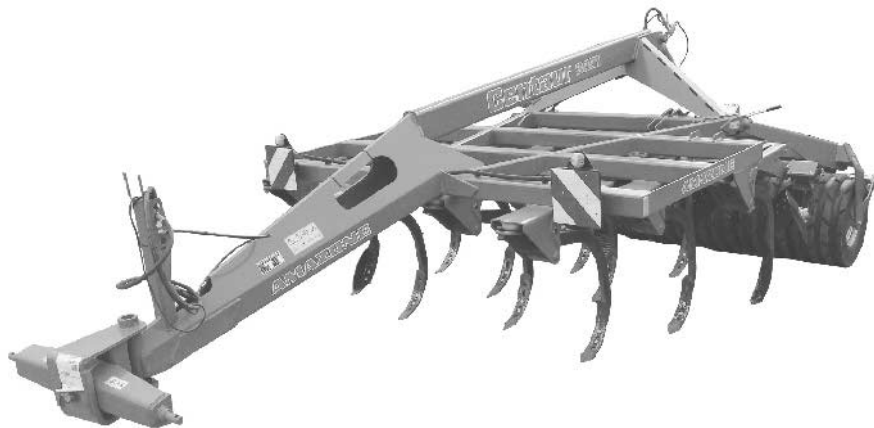


Operating Manual

AMAZONE

Centaur
3001 4001 5001
Super / Special

Mulch cultivator



MG 2177
BAG 0024.1 06.07
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.



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:

Centaur

Year of manufacture:

Basic weight (kg):

Approved total weight (kg):

Maximum load (kg):

Manufacturer's address

AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51

D-49202 Hasbergen, Germany

Phone: +49 5405 501-0

Fax: +49 5405 501-234

E-mail: amazone@amazone.de

Spare part orders

AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51

D-49202 Hasbergen

Phone: +49 5405 501-290

Fax: +49 5405 501-106

E-mail: et@amazone.de

Online spare parts catalogue: www.amazone.de

When ordering spare parts, always specify the (ten-digit) machine identification number.

Formalities of the operating manual

Document number: MG 2177

Compilation date: 06.07

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AMAZONEN-WERKE H. DREYER GmbH & Co. KG.

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 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 problems or queries, please consult this operating manual or give us a call.

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

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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 16) 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 construction 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:

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



The operation 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.

Use only genuine **AMAZONE** spare and wear parts or the parts cleared by AMAZONEN-WERKE so that the operating permit retains its validity in accordance with national and international regulations. If you use wear and spare parts from third parties, there is no guarantee that they have been designed and manufactured in such a way as to meet the requirements placed on them.

AMAZONEN-WERKE 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 must be operated by only one person from the driver's seat of the tractor.

2.13 Warning pictograms and other signs on the machine



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

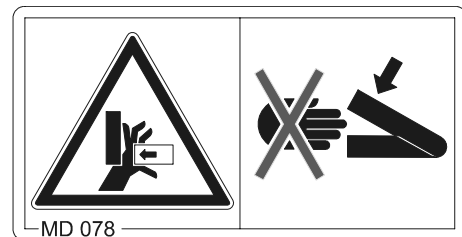
Warning pictograms

MD 078

Risk of contusions for fingers or hands through accessible moving machine parts!

This danger causes extremely serious injuries with the loss of body parts such as fingers or hands.

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

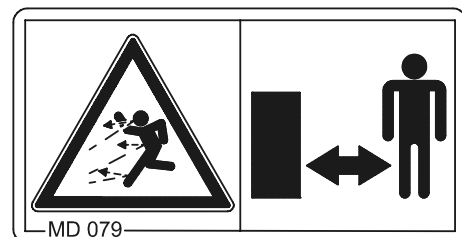


MD 079

Risk from flying parts!

This could result in serious injury to any part of the body.

Keep a safe distance from the machine while the tractor engine is running.



MD 084

Risk of contusions over the whole body from machine parts moving down from above!

This danger will cause serious injuries anywhere on the body or death.

It is forbidden to stand in the swivel area of moving machine parts.

Instruct people to leave the swivel area of moving machine parts before the machine parts move down.



MD 089

Danger!
Risk of crushing of whole body in the danger area of suspended loads/machine parts

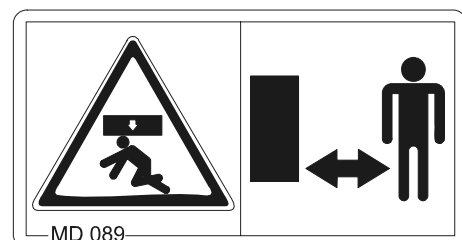
This danger will cause serious injuries anywhere on the body or death.

The presence of persons under suspended loads/machine parts is prohibited.

Maintain a sufficient safety clearance between you and any suspended loads/machine parts.

Ensure that all personnel maintain a sufficient safety clearance from suspended loads/machine parts.

Direct persons out of the danger area of suspended loads/machine parts.



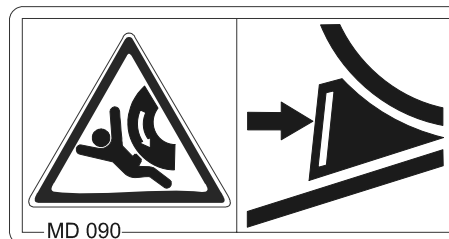
General safety instructions

MD 090

Risk of contusions from unintentional rolling of the uncoupled, unsecured machine!

This danger will cause serious injuries anywhere on the body or death.

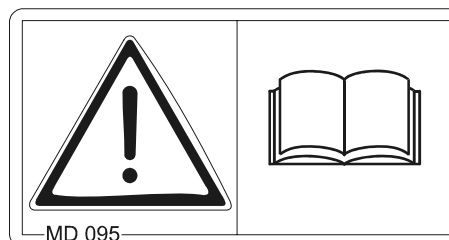
Secure the machine against unintentional rolling, before uncoupling the machine from the tractor. For this, use the parking brake and/or the wheel chock(s).



MD 090

MD 095

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



MD 095

MD 096

Danger of infection to the whole body from liquids escaping at a high pressure (hydraulic fluid)!

This danger will cause serious injuries over the whole body, if hydraulic fluid escaping at high pressure passes through the skin and into the body.

Never attempt to plug leaks in hydraulic lines using your hand or fingers.

Read and understand the information in the operating manual before carrying out maintenance and repair work.

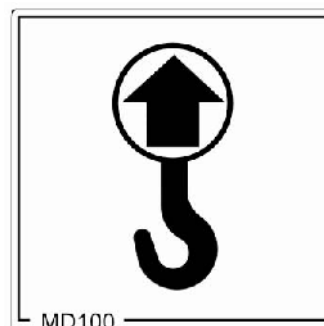
If you are injured by hydraulic fluid, contact a doctor immediately.



MD096

MD 100

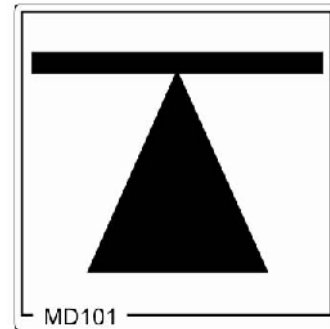
Hook accessory for attaching load-lifting devices.



MD100

MD 101

This pictogram shows application points for lifting gear (jack).

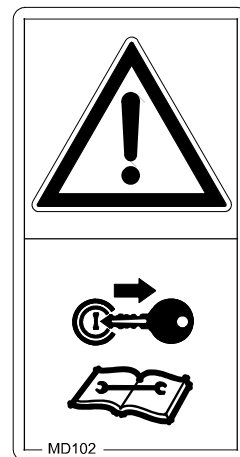


MD 102

Danger resulting from the unintentional start-up of the machine.

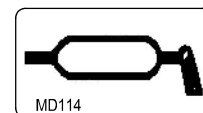
Can cause serious injury to the body and can even cause death.

