on page 23 onwards when
 - Connecting and disconnecting the machine
 - Machine transportation
 - Use of the machine
- Only couple and transport the machine to/with a tractor which is suitable for the task.
- The tractor and machine 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
- necessarily require a float or pressure position to operate correctly

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 attach or hook up the machine.
You may only connect the machine to tractors suitable for the purpose.
- Carry out a brake test to check whether the tractor achieves the required braking delay with the machine connected.

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

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

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

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

The tractor must achieve the brake delay specified by the tractor manufacturer, even with the machine 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

- empty tractor weight
- ballast weight and
- machine's total weight when attached or drawbar load when hitched.



This note only applies 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

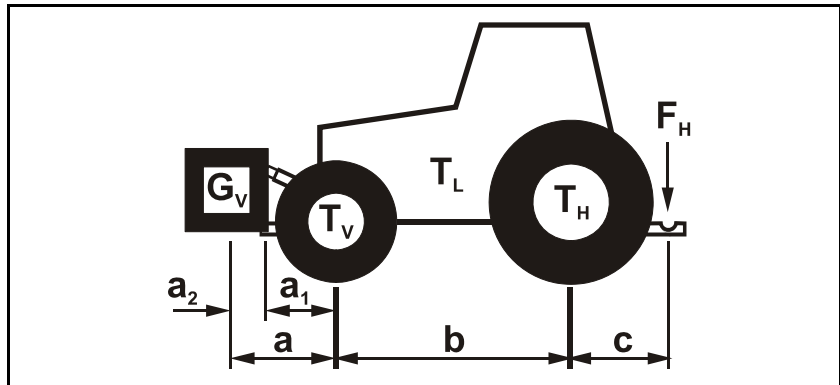


Fig. 33

T_L	[kg]	Empty tractor weight	See tractor operating manual or vehicle documentation
T_V	[kg]	Front axle load of the empty tractor	
T_H	[kg]	Rear axle load of the empty tractor	
G_V	[kg]	Front weight (if available)	See front weight in technical data, or weigh
F_H	[kg]	Maximum drawbar load	See technical data of machine
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 machine 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 machine mount or front weight (centre of gravity distance)	See technical data of front machine 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 machine

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

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 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 operating manual	Double approved load capacity (two tyres)
Minimum ballast front / rear	<div style="border: 1px solid black; padding: 5px; display: inline-block;">/ kg</div>	--	--
Total weight	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	--
Front axle load	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>
Rear axle load	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>



- You can find the approved values for the total tractor weight, axle loads and load capacities in the tractor registration papers.
- The 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 machine 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 machines



WARNING

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

- Ensure:
 - that the connection fittings on the tractor possess sufficient permissible support capability for the drawbar load actually present.
 - 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 tractor's actual static rear axle load does not exceed the permissible rear axle load.
 - that the permissible total weight of the tractor is observed.
 - that the approved load capacities of the tractor tyres are not exceeded.

6.1.2.1 Possible combinations of connecting devices and towing eyes

Fig. 34 shows permissible combinations of the connecting device of the tractor and the towing eye of the machine depending on the maximum permissible drawbar load.

You can find the maximum permissible drawbar load in the vehicle registration papers or on the rating plate of the connecting device of your tractor.

Maximum permissible drawbar load	Connecting device on tractor	Towing eye on rigid drawbar attachment
2000 kg	Pin coupling DIN 11028 / ISO 6489-2	Towing eye 40 DIN 11043
	Non-automatic pin coupling DIN 11025	
3000 kg - ≤ 40 km/h 2000 kg - > 40 km/h	Ball coupling 80	Ball bracket 80
3000 kg	Drawbar ISO 6489-3	Towing eye ISO 5692-1

Fig. 34

6.1.2.2 Calculating actual D_C value for coupling combination



WARNING

Danger from breaking connecting devices between tractor and machine in event of incorrect use of the tractor!

Calculate the actual D_C value of your combination, comprising tractor and machine, in order to check whether the connecting device on your tractor has the required D_C value. The actual calculated D_C value for the combination must be smaller than or equal to (\leq) the specified D_C value of the connecting device of your tractor.

The actual D_C value of a coupling combination is calculated as follows:

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

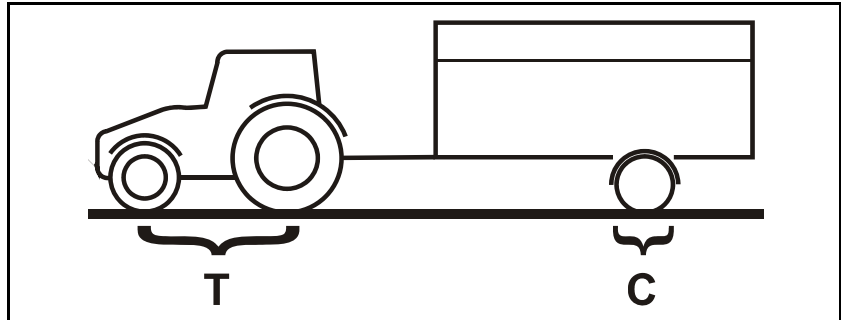


Fig. 35

- T:** Permissible total weight of your tractor in [t] (see tractor operating manual or vehicle documents)
- C:** Axle load of the machine loaded with the permissible (payload) in [t] without drawbar load
- g:** Earth acceleration (9.81 m/s²)

**Actual calculated
 D_C value for the combination**

Stated D_C value of connecting device on tractor

<div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 5px;"></div> KN	≤	<div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 5px;"></div> KN
--	---	--



You will find the D_C value for the connecting device directly on the connecting device / in the operating manual operating manual of your tractor.

6.1.3 Machines without their own brake system



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 machine connected.

If the machine 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 machines.
In many countries, other regulations apply. In Russia, for example, the weight of the tractor must be double that of the attached machine.
- The maximum forward speed is 25 km/h.

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



WARNING

Risk of contusions, cutting, catching, drawing in and knocks when making interventions in the machine through

- **unintentional lowering of the machine when it is raised with the tractor's three-point hydraulic system and unsecured.**
- **unintentional lowering of parts of the machine when in a raised position and unsecured.**
- **unintentional start-up and rolling of the tractor-machine combination.**
- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- It is forbidden to make any intervention in the machine, such as installation, adjustment, troubleshooting, cleaning, maintenance and repairs
 - when the machine is being operated.
 - as long as the tractor engine is running with the PTO shaft / hydraulic system connected.
 - if the ignition key is in the tractor and the tractor engine can be started unintentionally with the PTO shaft / hydraulic system connected.
 - if the tractor and machine 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.

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

1. Lower the raised, unsecured machine / raised, unsecured parts of the machine.
 - This is how to prevent unintentional falling:
2. Shut down the tractor engine.
3. Remove the ignition key.
4. Apply the tractor's parking brake.
5. Secure the machine against unintentional rolling (only attached machine)
 - by applying the parking brake (if fitted) or by using wheel chocks, if the terrain is level.

7 Coupling and uncoupling the machine



When coupling and uncoupling machines, follow the instructions given in the section "Safety instructions for the operator" page 23.



WARNING

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

Secure the tractor and machine against unintentional start-up and rolling away before entering the danger area between the tractor and machine to couple or uncouple the machine. See page 62.



WARNING

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

Only actuate the operator controls for the tractor's three-point hydraulic system:

- From the intended workstation.
- If you are outside of the danger area between the tractor and the machine.



Couple the machine with the available connecting device! See page 49.

7.1 Coupling the machine



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 machine to tractors suitable for the purpose. See section "Checking tractor suitability", page 56.



WARNING

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

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

Any helpers may only act as guides standing next to the tractor and the machine, 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 machine unexpectedly releases from the tractor!

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



WARNING

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

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

- must give slightly without tension, bending or rubbing on all movements of the connected machine.
- may not scour other parts.

7.2 Uncoupling the machine



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and possible tilting of the uncoupled machine!

Park the empty machine on a horizontal space with a hard surface.



When uncoupling the machine, there must always be enough space in front of the machine, so that you can align the tractor with the machine if necessary.

8 Adjustments



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- unintentional falling of the machine raised using the tractor's three-point hydraulic system.
- unintentional falling of raised, unsecured machine parts.
- unintentional start-up and rolling of the tractor-machine combination.

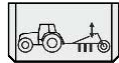
Secure the tractor and the machine against unintentional start-up and rolling before making adjustments to the machine. See Page 62.

8.1 Working depth

Mechanical working depth adjustment

Mechanical adjustment of working depth by changing the number of spacer elements (Fig. 36/1) on the piston rod.

The depth adjustment is indicated on the hydraulic cylinder of the left-hand roller unit!



1. Tractor control unit
 - Raise the machine, thus relieving spacer elements.
2. Change the number of spacer elements on the piston rod.
 - Smaller working depth:
Increase the number of spacer elements
 - Greater working depth:
Reduce the number of spacer elements

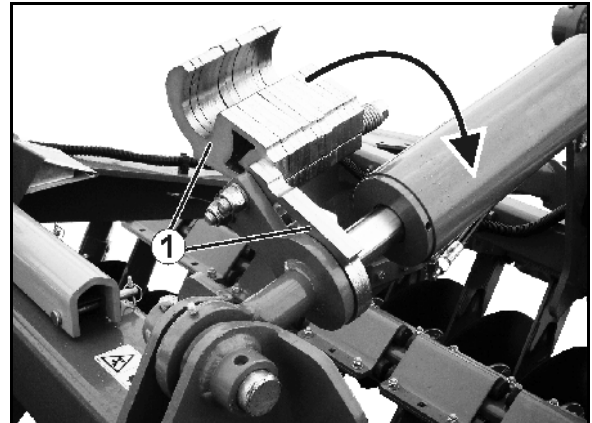


Fig. 36

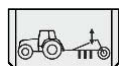


CAUTION

**Do not reach between cylinder base and spacer elements!
Crushing hazard!**



Use the spacer elements in order from bottom to top: risk of damage!



3. Tractor control unit
 - Lower the machine to operational position.

Adjustments

Hydraulic working depth adjustment

Hydraulic adjustment of working depth using the scale (Fig. 36/1).

(Optional)

Actuate tractor control unit .

- Set indicator (Fig. 36/2) toward 0.
→ Smaller working depth.
- Set indicator (Fig. 36/2) toward 12.
→ Greater working depth.

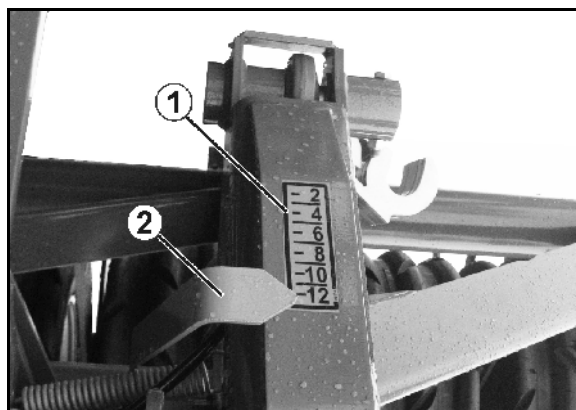


Fig. 37



In the cylinder there is a hydraulically adjustable stop. This facilitates readjustment to the set working depth without a visual check after each headland.

8.2 Adjusting roller feelers to the working depth

The height of the roller feelers (Fig. 38/1) can be adjusted manually by means of a spindle (Fig. 38/2).

The height of the roller feelers must be adjusted each time the working depth of the machine is set.

- Adjustable spindle shorter
→ for reduced working depth
- Adjustable spindle longer
→ for greater working depth



Set roller feelers the same on both sides!