- Before carrying out maintenance and repair work, turn off the tractor engine and remove the ignition key.
- Read and take note of the hints in the technical manual before carrying out maintenance and repair work.



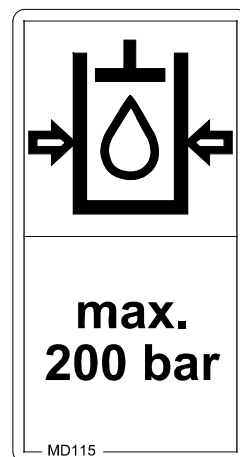
MD 114

This pictogram indicates a lubrication point



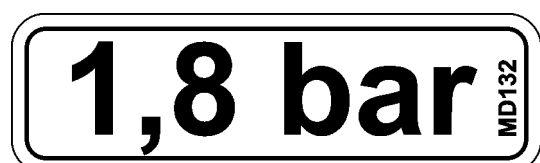
MD 115

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



MD 132

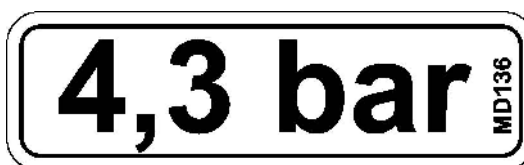
The required tyre pressure is 1.8 bar.



General safety instructions

MD 136

The required tyre pressure is 4.3 bar.



MD 145

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

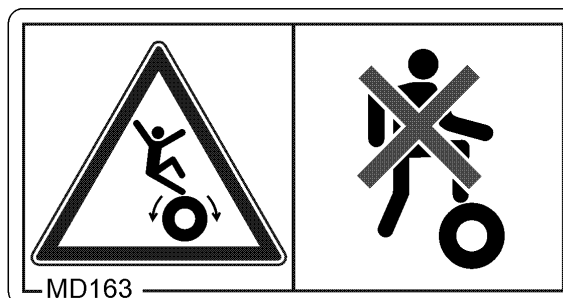


MD 163

Danger of persons falling from the wedge ring tyre roller if individual roller segments are inadvertently turned!

This could result in serious injury to any part of the body.

Never stand or walk on the roller segments of the wedge ring tyre roller.