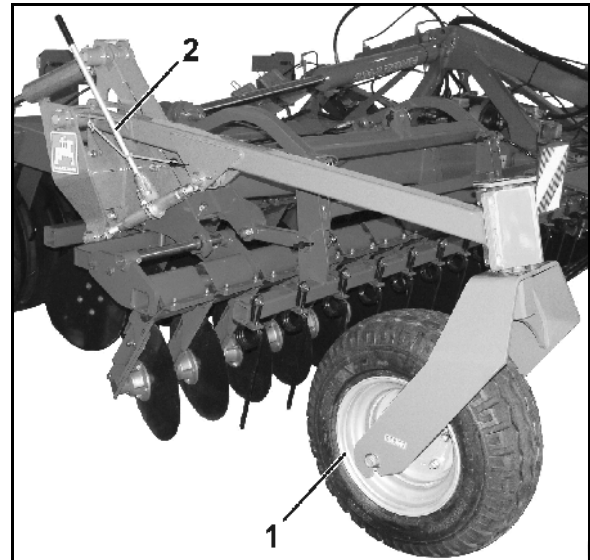


Fig. 38

Adjusting spindle with ratchet

1. Release hand lever (Fig. 39/1) from tensioner (Fig. 39/2).
2. Remove clip pin (Fig. 40/1).
3. Engage swivel lever (Fig. 40/2) according to desired direction of rotation.
4. Extend/shorten spindle (Fig. 39/3) by means of the hand lever.
5. Secure setting with clip pin.
6. Secure hand lever with tensioner.

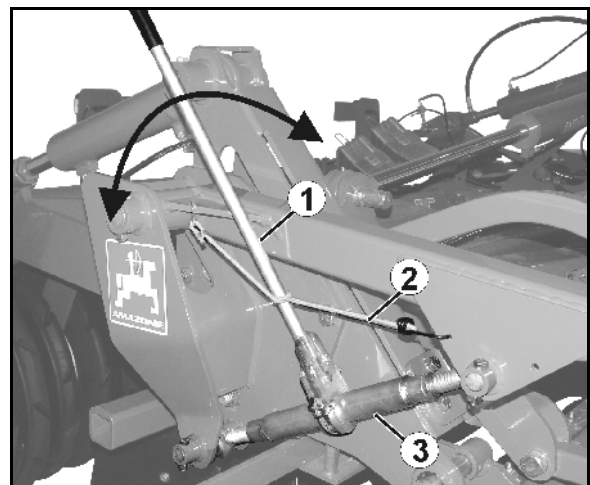


Fig. 39



During normal working, the roller feelers should just rotate a little. They must not support the weight of the side frame on the ground!

Overloading causes damage to the roller feelers and is not proper and approved use!

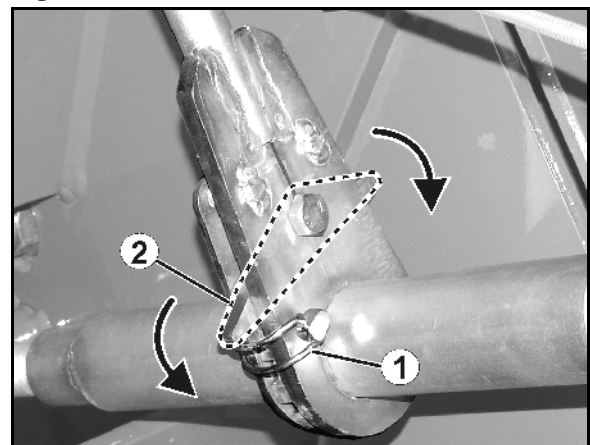


Fig. 40

8.3 Offset of the disc rows



WARNING

Crushing hazard between eccentric pin and stop of disc row!



- A preferential insertion hole is marked with a notch.
- Select the same insertion holes on left and right!



Before adjusting the disc offset, it may be necessary to reverse a little on the field with the machine lowered in order to uncover the insertion holes.

The offset of the disc rows is adjusted as required by means of an **AMAZONE** eccentric pin.

For this purpose, 6 insertion holes are available on both sides of the machine.

1. Release the clip pin of the locking clip (Fig. 41/1).
2. Fold down the locking clip (Fig. 41/2).
3. Move the machine back a little.
 - o The disc rows are displaced so that all insertion holes are uncovered.
4. Release the clip pin of the eccentric pin (Fig. 41/3).
5. Fit the eccentric pin (Fig. 41/4) into the required insertion hole.
6. Secure the clip pin of the eccentric pin.
7. Fold up the locking clip.
 - o If the new position of the eccentric pin prevents the locking clip being folded up, move the machine forward a little.
8. Secure the safety splint of the locking clip.

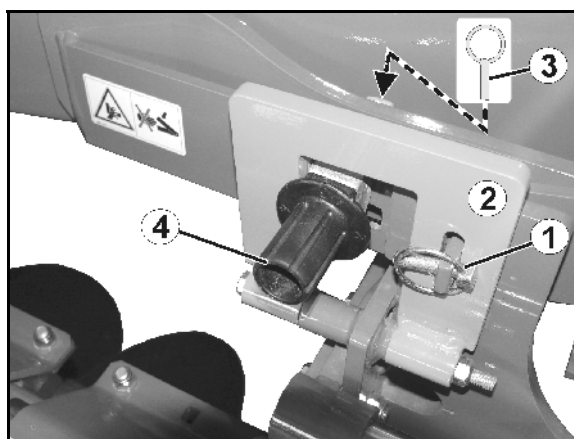


Fig. 41

Fine adjustment is carried out by rotating the eccentric pin (Fig. 42) from position 1 to position 4.

1. Release the safety splint of the locking clip (Fig. 41/1).
2. Fold down the locking clip (Fig. 41/2).
3. Release the clip pin of the eccentric pin (Fig. 41/3).
4. Turn the eccentric pin (Fig. 42).
5. Secure the clip pin of the eccentric pin.
6. Fold up the locking clip.
7. Secure the safety splint of the locking clip.

The work pattern must be checked by viewing the cultivation horizon behind the machine:

Fig. 43/1, Fig. 44 /1, Fig. 45/1:

- o Cutting edge 1st disc row

Fig. 43/2, Fig. 43/2,:

- o Cutting edge 2nd disc row

- Correct setting of disc rows (Fig. 43).
- Adjust 1st disc row to right and check again (Fig. 44):

The cutting edge of the 2nd disc row is not visible and follows the 1st disc row (Fig. 45):
Adjust 1st disc row to left.

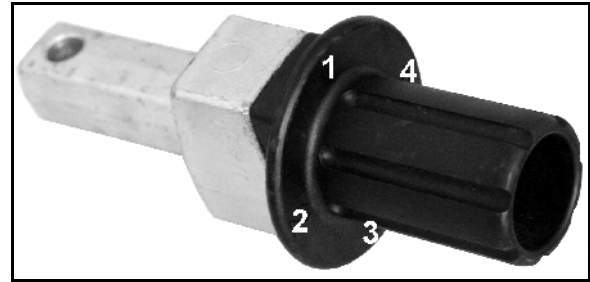


Fig. 42

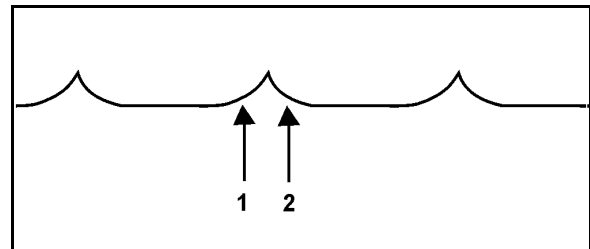


Fig. 43

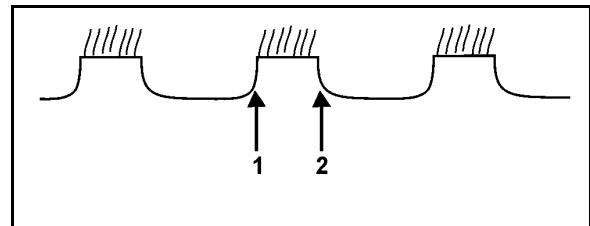


Fig. 44

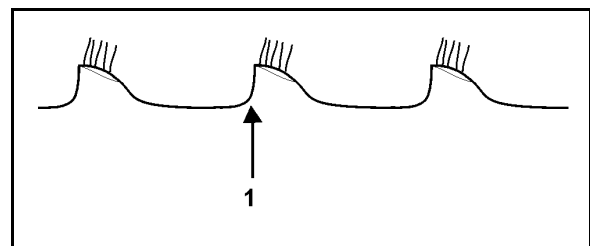



Fig. 45

8.4 Working depth of outside discs

The outside discs at the front right and rear left must be adjusted.

1. Actuate the tractor control unit :
 - o Fully raise both disc rows of the folded-out machine!
2. Release screw unions (Fig. 46/1).
3. Reset outside discs in slotted hole so that no dam formation is caused during use.
4. Retighten the screw unions.

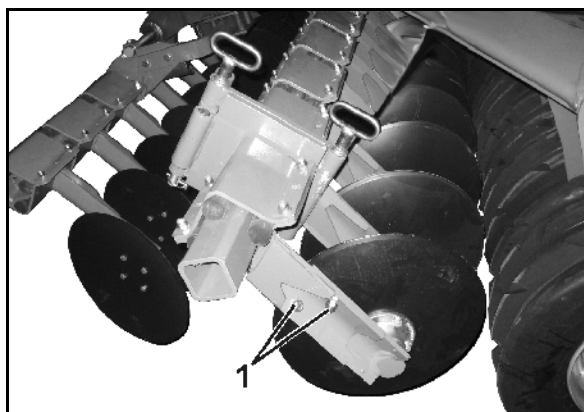



Fig. 46

8.5 Rear harrow

1. Actuate the tractor control unit :
 - o Raise both disc rows completely.
 - o The rear harrow is raised and the adjusting pin is relieved.
- Lower adjusting pin for greater aggressiveness.
- Move the adjusting pins upwards for less aggressiveness.
2. Release the clip pin (Fig. 47/1).
3. Secure the adjusting pin (Fig. 47/2) in the desired position.
4. Resecure the clip pin.

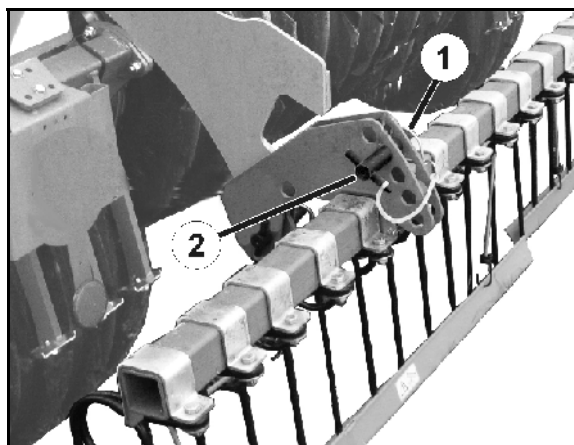


Fig. 47



Fit all adjusting pins in the centre and side sections in the same position!

If there is a lot of plant remains on the soil surface, there is the risk of increasing shaking of the rear harrow. In this case, the aggressiveness must be reduced, i.e. the tines must be set at a flatter angle.

For use in seed bed preparation on ploughed or cultivated areas, the aggressiveness can be increased for more intensive work, i.e. the tines can be set at a steeper angle.



When not in use, remove the rear harrow!

8.6 Height of towing eye

With the machine removed, the height of the towing eye (Fig. 48/1) can be adjusted to the tractor.

- o Release the screws (Fig. 48/2) and screw on the towing eye at the required height.

Required screw tightening torque:

→ **395 Nm**

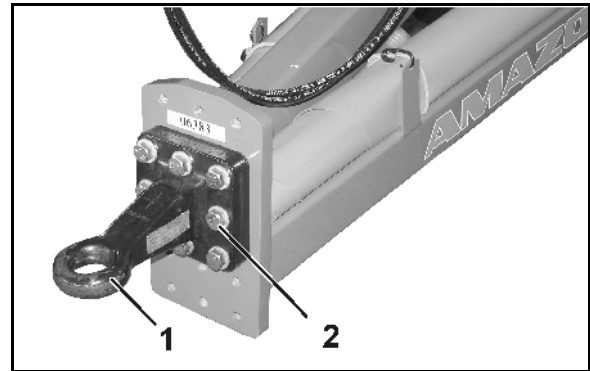


Fig. 48

9 Transportation



WARNING

Observe the maximum permissible speed. The permissible speed depends on the actual axle load of the machine - see Technical Data, on page 36.