2.13.1 Positioning of warning pictograms and other labels

Warning pictograms

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

Centaur 3001

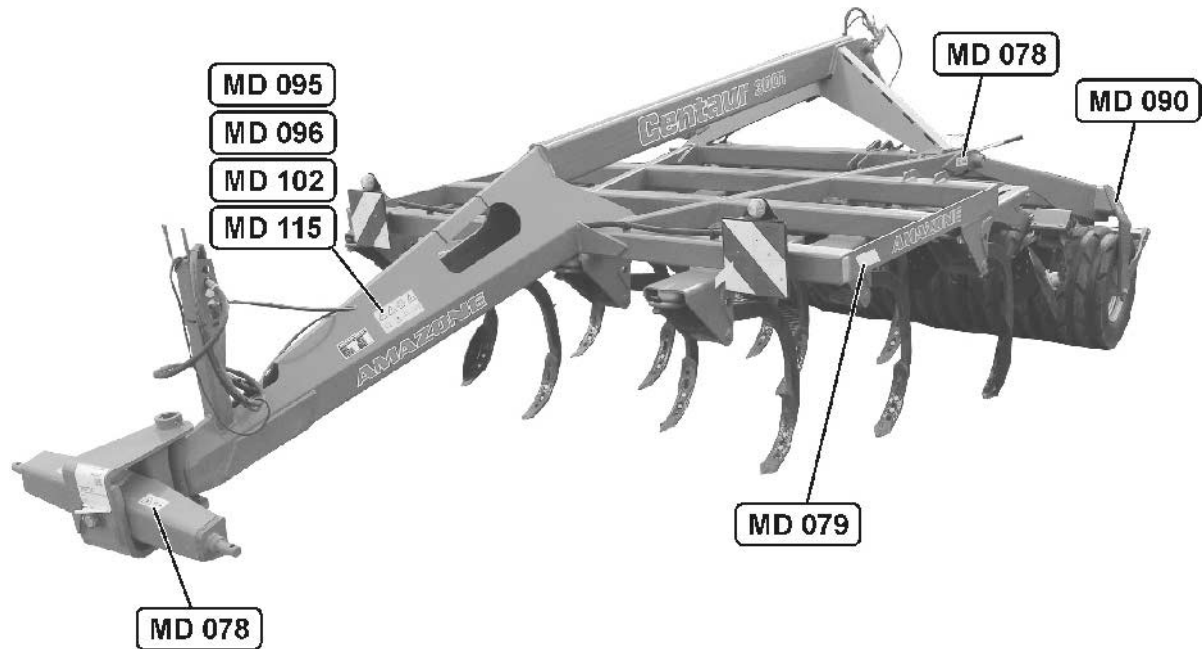


Fig. 1

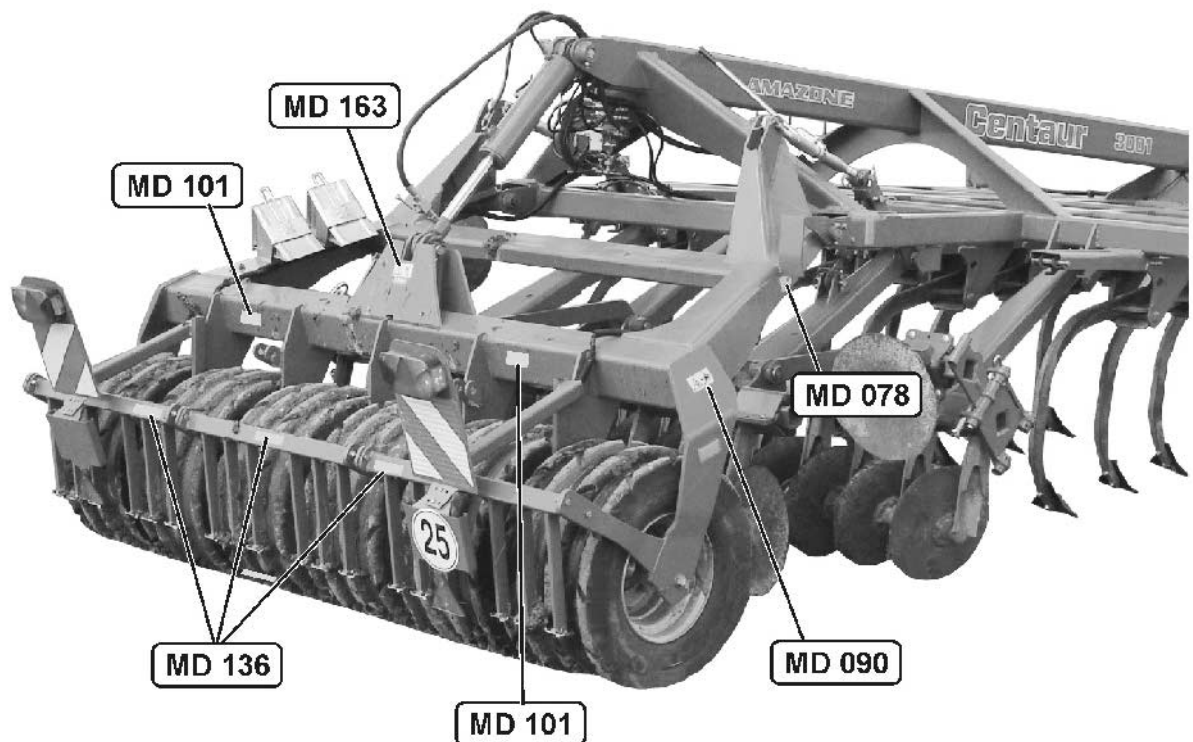


Fig. 2

Centaur 4001 / 5001

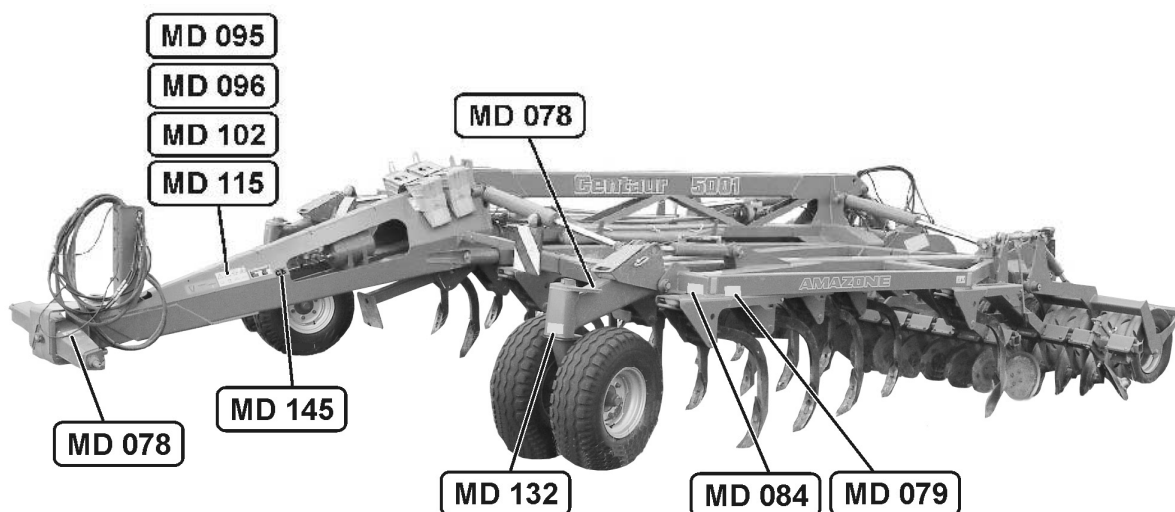


Fig. 3

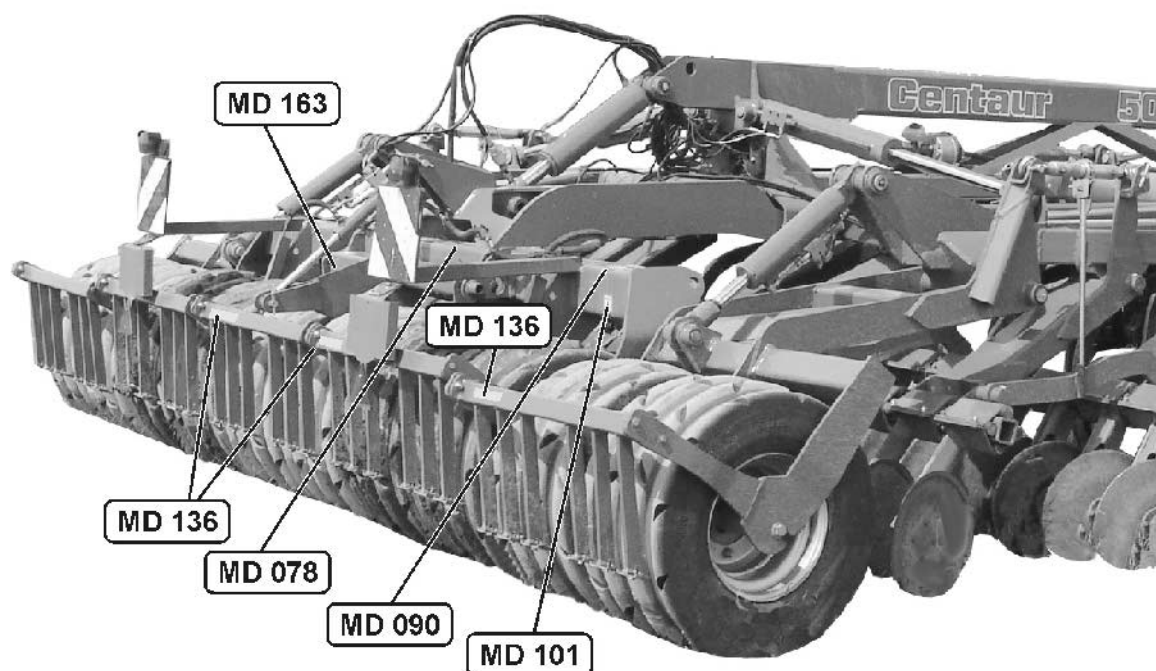


Fig. 4

2.14 Dangers of not observing safety instructions

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.
- 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 support 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:
 - o the correct connection of the supply lines
 - o the lighting system for damage, function and cleanliness
 - o the brake and hydraulic system for visible damage
 - o that the parking brake is released completely
 - o 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 load of the connected machine and the approved axle and support 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 transporting, secure the operating lever of the three-point hydraulic system against the unintentional raising or lowering of the connected/hitched 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 driving 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 an open centre 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 line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line 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 connections made from thermoplastics, other guide values may be decisive.
- Never attempt to plug leaks in hydraulic 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.
 - o 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.
 - o Ensure that the retrofitted electrical and electronic components comply with the EMC directive 89/336/EEC 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.

Compressed air brake 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 tank 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 empty 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 tank if:
 - o the air tank can be moved in the tensioning belts
 - o the air tank is damaged
 - o the rating plate on the air tank 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:
 - o the drive is switched off
 - o the tractor engine is at a standstill
 - o the ignition key has been removed
 - o 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.
- Compressed air brake system:
You may only move off with the machine connected if the pressure gauge on the tractor shows 5.0 bar.

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

Loading:

A person to help with manoeuvring is required for loading.

Secure the machine according to instructions.

Then disconnect the tractor from the machine.

Unloading:

Remove the transportation safety equipment.

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 **Centaur** mulch cultivator comes in the following variants:

- **Special:** with three tine rows and a row of spring tines or double discs
- **Super:** with four tine rows and two disc rows
- with a fixed frame: **Centaur 3001**
- with a foldable frame: **Centaur 4001** or **Centaur 5001**

4.1 Overview of subassemblies

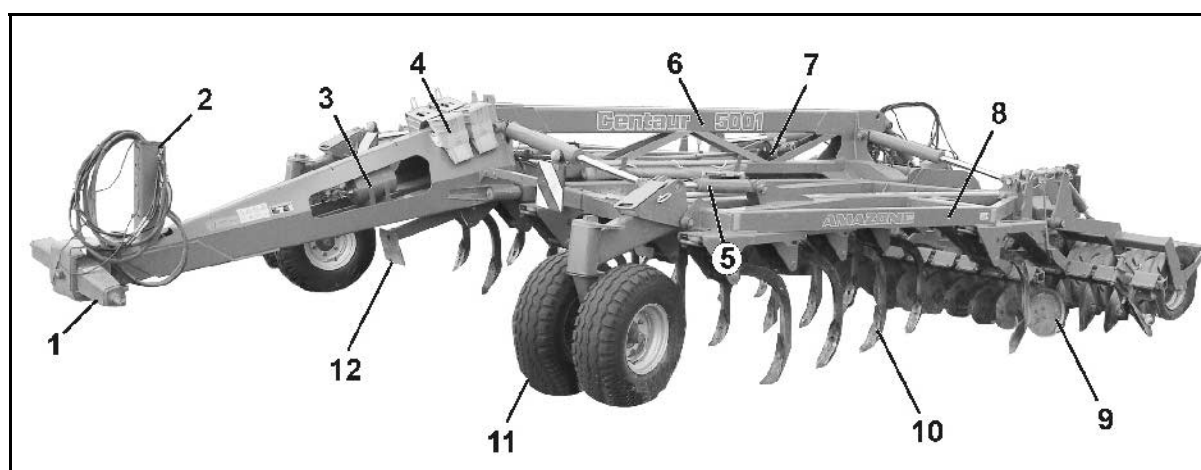


Fig. 5

- | | |
|--|---|
| (1) Cat III (standard) lower link attachment | (8) Foldable machine wing
(Centaur 4001/ 5001) |
| (2) Parking coupling for hydraulic hose lines | (9) Levelling discs |
| (3) Dual circuit air brake system (optional for
Centaur 4001/ 5001) | (10) Tines with overload protection |
| (4) Wheel chocks | (11) Support wheels
(optional for Centaur 4001/ 5001) |
| (5) Hydraulic cylinder for depth adjustment of
the feeler/support wheels
(Centaur 4001/ 5001) | Feeler wheels (optional, standard
equipment for Centaur 4001 / 5001
Super) |
| (6) Frame | (12) Stand |
| (7) Brake system
(optional for Centaur 4001/ 5001) | |