- On transportation journeys, follow the instructions given in the section "Safety instructions for the operator", page 25.
- Before moving off, check:
 - that the supply lines are connected correctly.
 - the lighting system for damage, proper operation and cleanness,
 - the braking and hydraulic systems visually for obvious defects.
 - the function of the brake system.



WARNING

Risk of being crushed, cut, caught, drawn in or struck if the machine is unintentionally released from its attached or hitched position.

Carry out a visual check that the lower link pins are firmly fixed with the lynch pin against unintentional release.



WARNING

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

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



WARNING

Risk of contusions, cuts, dragging, catching or knocks from tipping and insufficient stability.

- Drive in such a way that you always have full control over the tractor with the attached machine.
In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.
- Before transportation, fasten the side locking of the tractor lower link, so that the connected or coupled machine 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.

Observe the permissible axle and drawbar loads of the tractor.

**WARNING**

Risk of falling from the machine if riding against regulations!

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

**WARNING**

Risk of stabbing other road users during transportation from uncovered, sharp spring tines of the harrow pointing backwards!

Transportation without a correctly fitted road safety bar is forbidden.

9.1 Conversion from operational to transport position



WARNING

Instruct people to leave the swivel area of the machine wing before you fold the machine wing out or in.

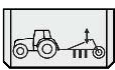


Observe maximum transport height of 4 m! This is obtained with a ground clearance of 25 cm!



The execution of some hydraulic functions can take a little longer. Make sure that the hydraulic cylinders are able to move in and out to the limit of their stop positions.

9.1.1 Implements with mechanical working depth adjustment

1. Actuate tractor control unit .
- Completely raise the implement.

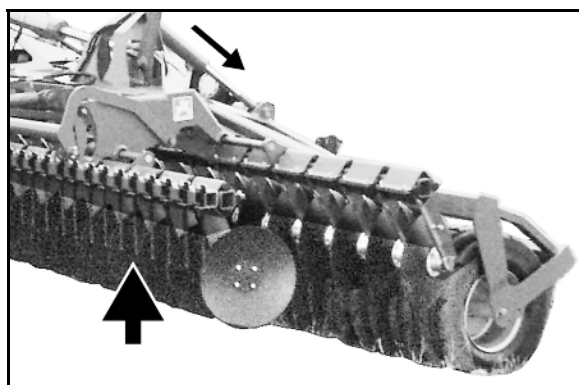


Fig. 49

2. Move side discs to transport position (only **Catros 7501**).
 - 2.1 Release the lynch pin (Fig. 50/1).
 - 2.2 Pull out the locating pin (Fig. 50/2).
 - 2.3 Swivel in the side discs (Fig. 50/3) and secure in this position with the locating pin.
 - 2.4 Secure the pin with the lynch pin.

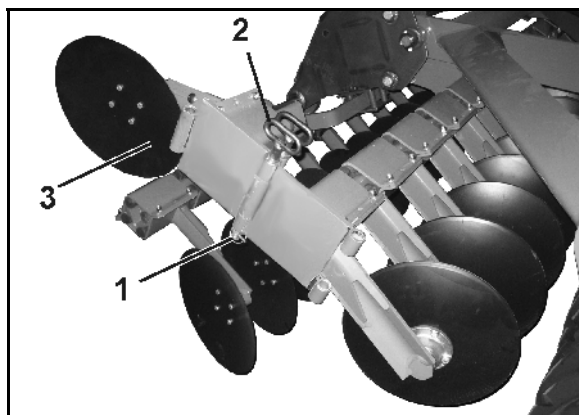


Fig. 50

3. Open the stop tap in order to lock the centre roller wheels, Position I.

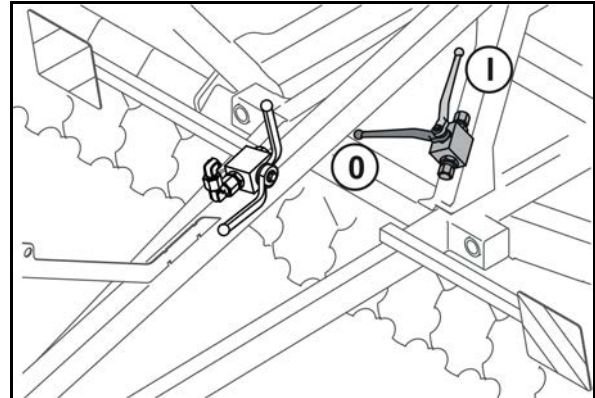


Fig. 51

4. Swivel all distance elements away from the piston rod.

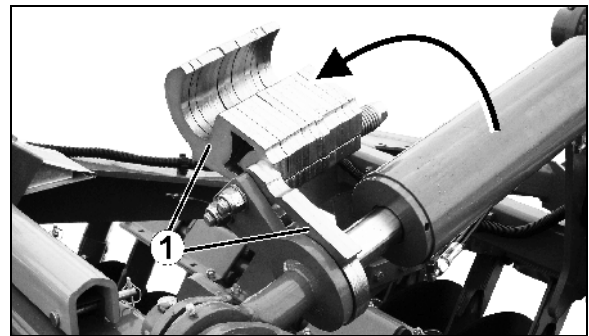



Fig. 52

5. Move the rear harrow to transport position, see page 54.

6. Actuate tractor control unit .

→ Completely fold implement until the centre roller is completely raised.

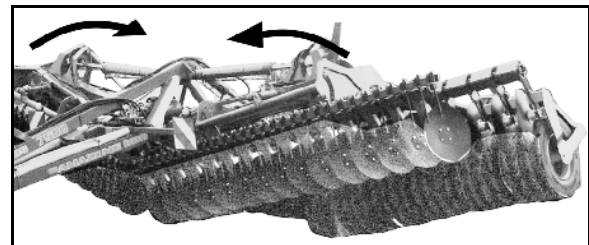

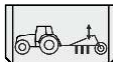


Fig. 53

 Folding the machine on one side indicates a malfunction. Cancel the procedure.

7. Actuate tractor control unit .

→ The side rollers swivel in.
 → Lower the implement to a maximum transport height of 4 m!
 → The safety latch secures the folded-in implement against unintentional folding out.

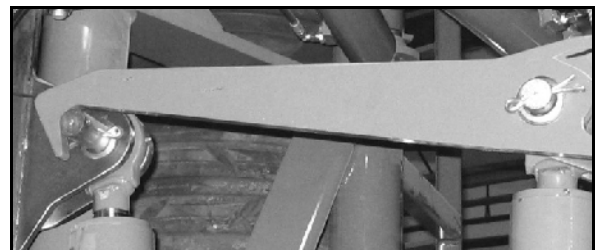


Fig. 54

Transportation

8. Close the stop tap to secure the transport width, Position **0**.

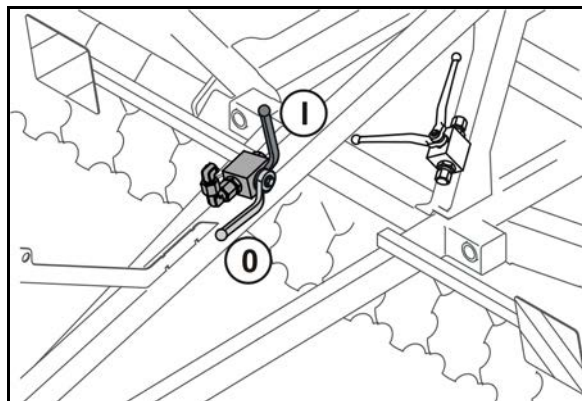


Fig. 55

9. Close the stop valve to lock the centre roller wheels, Position **0**.

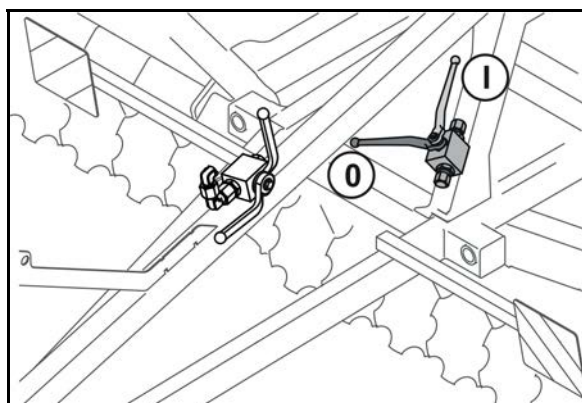
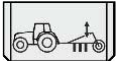


Fig. 56



- Set the height of the tractor lower link so that the boom stands vertically.
- Carry out a visual inspection to ensure that the safety latch is locked.

9.1.2 Implements with hydraulic working depth adjustment

1. Actuate tractor control unit .
→ Completely raise the implement.

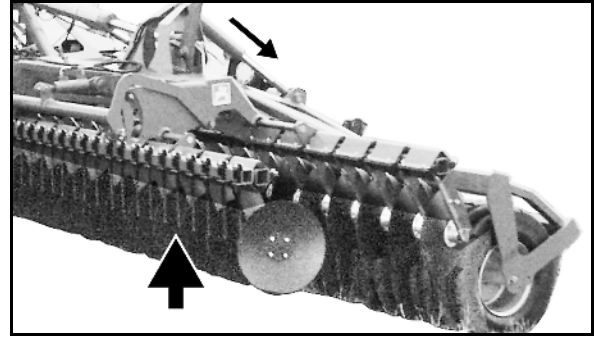


Fig. 57

2. Move side discs to transport position.
 - 2.1 Release the lynch pin (Fig. 58/1).
 - 2.2 Pull out the locating pin (Fig. 58/2).
 - 2.3 Swivel in the side discs (Fig. 58/3) and secure in this position with the locating pin.
 - 2.4 Secure the pin with the lynch pin.
3. Move the rear harrow to transport position, see page 54.
4. Open the stop tap to lock the centre roller wheels, Position I.

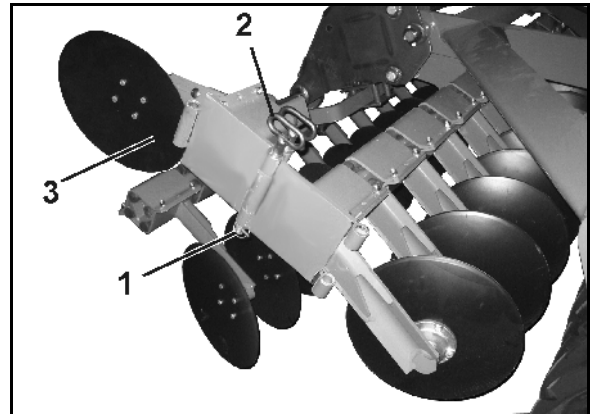


Fig. 58

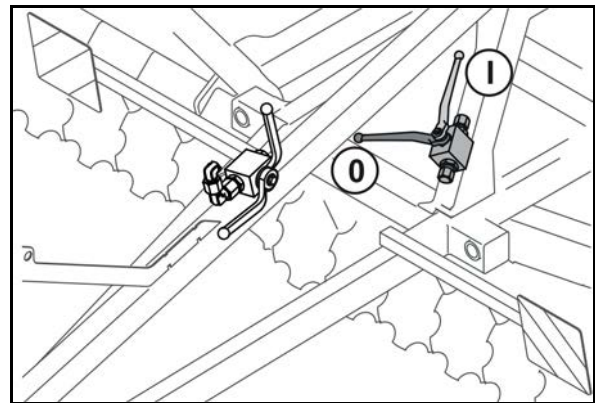



Fig. 59

5. Actuate tractor control unit .
→ Completely fold implement until the centre roller is completely raised.

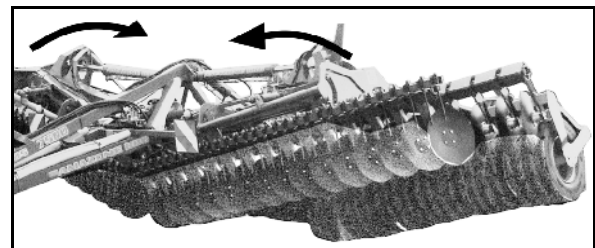


Fig. 60



Folding the machine on one side indicates a malfunction. Cancel the procedure.

Transportation

6. Actuate tractor control unit  and

tractor control unit .

- Swivel in side rollers completely.
 - Lower implement completely (retract all rollers).
 - The safety latch secures the folded-in implement against unintentional folding out.
7. Close the stop valve to secure the transport width, Position **0**.



Fig. 61

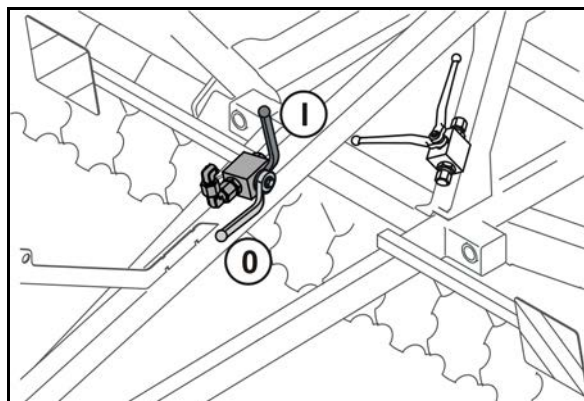


Fig. 62

8. Close the stop valve to lock the centre roller wheels, Position **0**.

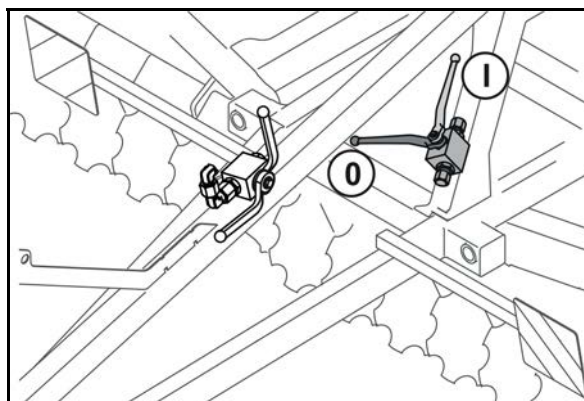
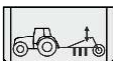


Fig. 63

9. Actuate tractor control unit .

- Raise the implement for sufficient ground clearance and also observe the maximum transport height of four metres.



- Set the height of the tractor lower link so that the boom stands vertically.
- Carry out a visual inspection to ensure that the safety latch is locked.

9.1.3 Fitting protective tarpaulins

1. Remove the protective tarpaulins from the drawbar.
2. Fit the protective tarpaulins around the disc rows and secure with belts. (3 belts at front (Fig. 64) / 2 belts at back (Fig. 65).

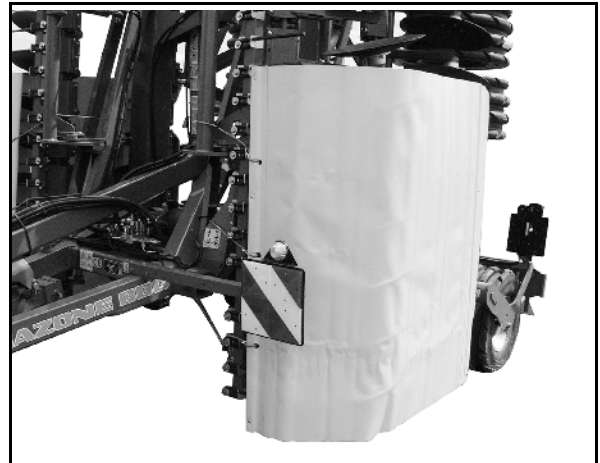


Fig. 64

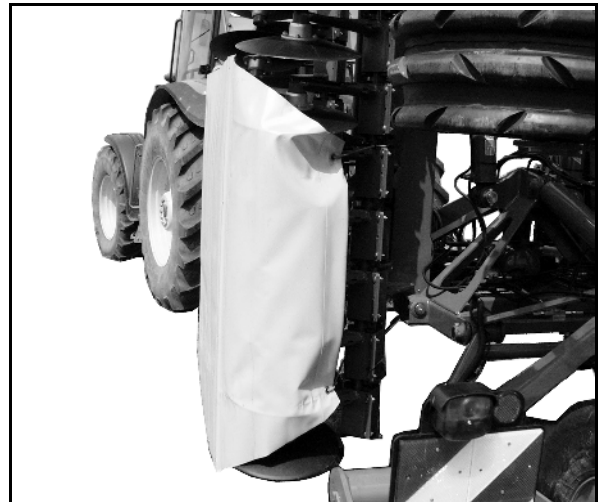


Fig. 65

Machine in road transport position (Fig. 66)

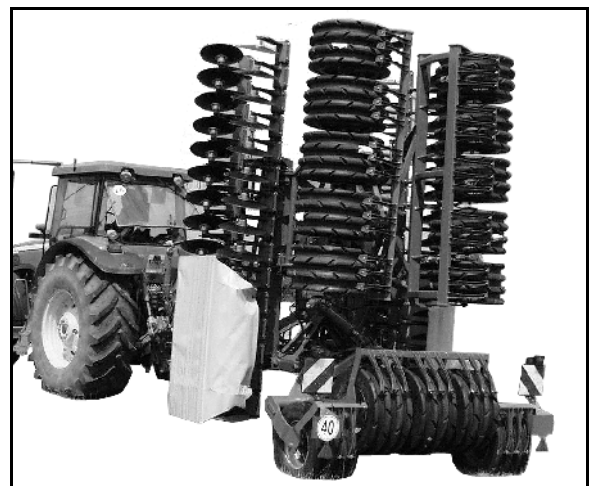


Fig. 66

10 Use of the machine



When using the machine, observe the information in the sections

- "Warning pictograms and other labels on the machine", from page 17 and
- "Safety instructions for operators", from page 23

Observing this information is important for your safety.



WARNING

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

Comply with the maximum load of the connected machine and the approved axle and drawbar loads of the tractor.



WARNING

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

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

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



WARNING

Risk of being crushed, cut, caught, drawn in or struck if the machine is unintentionally released from its attached or hitched position.

Each time before the machine is used, carry out a visual check that the lower link pins are secured with a lynch pin against unintentional release.



WARNING

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

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

10.1 Conversion from transport to operational position



WARNING

Instruct people to leave the swivel area of the machine wing before you fold the machine wing out or in.



Align the tractor and machine straight on a flat surface before you fold the machine wing out or in!

Always raise the machine fully before you fold the machine wing out or in. Only when the machine is fully raised do the soil cultivating tools have sufficient ground clearance and are thus protected against damage.



The execution of some hydraulic functions can take a little longer. Make sure that the hydraulic cylinders are able to move in and out to the limit of their stop positions.

10.1.1 Implements with mechanical working depth adjustment

1. Remove protective tarpaulins.
 - 1.1 Roll up all tarpaulins.
 - 1.2 Fasten the protective tarpaulins onto the draw bar using the attached belts awbar.
2. Open the stop valve to secure the transport width, Position I.

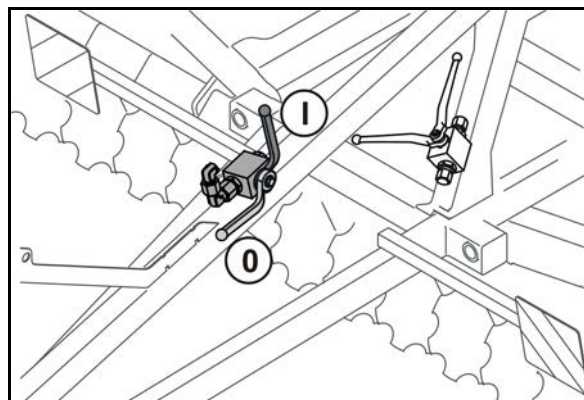


Fig. 67

3. Open the stop tap in order to lock the centre roller wheels, Position I.

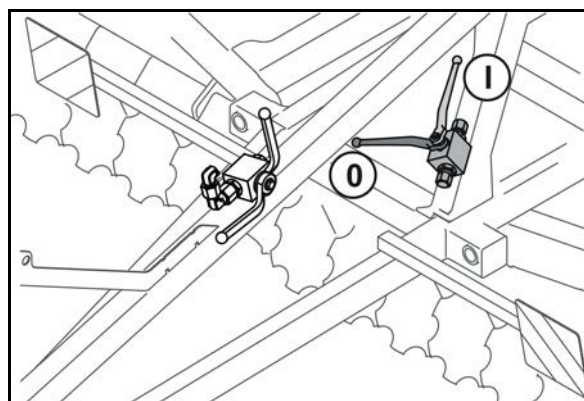
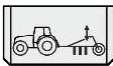


Fig. 68

Use of the machine

4. Actuate tractor control unit .

Completely raise the implement.

Raising the implement may take a little longer due to the weight of the implement.


- Swivel out side rollers completely.
- Safety latch unlocked (Fig. 70).



If the safety latch does not unlock, try briefly actuating tractor control unit



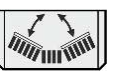
(fold-in implement), so that the safety latch is relieved!

5. Actuate tractor control unit .

- Completely fold out the side frames.

- Completely lower the centre roller.

6. Close the stop valve to lock the centre roller wheels, Position A.

7. Put the tractor control unit  into the float position.

8. Adjust the working depth by swivelling in the distance elements (Fig. 71/1).

9. Swivel foldable side discs into the operational position.

9.1 Release the lynch pin (Fig. 72/1).

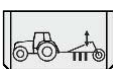
9.2 Pull out the locating pin (Fig. 72/2).

9.3 Fold down the side disc (Fig. 72/3) and secure in this position with the locating pin.

9.4 Secure the locating pin with the lynch pin.

10. Place the rear harrow in operational position. See page 54.

Fasten the traffic safety rails onto the draw bar.

11. Actuate tractor control unit .

- Lower the implement into the operational position and drive forward.

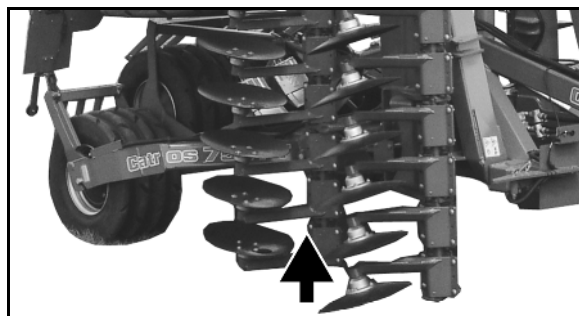


Fig. 69

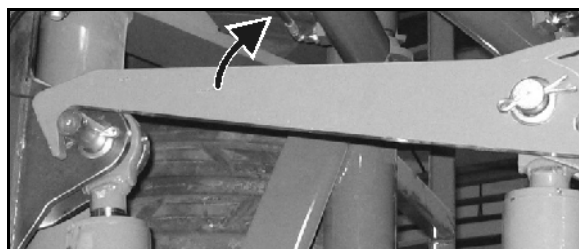


Fig. 70

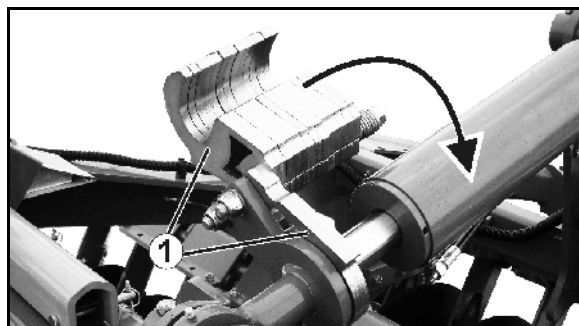


Fig. 71

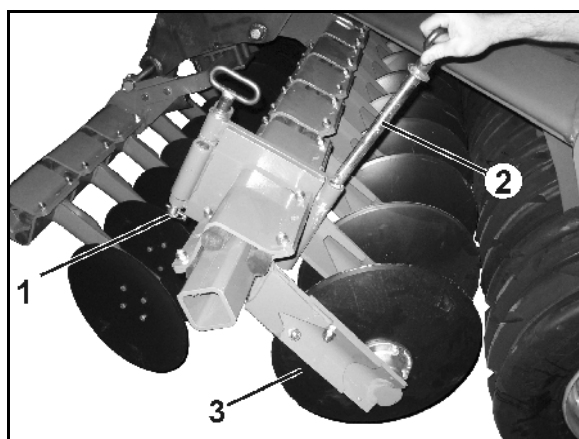


Fig. 72

10.1.2 Implements with hydraulic working depth adjustment

1. Remove protective tarpaulins.
 - 1.1 Roll up all tarpaulins.
 - 1.2 Fasten the protective tarpaulins onto the draw bar using the attached belts.
2. Open the stop valve to secure the transport width, Position I.