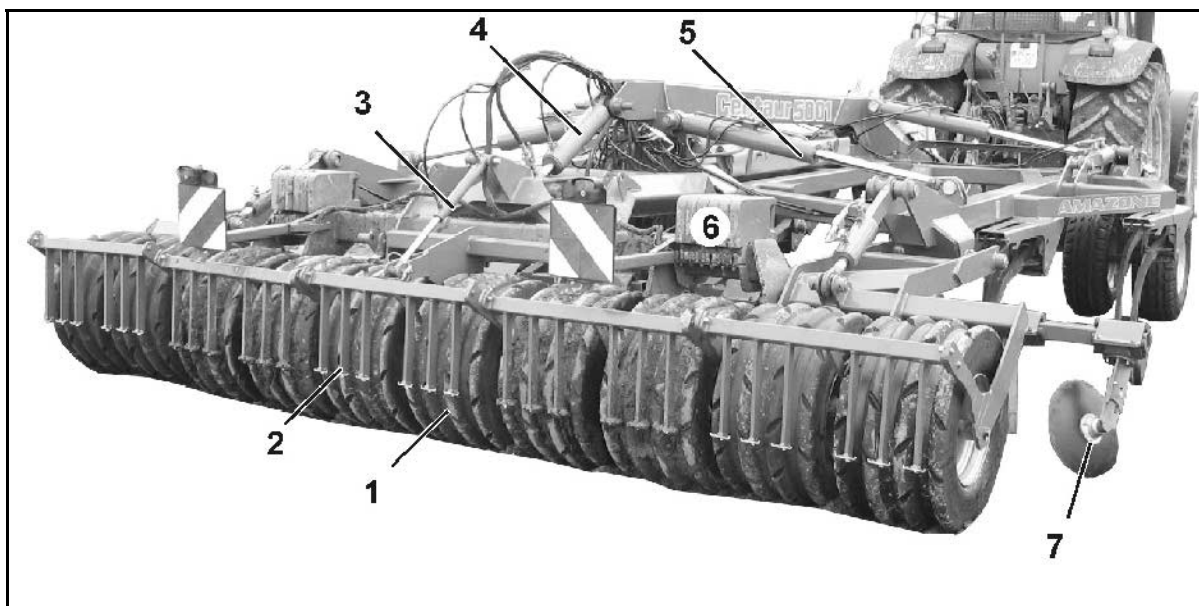


Fig. 6

Fig. 6/...

- | | |
|---|--|
| (1) Running gear and roller wheels | (4) Chassis hydraulic cylinder |
| (2) Strippers | (5) Machine-wing hydraulic folding cylinder
(Centaur 4001/ 5001) |
| (3) Middle roller wheel hydraulic cylinder for
braked running gear | (6) Additional ballast (optional) |
| | (7) Outside disc/outside tines (not
depicted) |

4.2 Safety and protection equipment

Centaur 4001 / 5001:

- Protective tarpaulin for road travel (Fig. 7/1).
The protective tarpaulin is attached to the drawbar for use.
- Ball valve to prevent unintentional folding out (Fig. 7/2).

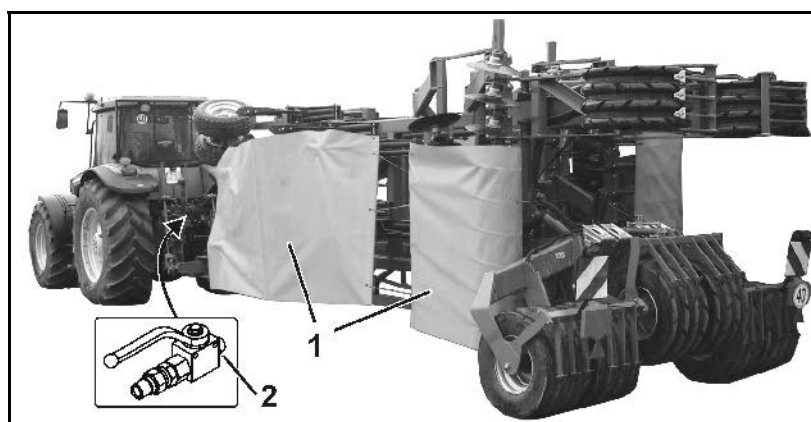


Fig. 7

4.3 Overview – Supply lines between the tractor and the machine

- Hydraulic hose lines
- Electric cable for lighting
- Connection to hydraulic brake or
- Pneumatic brake system
 - o Brake line with coupling head (yellow)
 - o Supply line with coupling head (red)

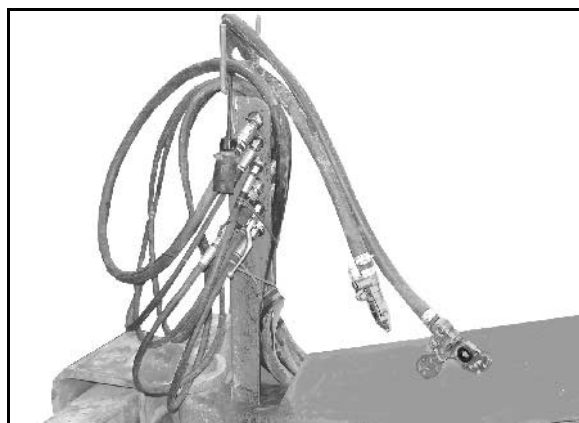


Fig. 8

4.4 Transportation equipment

Fig. 9/...

- (1) 2 rear lights/2 brake lights
- (2) 2 turn indicators (required when the tractor turn indicator is obscured)
- (3) 2 warning signs (square)
- (4) 2 red reflectors (triangular)
- (5) Registration plate holder with lighting (required if the tractor's registration plate is covered)

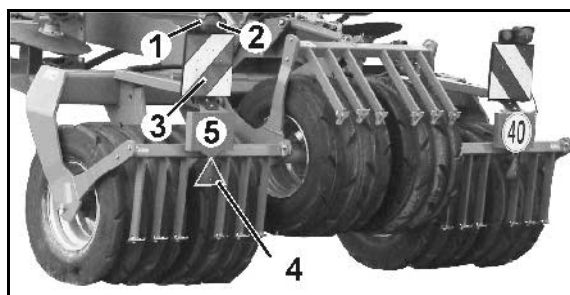


Fig. 9

Fig. 10/...

- (1) 2 warning signs (square)
 - (2) 2 limiting lights
- 2 x 3 reflectors, yellow (at side, max. 3 m gap)

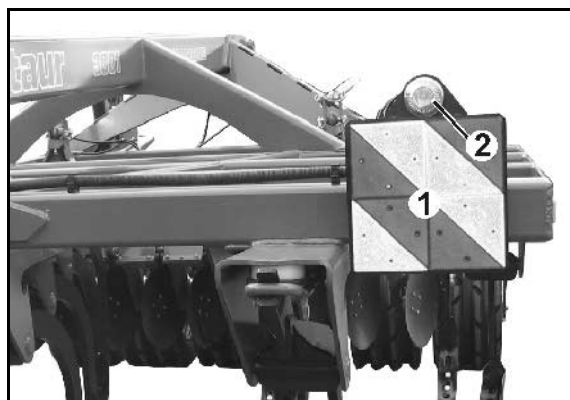


Fig. 10

4.5 Intended use

The **Centaur** mulch cultivator is:

- designed only for conventional usage for agricultural work.
- coupled to the tractor using the tractor lower link and operated by an additional person.