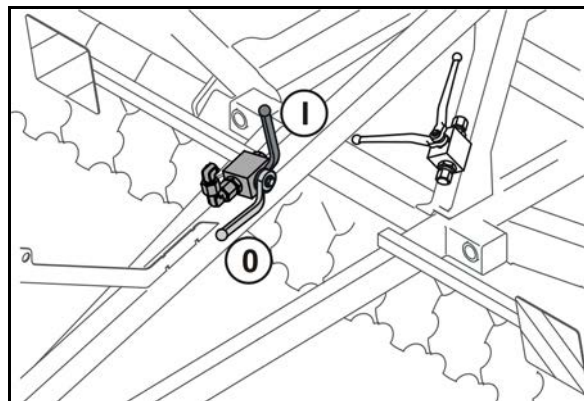


Fig. 73

3. Open the stop tap in order to lock the centre roller wheels, Position I.

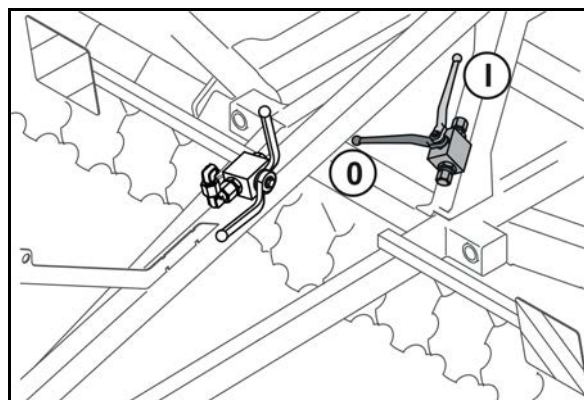


Fig. 74

4. Actuate tractor control unit .

Completely raise the implement.

Raising the implement may take a little longer due to the weight of the implement.

- Swivel out side rollers completely.
- Safety latch unlocked (Fig. 76).

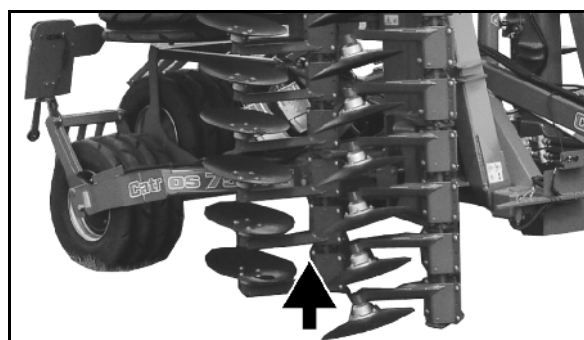


Fig. 75



If the safety latch does not unlock, try briefly actuating tractor control unit



(fold-in implement), so that the safety latch is relieved!

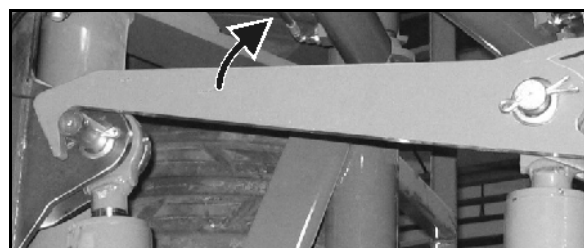
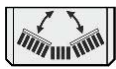



Fig. 76

Use of the machine

5. Actuate tractor control unit .
 - Completely fold out the side frames.
 - Completely lower the centre roller.
6. Close the stop valve to lock the centre roller wheels, Position A.

7. Put the tractor control unit  into the float position.
8. Swivel foldable side discs into operational position
 - 8.1 Release the lynch pin (Fig. 77/1).
 - 8.2 Pull out the locating pin (Fig. 77/2).
 - 8.3 Fold down the side disc (Fig. 77/3) and secure in this position with the locating pin.
 - 8.4 Secure the locating pin with the lynch pin.
9. Place the rear harrow in operational position. See page 54.

Fasten the traffic safety boards onto the draw bar.

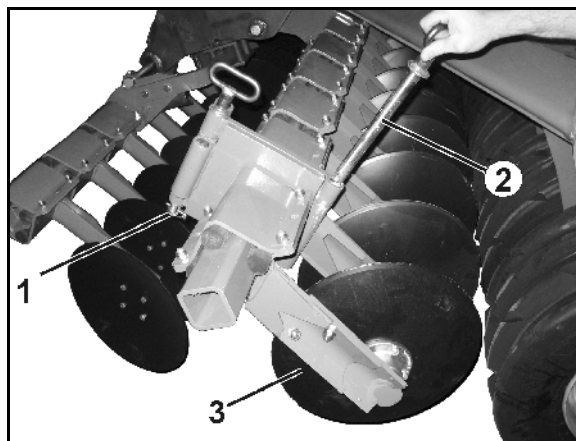
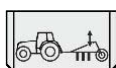



Fig. 77

10. Actuate tractor control unit .
 - Lower the implement into the operational position, drive forward and adjust working depth.

10.2 During the work



During the work, keep the tractor control unit  in the float position.

The foldable machine wing can then adapt to the soil conditions.

10.3 Turning at headland

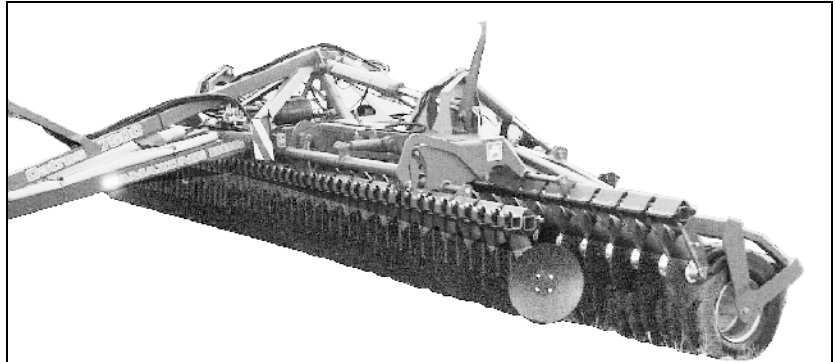



Fig. 78

When turning through a curve at the headland, the disc rows must be raised to prevent transverse stresses.

- **Actuate the tractor control unit**  (approx. 5 seconds):
 - Raise both disc rows completely (Fig. 78).
 - The hydraulic system is calibrated by extending the hydraulic cylinder to



CAUTION

Use at the headland only when the direction of the implement corresponds to the direction of working.



When the machine is used, the previously set working depth is automatically reverted to.

11 Faults



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- **unintentional falling of the machine raised using the tractor's three-point hydraulic system.**
- **unintentional falling of raised, unsecured machine parts.**
- **unintentional start-up and rolling of the tractor-machine combination.**

Secure the tractor and the machine against unintentional start-up and rolling before eliminating faults on the machine. See Page 62.

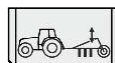
Wait for the machine to stop, before entering the machine danger area.

11.1 Different working depths across the working width

Different working depths across the working width?

→ Synchronise the roller cylinders!

For a uniform working depth across the entire machine width, it is necessary for the three hydraulic cylinders of the wedge ring roller to be of the same length. If this is not the case, the cylinders can be hydraulically synchronised:



Actuate the tractor control unit so that the machine is fully raised. Keep the control unit actuated for a further 10 s. An overflow process is initiated to flush all the cylinders. The cylinders adjust themselves to the same length.

12 Cleaning, maintenance and repairs

**WARNING**

Risk of contusions, cutting, catching, drawing in and knocks through

- **unintentional falling of the machine raised using the tractor's three-point hydraulic system.**
- **unintentional falling of raised, unsecured machine parts.**
- **unintentional start-up and rolling of the tractor-machine combination.**

Secure the tractor and machine against unintentional starting and unintentional rolling away before you perform any cleaning, servicing or maintenance work on the machine. See page 62.

**WARNING**

Risk of contusions, cutting, catching, drawing in and knocks through unprotected danger points!

- Mount protective equipment, which you removed when cleaning, maintaining and repairing the machine.
- Replace defective protective equipment with new equipment.

**WARNING**

Risk of tipping!

Do not carry out any repair work when the machine is folded in or partially folded in if the machine has been parked on a slant.

12.1 Cleaning



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

Cleaning with a high pressure cleaner / steam jet



- Always observe the following points when using a high pressure cleaner / steam jet for cleaning:
 - Do not clean any electrical components.
 - Do not clean any chromed 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 jet distance of 300 mm between the high pressure cleaning or steam jet cleaning nozzle and the machine.
 - Comply with safety regulations when working with high pressure cleaners.

12.2 Lubrication specifications

Lubrication points on the machine are indicated with the foil (Fig. 79).

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

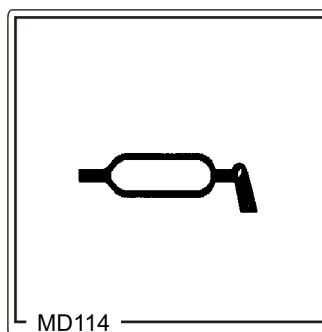


Fig. 79

Lubricants



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

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

Lubrication points – overview

Lubrication point		Interval [h]	Quantity
Fig. 80			
(1)	Pivot points of the machine wing	50	4
(2)	Pivot points of roller frame	50	6
(3)	Hydraulic cylinders of outer rollers	50	4
(4)	Fold hydraulic cylinder of machine wing	50	4
(5)	Hydraulic cylinder of centre roller	50	2
(6)	Hydraulic cylinder of centre roller wheels in transport position	50	2
(7)	• towing eye grease	8	1
	• lower link attachment	50	3
(8).	Parking brake: <ul style="list-style-type: none"> • Grease the cables and guide rollers • the spindle 		
Fig. 81			
(1)	Roller feelers	50	4