Slopes can be navigated as follows:

- Along the contours
Direction of travel to left 20 %
Direction of travel to right 20 %
- Along the gradient
Up the slope 20 %
Down the slope 20 %

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 working position or vice-versa when there is no-one in the machine danger area.

The following danger areas exist:

- Between the tractor and machine, especially when coupling and

uncoupling.

- Near moving parts.
- When the machine is in motion.
- Within the pivot range of the machine wing.
- Underneath raised, unsecured machines or parts of machines.
- When unfolding/folding the machine wing in the area of overhead cables.

4.7 Rating plate and CE marking

The following diagram shows the location of the rating plate and the CE marking.

The rating plate shows the following information:

- Machine ID no.
- Type
- Permissible system pressure in bar
- Year of manufacture
- Factory
- Power output (kW)
- Basic weight (kg)
- Permissible maximum weight (kg)
- Rear axle load (kg)
- Front axle load/drawbar load (kg)



Fig. 11

4.8 Technical data

Centaur		3001		4001		5001	
		Super	Special	Super	Special	Super	Special
Working width	[mm]	3,000	3,000	4,000	4,000	5,000	5,000
Transport width	[mm]	3,000	3,000	2,980	2,980	2,980	2,980
Number of tine rows (offset)		4	3	4	3	4	3
Number of tines		15	12	20	16	25	20
Two disc rows		X		X		X	
One row of spring tines or double discs			X		X		X
Number of discs/spring tines		24	9	32	12	40	14
Disc diameter	[mm]	460	460	460	460	460	460
Track width	[mm]	2,000	2,000	2,000	2,000	2,000	2,000
Total length	[mm]	8,300	6,950	9,350	8,100	9,350	8,100
Overall height	[mm]	2,000	2,000	2,800	2,800	3,100	3,100
Empty/basic weight	[kg]	3,950	3,020	5,900	5,100	7,800	7,100
Permissible axle load	[kg]	2,800	2,500	5,800	4,200	6,200	5,200
Permissible drawbar load (F _H)	[kg]	1,500	1,100	2,400	1,800	2,700	1,900
Working speed	[km/h]	8 - 15					
Maximum surface capacity	[ha/h]	4.5	4.5	6	6	7.5	7.5
Transport speed	[km/h]	25		40			
Coupling point category	Catego ry	III					
Tyres		400/50-15.5					

4.9 Conformity

The machine fulfils the:

Directives / standards

- Machines directive 98/37/EC
- EMC directive 89/336/EEC



4.10 Necessary tractor equipment

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

Tractor engine power

3001 Special	from 100 kW
3001 Super	from 110 kW
4001 Special	from 110 kW
4001 Super	from 147 kW
5001 Special	from 147 kW
5001 Super	from 185 kW

Electrical system

Battery voltage:	<ul style="list-style-type: none">• 12 V (volts)
Lighting socket:	<ul style="list-style-type: none">• 7-pin

Hydraulic system

Maximum operating pressure:	<ul style="list-style-type: none">• 200 bar
Tractor pump power:	<ul style="list-style-type: none">• At least 15 l/min at 150 bar
Machine hydraulic fluid:	<ul style="list-style-type: none">• Transmission/hydraulic oil Otto 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">• One to three double-acting control units, depending on the machine equipment. See page 40.

Operational 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

Connection fitting between the tractor and the machine:

- The lower link of the tractor must have lower link hooks.

4.11 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 Functionality

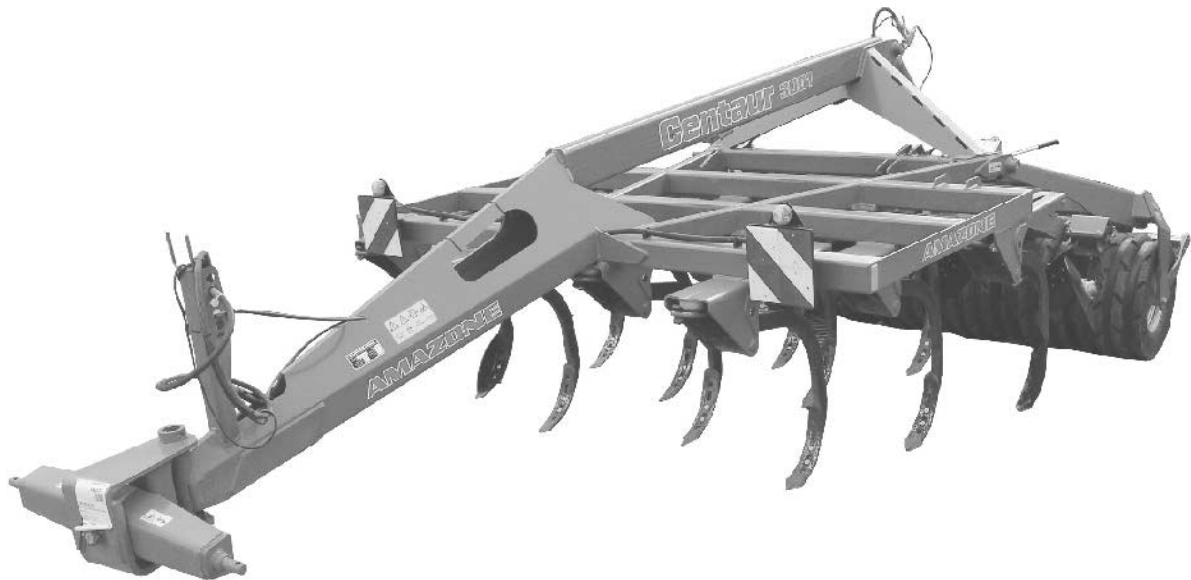


Fig. 12

The **Centaur** is suitable for the following tasks:

- o Ploughing grassland without preparatory work
- o Tilling ground for mulch sowing
- o Tilling ground with large quantities of straw evenly and reliably
- o Stubble processing without preparatory work
- o Working on seed beds

The **Centaur Super**, unlike the **Centaur Special**, has a greater number of tines and therefore requires higher tractor power.

The central roller has 6 wheels and constitutes the transport running gear on the unbraked variant of the **Centaur**.

On the braked **Centaur**, only the outer 4 wheels of the central roller act as the running gear wheels.

5.2 Hydraulic system connections



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.



All the hydraulic hose lines possess the following coloured markings to allow assignment of the appropriate hydraulic function to the pressure line of a tractor control unit.

Tractor control unit		Function	Hose markings
1 Fig. 13/1	Double-action	<ul style="list-style-type: none"> Lowering the running gear Lowering the levelling discs (only Centaur 3001 Super) Lowering the finishing unit (optional) 	1 x yellow
		<ul style="list-style-type: none"> Lifting the running gear Lifting the levelling discs (only Centaur 3001 Super) Lifting the finishing unit (optional) 	2 x yellow
2 Fig. 13/2	Double-action	Adjusting the working depth (optional)	• Increase 1 x green
			• Decrease 2 x green
3 Fig. 13/3	Double-action	<ul style="list-style-type: none"> Unfold the machine Lowering the central 2-wheel roller (only Centaur with brake system) Lowering and folding out the finishing unit (optional) 	1 x blue
		<ul style="list-style-type: none"> Fold in the machine Lifting the central 2-wheel roller (only Centaur with brake system) Lifting and folding up the finishing unit (optional) 	2 x blue

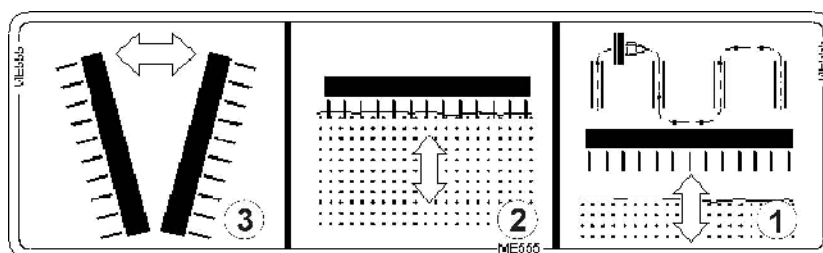


Fig. 13

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 plugs.



- 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 plug(s) into the hydraulic sockets until you feel them lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Place the tractor control unit in float position (neutral).
2. Clean the hydraulic plugs of the hydraulic hose lines before coupling up.
3. Couple the hydraulic hose line(s) with the tractor control unit(s).

5.2.2 Uncoupling the hydraulic hose lines

1. Place the tractor control unit in float position (neutral).
2. Release the hydraulic plugs from the hydraulic sockets.
3. Attach the hydraulic plugs to the parking couplings (Fig. 14).

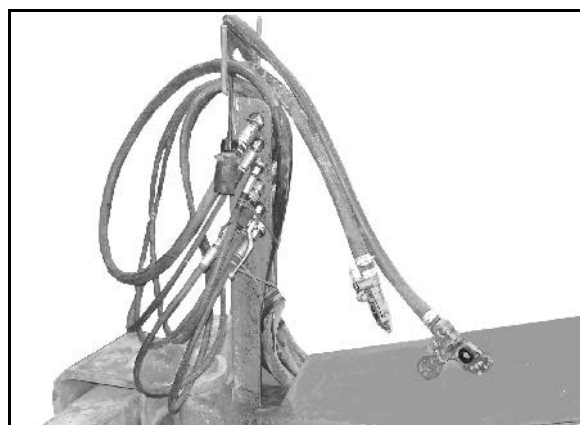


Fig. 14

5.3 Dual-circuit service brake system



The machine does not have a 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.



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



WARNING

If the machine, when uncoupled from the tractor, has full compressed air tanks, the compressed air from the air tanks acts on the brakes and the wheels jam.

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

The brakes are released immediately with a full compressed air tank when the supply line (red) is connected to the tractor. For this reason, the machine must be connected to the lower links of the tractor and the tractor's hand brake must be applied before the supply line (red) is connected.

The wheel chocks may not be removed until the machine is connected to the lower links of the tractor and the hand brake is applied.

To activate the dual-circuit compressed-air brake system, the tractor requires a compressed-air brake system which is also dual circuit.

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

Fig. 15/...

- (1) Supply line filter
- (2) Brake line filter
- (3) Trailer brake valve
- (4) Compressed air tank
- (5) Test connection for pressure gauge
- (6) Drain valve
- (7) Release valve

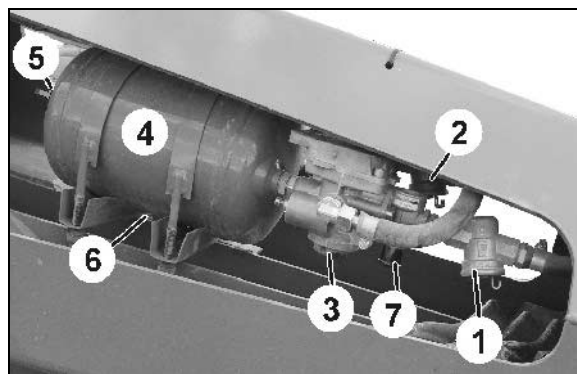


Fig. 15

Fig. 16/...

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

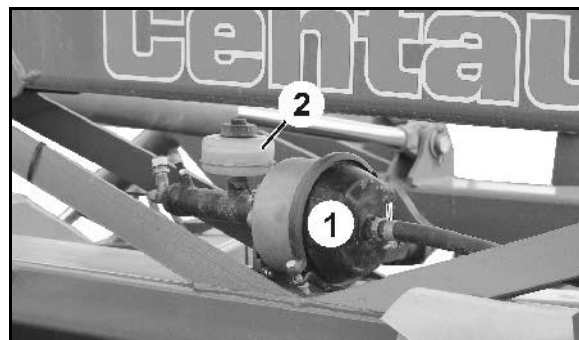


Fig. 16

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 tank 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 empty 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 empty 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 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 operating 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 chocks.
2. Release supply line coupling head (red).
3. Release brake line coupling head (yellow).
4. Fasten coupling heads in the empty coupling points.
5. Close tractor coupling head caps.

5.4 Hydraulic service brake system

To control the hydraulic operating 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. Clean the hydraulic plug and socket if necessary.
3. Couple the machine's hydraulic socket with the tractor's hydraulic plug.
4. Manually tighten the hydraulic screw joint (if present).



Fig. 17

5.4.2 Uncoupling the hydraulic operating brake system

1. Loosen the hydraulic screw joint (if present).
2. Use the protective caps to protect the hydraulic plug and socket from contamination.
3. Store the hydraulic hose line in the hose cabinet.

5.5 Tines

The tine rows are carried by the chassis. The stroke gap is as follows:

- 20 cm for the **Centaur Super**
- 25 cm for the **Centaur Special**

The chassis height of 105 cm enables large quantities of straw to pass without becoming jammed.

The overload protection, which consists of two tension springs (Fig. 18/1), allows the tines to give way if an overload situation occurs.

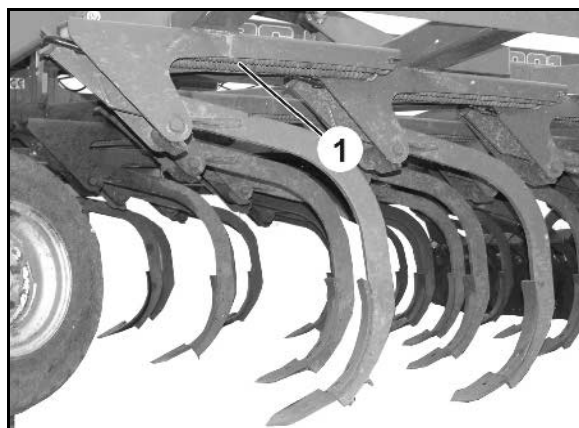


Fig. 18

Setting the working depth

The working depth is set in one of the following ways, depending on the machine and its equipment:

- Hydraulically using tractor control unit 2 from the tractor cab
- Mechanically on the frame using spacer elements.

For more information on setting the working depth, see pages 69 and 71.

5.6 Coulters

The tines of the **Centaur** can be fitted with various coulters:

Fig. 19/...

- (1) Stubble coulters (170 mm): used to mix in volunteer grain and straw when processing flat stubble.
- (2) Helix coulters (75 mm): used for average soil depths; good mixing in of organic matter.
- (3) Narrow coulters (50 mm): used for topsoil loosening. With deeper loosening, rocks remain at the lower level.

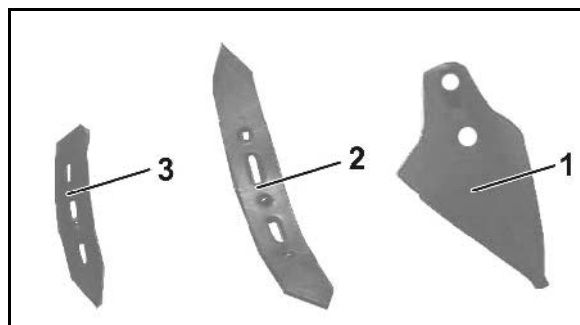


Fig. 19

In the case of local conditions that require frequent coulters changes, we recommend using the **Vario-Clip** quick change system. The coulters mounting bracket is attached securely to the coil spring tines; the coulters bodies can be changed easily without using tools.

5.7 Feeler wheels

(optional depending on the machine used)

The fixed feeler wheels prevent the **Centaur** from shaking during unfavourable working conditions.



CAUTION

Set the **Centaur's** depth guidance so that the lower links of the tractor keep the machine at the required height and bear the load.

The feeler wheels can touch the ground but must not carry the weight of the machine. They are not intended to be load-bearing elements.