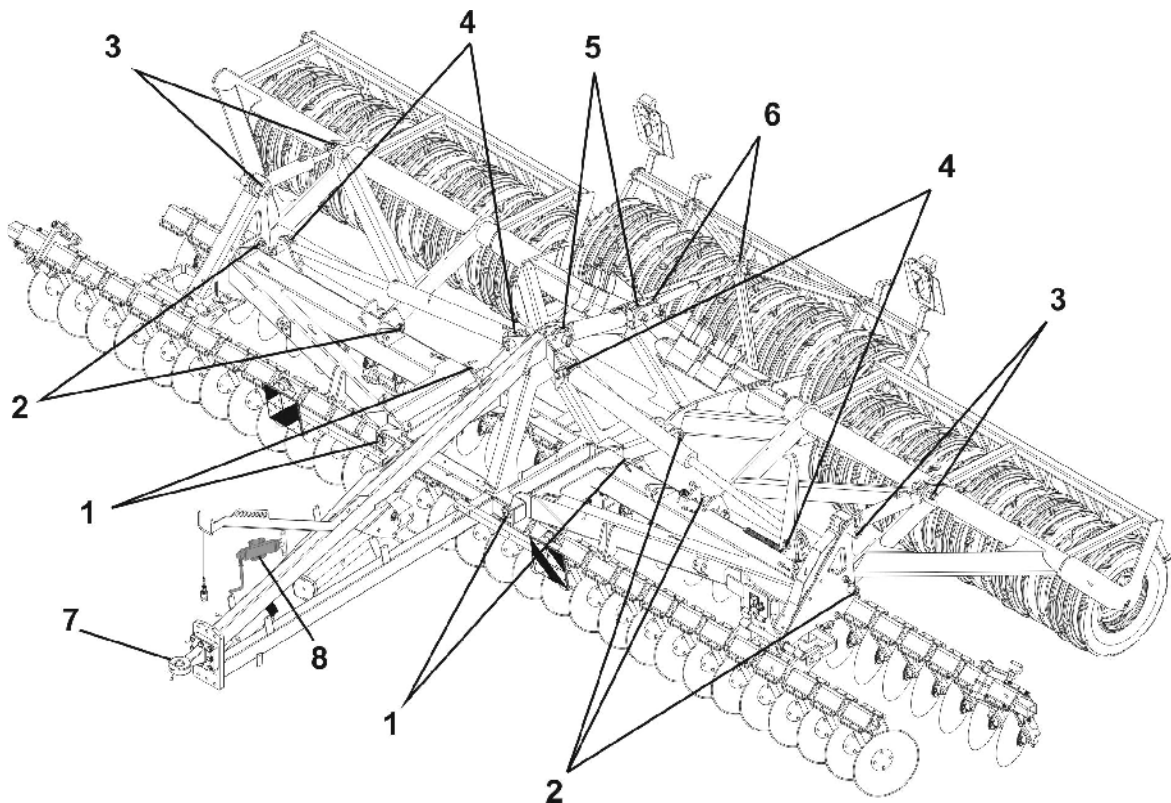


Fig. 80

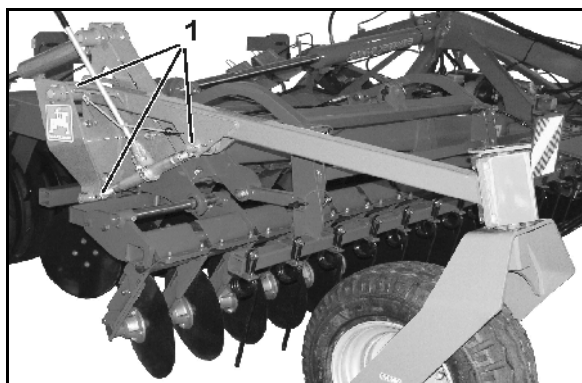


Fig. 81

12.3 Service plan – overview



- Carry out maintenance work when the first interval is reached.
- The times, continuous services or maintenance intervals of any third party documentation shall have priority.

After the first working run

Component	Servicing work	see page	Workshop work
Wheels	<ul style="list-style-type: none"> • Wheel nut check 	99	
Hydraulic system	<ul style="list-style-type: none"> • Inspection for defects • Check leak tightness 	90	X

Daily

Component	Servicing work	see page	Workshop work
Air reservoir	<ul style="list-style-type: none"> • Drain 	93	

Weekly / every 50 operating hours

Component	Servicing work	see page	Workshop work
Hydraulic system	<ul style="list-style-type: none"> • Inspection for defects 	90	X
Wheels	<ul style="list-style-type: none"> • Check air pressure • Firm seat of tyres • minimum scraper distance 	99	
Brake system	<ul style="list-style-type: none"> • Check brake fluid level 	96	

Every three months / 200 operating hours

Component	Servicing work	see page	Workshop work
-----------	----------------	----------	---------------

Dual-circuit service brake system	• Inspection according to check instructions	95	X
	• Clean line filter	95	
Brake system	• Brake pad check	97	
Parking brake	• Check the braking effect with the brake on	99	

Each year / 1000 operational hours

Component	Servicing work	see page	Workshop work
Brake system	• Brake check on hydraulic part of brake system	98	X
Brake drum	• Clean	94	X

Every 2 years

Component	Servicing work	see page	Workshop work
Brake system	• Check brake fluid	96	X

As required

Component	Servicing work	see page	Workshop work
Electric lighting	• Changing defective bulbs	100	
Scraper	• Adjust	100	
Upper/lower link pin	• Replace	108	
Disc XL041	• Wear check - replace if minimum diameter 360mm	102	X
Slide bearing 78200437	• Check wear - replace at approx. 4mm clearance	102	X
Wear plate 78100835	• Check wear - replace as required	102	X
Clamp 78201107	• Check wear - replace as required	102	X

12.4 Axle and brake



For optimum brake performance with a minimum of wear, we recommend that the brakes on the tractor are balanced with those on the machine. After the service braking system has been run in for a suitable period, arrange for the brakes to be balanced by a specialist workshop.

To avoid problems with the brakes, adjust all vehicles in accordance with EC Guideline 71/320 EEC.



WARNING

- Repair and adjustment work on the service braking system should only be carried out by trained specialist personnel.
- Special care is required for welding, torch cutting and drilling work in the vicinity of brake lines.
- Always carry out a braking test after any adjusting or repair work on the braking system

General visual inspection



WARNING

Carry out a general visual check of the brake system. Observe and check the following criteria:

- Pipe lines, hose lines and coupler heads 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.
 - May not have any visible cracks.
 - May not be knotted.
- Check the piston stroke on the brake cylinders, and adjust as necessary.
- The air reservoir must not
 - move around in the tensioning belts.
 - be damaged.
 - show any outward signs of corrosion damage.

12.4.1 Draining the air reservoir

1. Run the tractor engine (approx. 3 mins.) until the compressed air tank has filled.
2. Switch off the tractor engine, apply the handbrake and remove the ignition key.
3. Pull the drainage valve (Fig. 82/1) in a sideways direction by the ring until no more water escapes from the compressed air tank.
4. If the escaping water is dirty, let off air, unscrew the drainage valve from the compressed air tank and clean the compressed air tank.

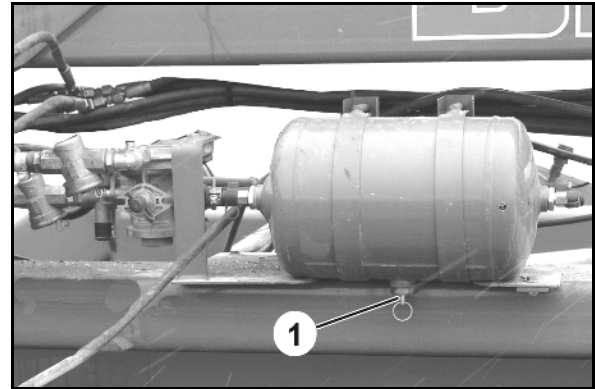


Fig. 82

The compressed air tank (Fig. 82/1) must not

- move around in the tensioning belts
- be damaged
- show any outward signs of corrosion damage

The rating plate must not

- show signs of corrosion
- be loose
- be missing



Replace the compressed air tank (workshop), if one of the above-stated points applies!

12.4.2 Cleaning the line filter

Clean the two line filters (Fig. 83/1) every 3 months (more frequently in harsh operating conditions). To do so

1. Press the two lugs (Fig. 83/2) together and take out the closure piece complete with O-ring, pressure spring and filter insert.
2. Clean the filter insert with petrol or thinner (wash it) and dry with compressed air.

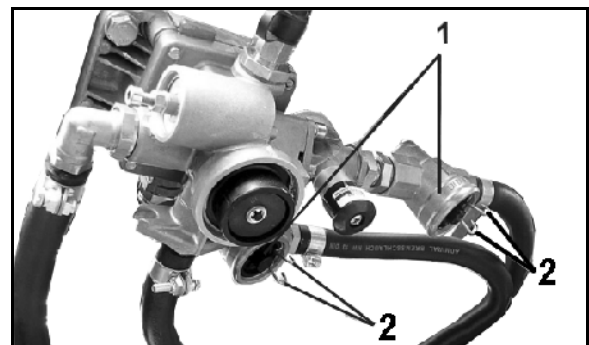


Fig. 83



To reassemble, reverse the procedure and make sure that the O-ring is not twisted in the guide slot.

12.4.3 Cleaning the brake drums (workshop work)

Clean the brake drums once a year to ensure the reliable function of the brake system.



DANGER

Use the marked attachment points for lifting equipment!

Procedure for all braked chassis wheels (Fig. 84):

1. Raise the machine on one side using suitable lifting equipment at the marked attachment points.
2. Disconnect the brake hose.
3. Remove the wheel with axle.
4. Remove the wheel.
5. Remove the brake drum.
6. Clean the brake drum.
- Do not clean the inner surfaces of the brake drums using sharp or pointed tools.
- Do not use oily substances for cleaning.
7. Then install again in the reverse order.
8. Bleed the brakes, see page 98

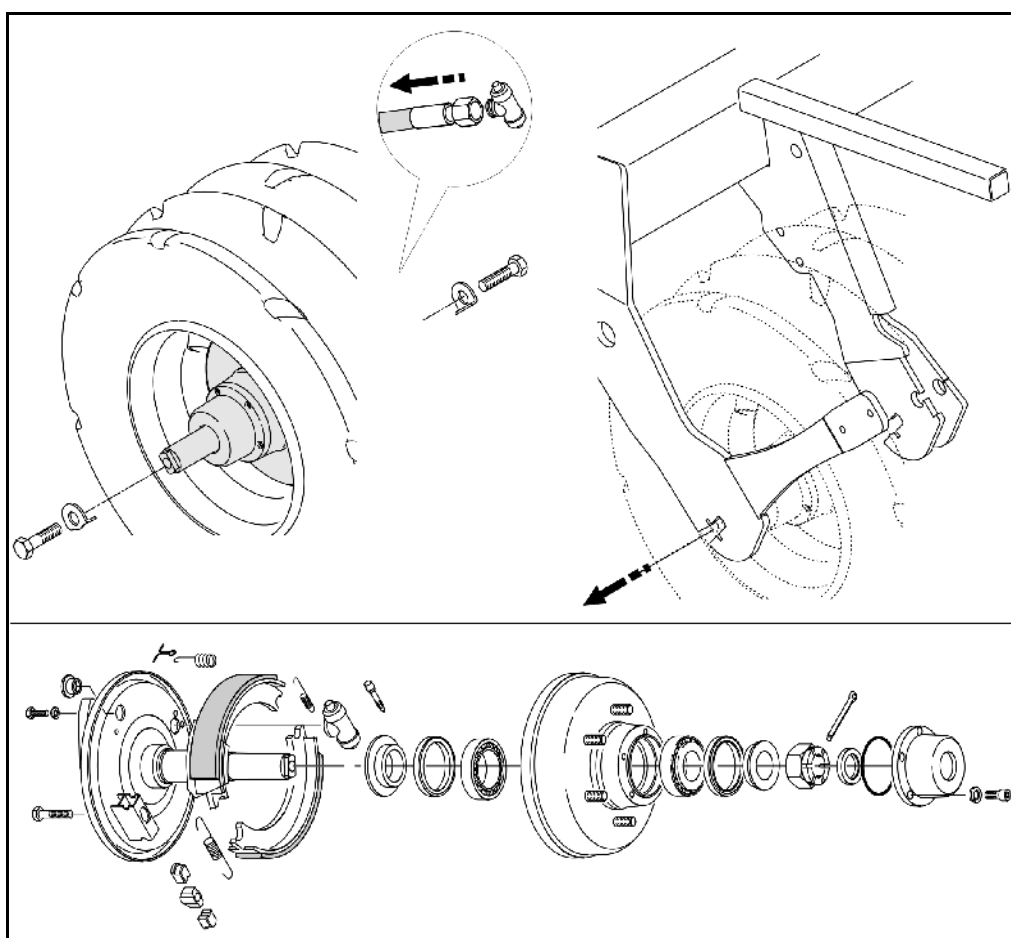


Fig. 84

12.4.4 Inspection instructions for the dual-circuit service brake system

1. Leak tightness check

1. Check all connections, pipe lines, hose lines and screw connections for leak tightness.
2. Remedy leakages.
3. Repair any areas of chafing on pipes and hoses.
4. Replace porous and defective hoses.
5. The dual-circuit service brake system may be considered leak-proof if the drop in pressure is no more than 0.15 bar after 10 minutes.
6. Seal any leaking areas or replace leaking valves.

2. Check pressure in the air reservoir

1. Connect a pressure gauge to the test connection on the air reservoir.
Set value 6.0 to 8.1 + 0.2 bar

3. Check brake cylinder pressure

1. Connect a pressure gauge to the test connection on the brake cylinder.
Set value: with brake not applied 0.0 bar

4. Visual inspection of brake cylinder

1. Check the dust collars or bellows for damage.
2. Replace damaged parts.

5. Joints on brake valves, brake cylinders and brake linkages

Joints on brake valves, brake cylinders and brake linkages must move freely. Grease or lightly oil, if necessary.

12.4.5 Hydraulic braking system

12.4.5.1 Checking the brake fluid level

Check brake fluid level:

The equalising tank (Fig. 85) is filled in accordance with DOT 4 up to the "max." marking with brake fluid.

The brake fluid must be between the marks "max." and "min.".

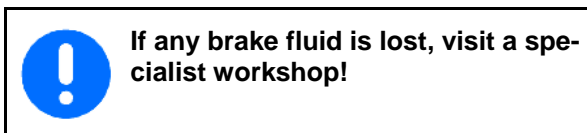


Fig. 85

Brake fluid

When handling brake fluid observe the following:

- Brake fluid is corrosive and must therefore not come into contact with the paint on the machine. If necessary, wipe it off immediately and wash it off with plenty of water.
- Brake fluid is hygroscopic, i.e. it absorbs moisture from the air. Therefore store the brake fluid only in closed containers.
- Brake fluid that has already been used in the braking system must not be reused.
Even when venting the braking system, use only new brake fluid.
- The requirements made of brake fluid are subject to the standard SAE J 1703 or the American safety statutes DOT 3 and DOT 4.
Use only brake fluids in compliance with DOT 4.

Brake fluid must never come into contact with mineral oil. Even small traces of mineral oil will render brake fluid unusable or cause a failure of the braking system. Plugs and collars on the braking system will be damaged, if they come into contact with agents that contain mineral oil. For cleaning purposes do not use any wiping cloths that contain mineral oils.



WARNING

Under no circumstances may drained brake fluid be reused.

Under no circumstances may drained brake fluid be poured away or put in the household waste, but must be collected separately from used oil and disposed of via authorised waste disposal companies.



If possible, change the brake fluid after the winter.

12.4.5.2 Brake check on the hydraulic part of the brake system (workshop work)

Brake check on the hydraulic part of the braking system:

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

12.4.5.3 Maintenance of hydraulic part of the brake system (workshop work)

- Change the brake fluid every 1-2 years
- Check all flexible brake hoses for wear, all brake lines for damage and the screw unions for leaks every year. Replace any worn or damaged parts.
- The brake lining wear must be checked every 500 operating hours, at the latest before the start of the season.
This servicing interval is a recommendation. Depending on the deployment, e.g. constant driving on hilly terrain, this may have to be shortened.
- Renew the brake shoes at a residual lining thickness of less than 1.5 mm (use only genuine brake shoes with type-tested brake linings). When doing so the shoe return springs may have to be renewed.

12.4.5.4 Ventilating the brake system (workshop work)

After each brake repair, for which the system has been opened, vent the brake system, because air may have entered the pressure hoses.

At specialist workshops the brake is vented with a brake filling and venting device: To do so

1. Remove the equalising tank screw union
2. Fill the equalising tank up to the top edge
3. Fit the venting muff to the equalising tank
4. Connect the filling hose
5. Open the stop tap of the filling union piece
6. Vent the main cylinder
7. Via the system's venting screws remove brake fluid until it flows out clear and bubble-free. To do so, the transparent venting hose, which leads to a collecting cylinder one-third filled with brake fluid, is pushed onto the venting valve to be vented.
8. After venting the complete brake system close the stop tap on the filling union piece
9. Relieve the residual pressure coming from the filling device
10. Close the last venting valve when the residual pressure coming from the filling device has dropped and the brake fluid level in the equalising tank has reached the "MAX" mark
11. Remove the filling union piece
12. Close the equalising tank.



Carefully open the venting valves so that they are not turned off. It is recommended that the valves be sprayed with a rust releasing agent for approx. 2 hours before venting.



Perform a safety check:

- Are the venting screws tightened?
- Has sufficient brake fluid been filled?

Check all connections for leak-tightness.



Then carry out a few brake tests on a road with little traffic. When doing this at least one emergency braking application must be performed.

Caution: When you do this pay attention to any traffic behind you!

12.5 Parking brake



On new machines, the brake cables of the parking brake may stretch. Readjust the parking brake,

- if three quarters of the spindle tensioning distance is required to firmly apply the parking brake.
- if you have just fitted new brake pads.

Adjusting the parking brake



When the parking brake is off, the brake cable must be slightly slack. However, the brake cable must not rest or chafe against other parts of the vehicle.

1. Release the cable clamps.
2. Shorten the brake cable as appropriate and retighten the cable clamps.
3. Check for the correct braking effect from the parking brake when applied.

12.6 Tyres / wheels



- Check the running gear tyres regularly for damage and firm seating on the wheel rim.
- Ensure a minimum distance of 25 mm from the scraper to the running gear tyres!



- Required tyre pressure.
 - Running gear tyre / Roller tyre: **4.3 bar**
 - Roller feelers: **1.8 bar**
- Required tightening torque for wheel nuts or bolts: **350 Nm**
- Required axle bolt tightening torque: **450 Nm**



- Regularly check
 - that wheel nuts are firmly seated.
 - tyre air pressure.
- Only use the tyres and wheels which we have specified.
- Repair work on tyres must only be carried out by specialists using suitable fitting tools.
- Tyre fitting requires sufficient skills and proper fitting tools.
- Use the jack only at the jacking points indicated.

12.6.1 Tyre air pressure



- The required tyre air pressure is dependent on
 - tyre size.
 - tyre carrying capacity.
 - forward speed.
- The operational performance of the tyres is reduced
 - by overloading.
 - if tyre air pressure is too low.
 - if tyre air pressure is too high.



- Check tyre air pressure regularly when the tyres are cold, i.e. before starting a run.
- The difference in pressure between the tyres on one axle must be no greater than 0.1 bar.
- Tyre air pressure can be raised by up to 1 bar after a fast run or in warm weather. Tyre air pressure should on no account be reduced as it is then too low when the tyres cool down.

12.6.2 Fitting tyres (workshop work)



- Remove any outbreaks of corrosion from the wheel rim seating surfaces before fitting a new / another tyre. Corrosion can cause damage to the wheel rims when the vehicle is in operation.
- When fitting new tyres, always use new valves for tubeless tyres or new inner tubes.
- Always fit the valves with valve caps which have a gasket insert.

12.7 Electrical lighting system

Changing bulbs

1. Unscrew safety lens.
2. Remove defective bulb.
3. Insert replacement bulb (make sure voltage and wattage is correct).
4. Fit safety lens and screw on.

12.8 Scraper

Adjust scraper:

1. Release the screw below the scraper.
2. Adjust the scraper.
3. Retighten the screw.





Observe minimum distance of 25 mm between scraper and wedge ring tyre!
If the minimum distance is not observed, the tyres may be damaged, which could lead to accidents!

12.9 Hydraulic cylinder for foldable machine wings



Required tightening torque for lock nut on hydraulic cylinder for foldable machine wings: **300 Nm**

12.10 Replacing discs (workshop work)

Minimum disc diameter: 360 mm.

The discs are replaced with

- the machine folded out
- the discs raised
- the machine secured against unintentional lowering

To replace the discs, release the four screw unions and then retighten.

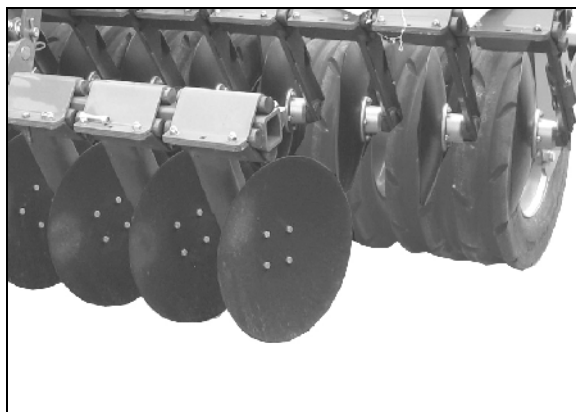


Fig. 87

12.11 Replacing slide bearings of offset slide (workshop work)

To replace the slide bearings (Fig. 88/1), place the folded-out machine down so that the slide bearings are free from tension.

The disc units must touch the ground, but must not support the weight of the machine!

If necessary, support the disc units!

- Each disc unit has two slide bearings.
 1. Release the screw union of the shifting shaft.
 2. Drive the shifting shaft out of the bearing.
 3. Remove the circlips from the slide bearing.
 4. Replace the slide bearing.
 5. Fit the circlips.
 6. Reinstall the shifting shaft and secure with a screw union.

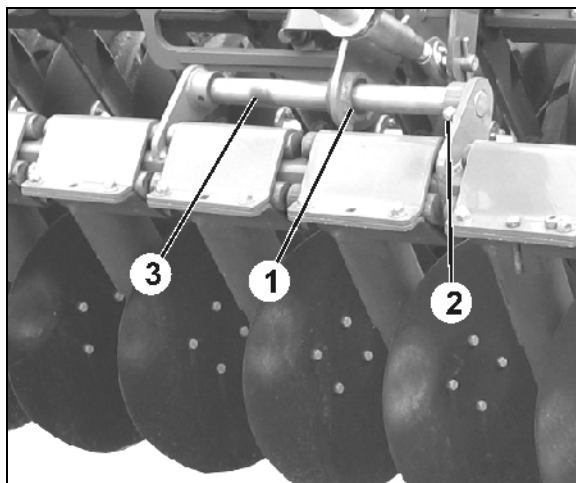


Fig. 88

12.12 Replacing torque supports of offset slide (workshop work)

In event of wear, the torque supports (Fig. 89/1) and the wear plate (Fig. 89/2) must be replaced.

Fig. 89 – View from below.

For removal of the torque supports and wear plate, the components must be free from stress.

The torque supports are removed with

- the machine folded out
- the discs raised
- the machine secured against unintentional lowering

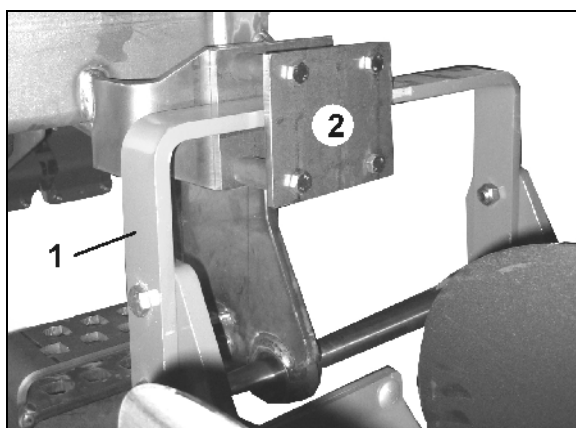


Fig. 89

12.13 Hydraulic system (workshop work)



WARNING

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

- Only a specialist workshop may carry out work on the hydraulic system.
- Depressurise the hydraulic system before carrying out work on the hydraulic system.
- When searching for leak points, always use suitable aids.
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.

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

If you are injured by hydraulic fluid, contact a doctor immediately. Risk of infection!



- When connecting the hydraulic hose lines to the hydraulic system of connected machines, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if it is damaged or worn. Only use original **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 ageing, 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 from thermoplastics, other guide values may be decisive.
- Dispose of old oil in the correct way. 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.

12.13.1 Labelling hydraulic hose lines

The valve chest identification provides the following information:

Fig. 90/...

- (1) Manufacturer's marking on the hydraulic hose line (A1HF)
- (2) Date of manufacture of hydraulic hose line (04 / 02 = year / month = February 2004)
- (3) Maximum approved operating pressure (210 BAR).