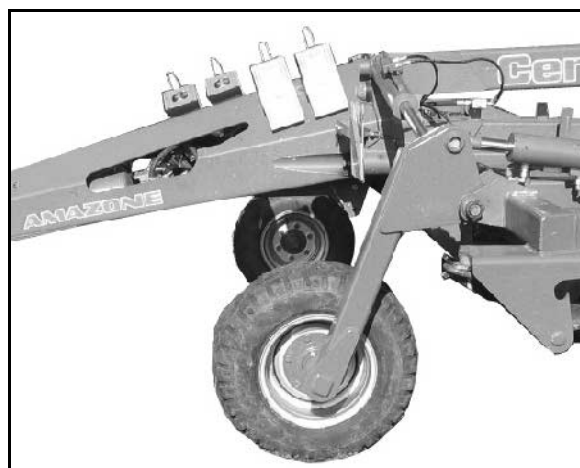


Fig. 20



CAUTION

- If the feeler wheels are overloaded, the guarantee is invalidated.
- When cornering and on headlands, the machine is to be lifted using the tractor's lower links.

5.8 Support wheels

(Optional)

The front steerable support wheels guide the **Centaur** at the set working depth. The steerable design enables light cornering. The support wheels are designed for a load that has the mass of the machine so that the lower links of the tractor can be moved in the float position.

If the slippage on the tractor rear wheels is too high, we recommend that you transfer some of the weight from the **Centaur** to the tractor by slightly raising the lower links.

Locking and unlocking the support wheels

Fig. 21: Support wheel unlocked

Fig. 22: Support wheel locked

In the case of wide tractors with dual or Terra tyres, there may be too little space between the support wheel and the tractor wheel when turning. In this case, the support wheels can be unlocked so that they pivot down when the **Centaur** is lifted on head land.

Proceed as follows to unlock the wheels:

1. Unburden the support wheels by placing them on the ground.
2. Remove the covering cap (this is attached using clamping brackets).
3. Remove the clip pin (Fig. 23/2) from the locking bolt (Fig. 23/1).
4. Pull out the locking bolt until the support wheel unlocks.
5. Secure the lock bolt in (Fig. 23/2) position **A** (Fig. 23) using the clip pin.
6. Replace the covering cap.



If this function is not used, the support wheels should be locked again. This improves the collection behaviour of the **Centaur**, especially when working on dry or hard land.

To lock a support wheel, return the locking bolt (Fig. 24/1) to **position B** (Fig. 24) and secure it using the clip pin (Fig. 24/2).



Fig. 21



Fig. 22

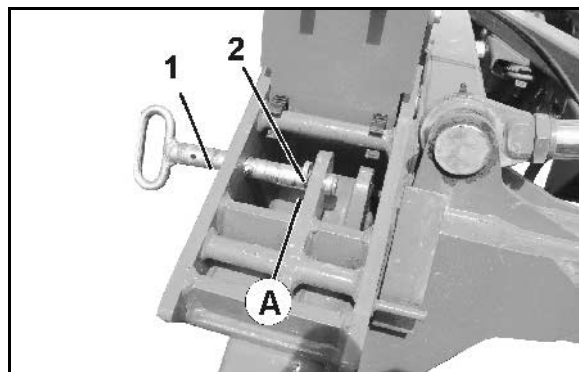


Fig. 23

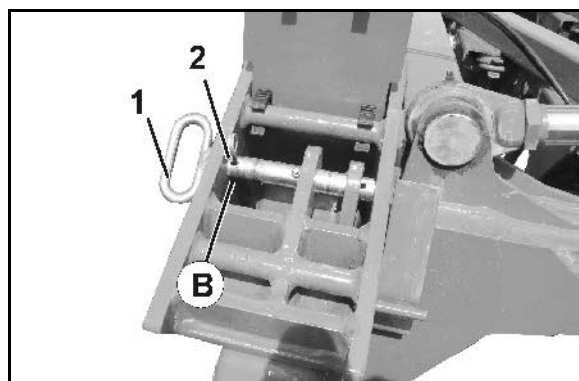


Fig. 24

5.9 Centaur Super levelling unit

The two-row hollow disc system acts as a levelling unit (Fig. 19). The discs, which have a diameter of 460 mm, are arranged so that there are eight discs per metre of working width. They mix, crumble and level out the earth.

The working depth of the disc unit is set using two turnbuckles.

When the tine working depth is adjusted, the disc elements automatically adjust accordingly by means of a guide connection. The outer elements can be set separately to the next working depth to enable clean transit.

For information on setting the working depth, see page 72.

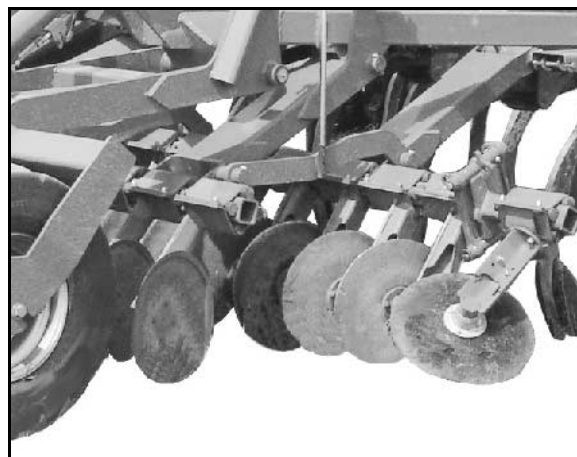


Fig. 25

5.10 Centaur Special levelling unit

The following components act as levelling elements:

- Spring tines (standard) or
- Double discs (optional).

These elements are mounted on a bar and their number and position relate to the rear tines of the **Centaur Special**.

They mainly serve to level the earth, but also contribute to mixing.

The double discs are more suited to difficult conditions with high proportions of organic matter, whereas the spring tines can be used under normal conditions.

The working depth (relative to the roller) is set using threaded spindles.

When the tine working depth is adjusted, the levelling unit automatically adjusts accordingly by means of a guide connection (except for the **Centaur 3001 Special**).

The outer elements can be set separately to the next working depth to enable clean transit.

For information on setting the working depth, see page 72.

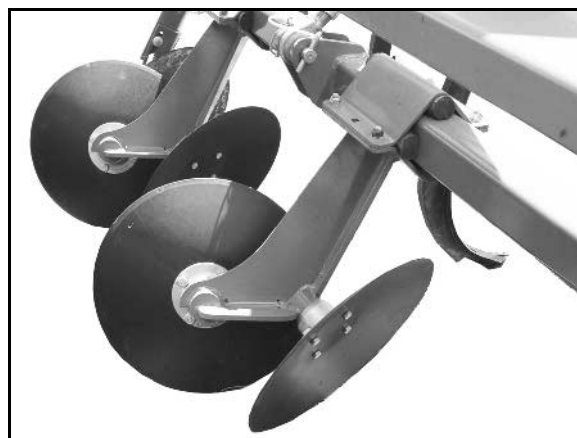


Fig. 26



Fig. 27

5.11 Outside discs/tines

The outside discs/tines prepare an even field with no lateral banks.
Adjustments can be made for soil conditions and operational speed.


5.11.1 Centaur Super outside discs

On the **Centaur Super**, the outside discs:


- Can pivot upwards,
- Can have their working depth adjusted
- Can have their penetration angle adjusted

Fig. 28 – Outside disc in working position

Fig. 29 – Outside disc in transport position



WARNING
Centaur 3001 Super:
When transporting the machine, pivot the outside discs upwards, fix with bolts (Fig. 29/1) and secure with clip pins (Fig. 29/2).



To enable work right up to the field border, you can pivot up the outside disc on the side of the machine facing the border.