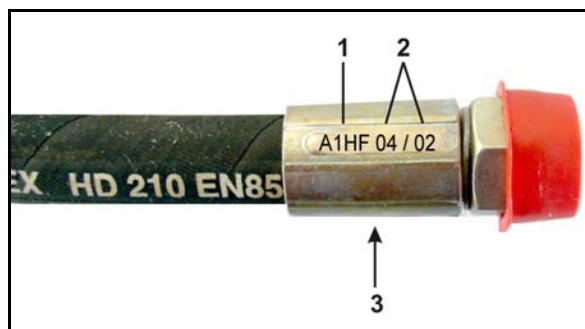


Fig. 90

12.13.2 Maintenance intervals

After the first 10 operating hours, and then every 50 operating hours

1. Check all the components of the hydraulic system for tightness.
2. If necessary, tighten screw unions.

Before each start-up:

1. Check hydraulic hose lines for visible damage.
2. Eliminate any scouring points on hydraulic hose lines and pipes.
3. Replace any worn or damaged hydraulic hose lines immediately.

12.13.3 Inspection criteria for hydraulic hose lines



For your own safety, comply with the following inspection criteria!

Replace hydraulic hose lines, on determining any of the following 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 depressurised and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
- Leak points.
- 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 is decisive for determining these six years. If the date of manufacture on the assembly is "2004", then the hose should not be used beyond February 2010. See also "Labelling of hydraulic hose lines".

12.13.4 Installation and removal of hydraulic hose lines



When installing and removing hydraulic hose lines, always observe the following information:

- Only use original **AMAZONE** hydraulic hose lines.
- Ensure cleanliness.
- You must always install the hydraulic hose lines so that, in all states of operation:
 - 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.
- Fix the hydraulic hose lines to the intended fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- It is forbidden to paint over hydraulic hose lines!

12.14 Hydraulics diagram

Hydraulics diagram with mechanical depth adjustment

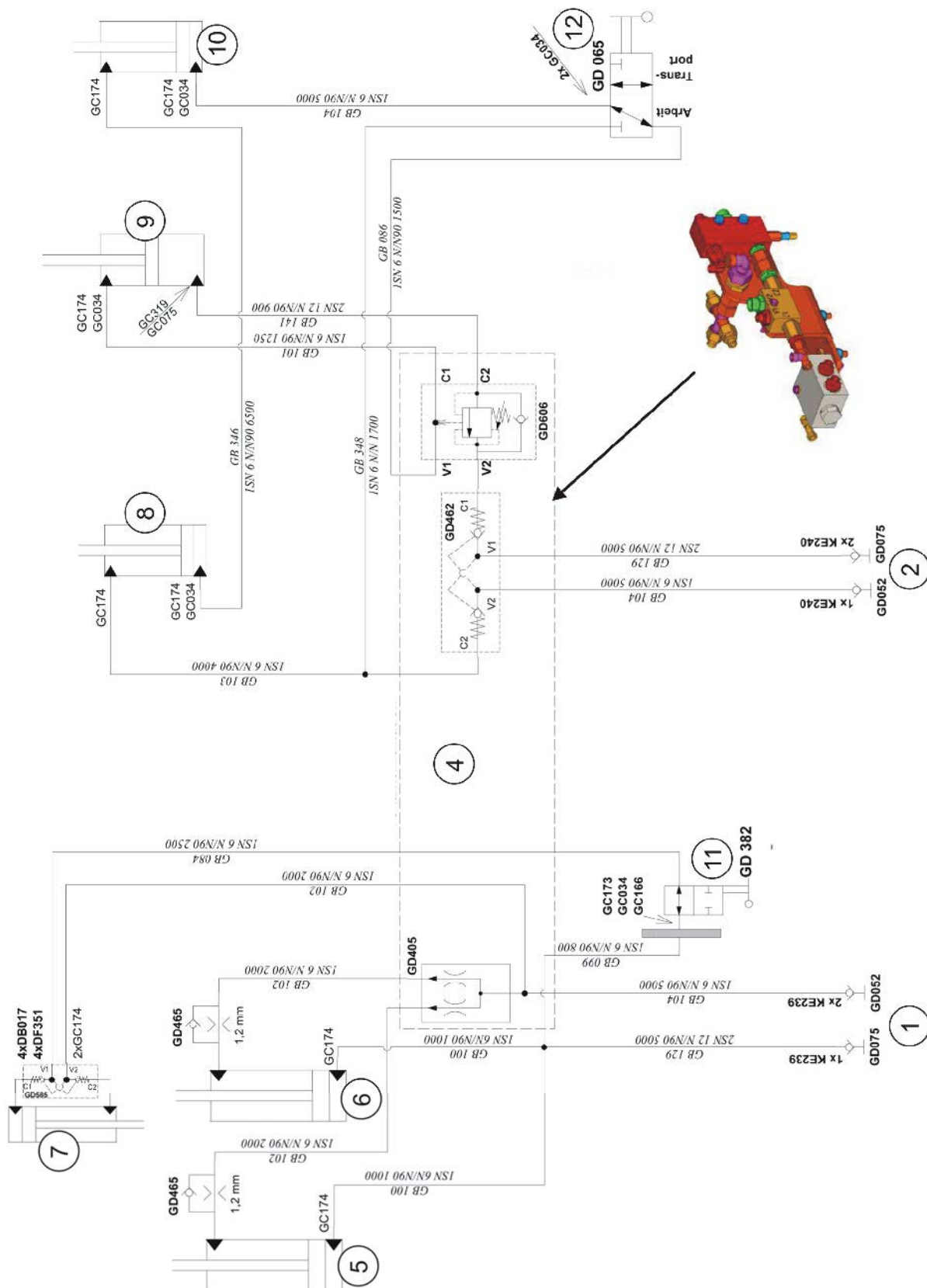


Fig. 91

Hydraulics diagram with hydraulic depth adjustment

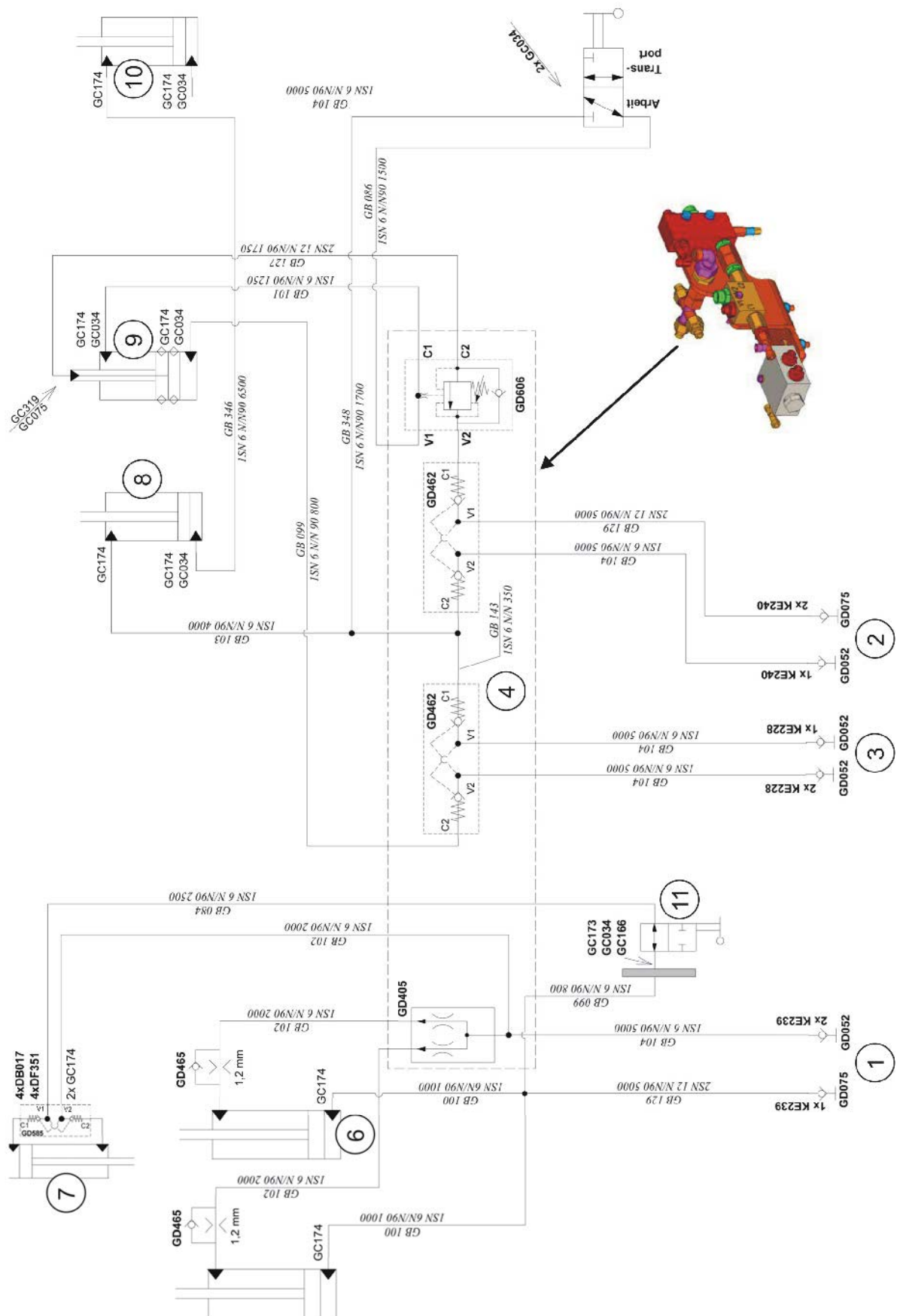


Fig. 92

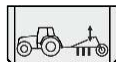
Cleaning, maintenance and repairs

(1) Connection of double-acting control unit



- Hose marking 1 - blue
- Unfold the machine
- Lower the 3 centre tyres
- Hose marking 2 - blue
- Fold in the machine
- Raise the 3 centre tyres

(2) Connection of double-acting control unit



- Hose marking, 1 - yellow
- Lower the machine
- Hose marking, 2 - yellow
- Raise the machine

(3) Connection of double-acting control unit



- Hose marking, 1 - green
- Increase working depth
- Hose marking, 2 - green
- Reduce working depth

- (4) Control block
- (5) Hydraulic cylinder for machine wing, left
- (6) Hydraulic cylinder for machine wing, right
- (7) Central roller hydraulic cylinder
- (8) Outer roller hydraulic cylinder
- (9) Running gear hydraulic cylinder
- (10) Outer roller hydraulic cylinder
- (11) Shut-off valve
- (12) Stop tap securing transport width



Coloured cable ties are also fitted to the cylinders corresponding to the hydraulic joints on the left side of the machine for marking.

12.15 Lower link pin

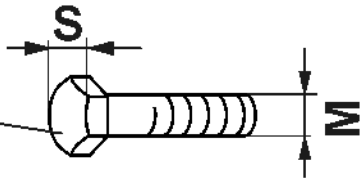


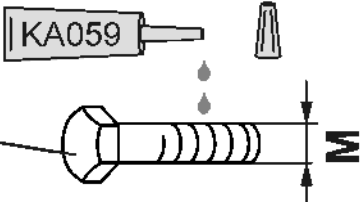
WARNING

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

Check the lower link pin for conspicuous defects whenever the machine is coupled. Replace lower link pins if there are clear signs of wear.

12.16 Screw tightening torques

<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> 8.8 10.9 12.9 </div>  </div>				
M	S	Nm		
		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

<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> A2-70 A4-70 </div>  </div>												
M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
Nm	2.3	4.6	7.9	19.3	39	66	106	162	232	326	247	314



AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51	Phone: +49 5405 501-0
D-49202 Hasbergen-Gaste	Fax: +49 5405 501-234
Germany	e-mail: amazone@amazone.de
	http:// www.amazone.de

Plants: D-27794 Hude • D-04249 Leipzig • F-57602 Forbach
Branches in England and France

Manufacturers of mineral fertiliser spreaders, field sprayers, seed drills,
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