Fig. 28

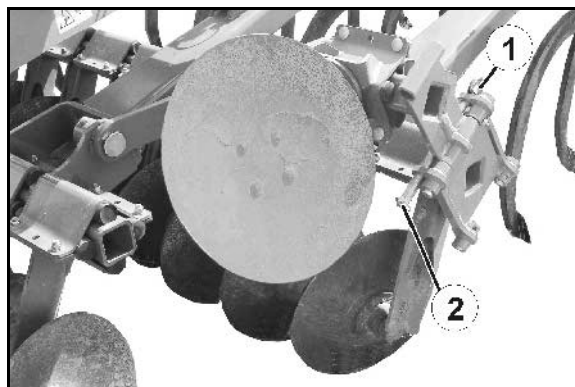


Fig. 29

5.11.2 Centaur Special outside discs/tines

The outside discs/tines on the **Centaur Special** can:

- Be telescoped to the side
- Have their working depth adjusted (outside discs only)
- Have their penetration angle adjusted (outside discs only)

Fig. 30 – Outside disc in working position

Fig. 31 – Outside disc in transport position

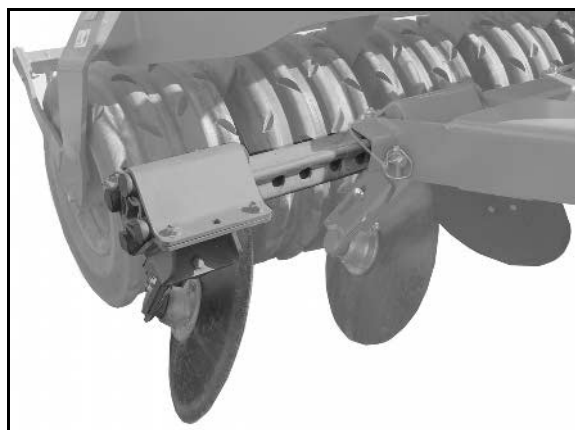


Fig. 30


WARNING
Centaur 3001 Special:

When transporting the machine, completely slide in the outside discs/tines, fix with bolts (Fig. 31/1) and secure with clip pins (Fig. 31/2).

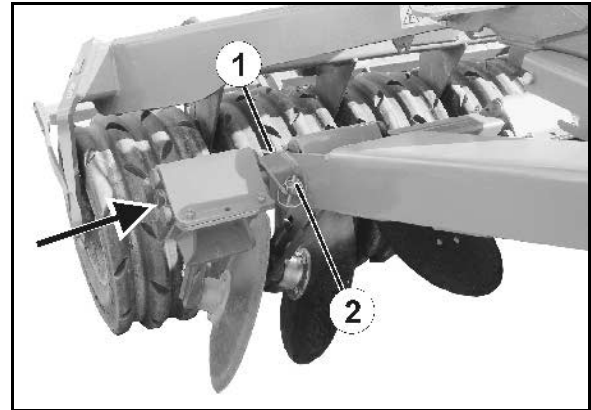


Fig. 31

5.11.3 Setting the working depth of the outside discs

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

1. Actuate tractor control unit **1** (2 x yellow).
- Raise the running gear!
2. Release screw unions (Fig. 32/1).
3. Reset outside discs in slotted hole so that no dam formation is caused during use.
4. Retighten the screw unions.

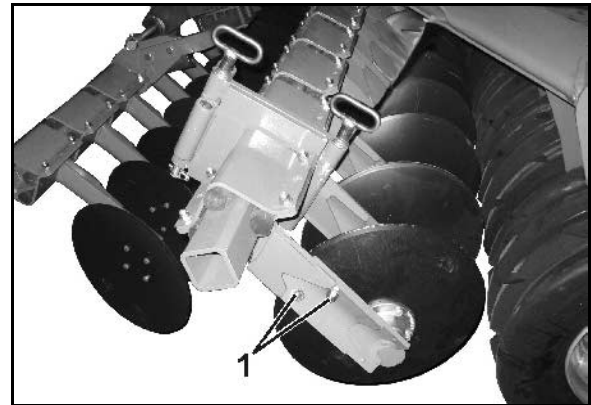


Fig. 32

5.11.4 Setting the penetration angle of the outside discs

1. Actuate tractor control unit **1** (2 x yellow).
- Raise the running gear!
2. Undo three screw joints (Fig. 33/1).
3. Adjust the penetration angle by twisting the outside discs so that there is no dam formation during use.
4. Retighten the screw unions.

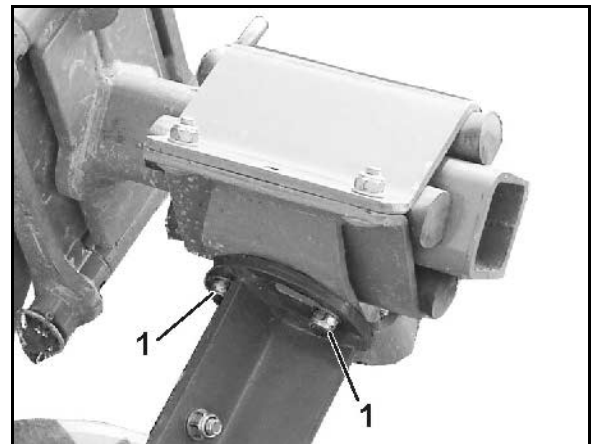


Fig. 33

5.12 Roller wheels/running gear wheels

There are the following number of roller and running gear wheels:

- 6 running gear wheels on the **Centaur 3001** and **Centaur 4001/5001** with unbraked running gear
- 4 running wheels on the **Centaur 4001/5001** with pneumatically or hydraulically braked running gear
- Roller wheels

During work, the machine is guided to the required depth at the rear using running gear wheels and roller wheels.

During transport and on headlands, the machine runs on the running gear wheels (Fig. 35/1).

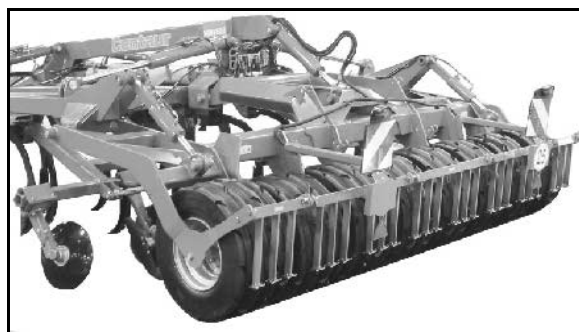


Fig. 34

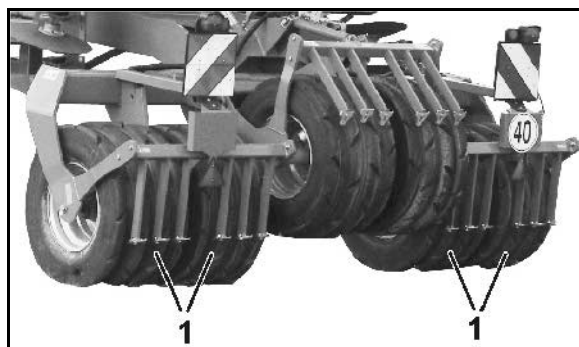


Fig. 35

5.13 Tensioned crosspiece

The category III tensioned crosspiece is used to couple the machine to the tractor.

Alternatively, tensioned crosspieces of category IV and V (Kirovets tractors) can be supplied.

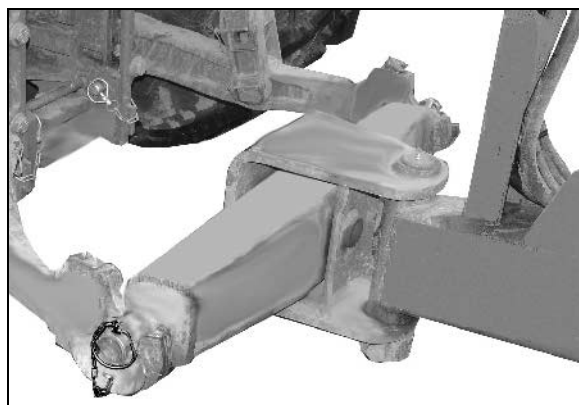


Fig. 36

5.14 Stand

Fig. 37:

Stand raised for use or transport

Fig. 38:

Stand lowered when machine is uncoupled

Raising/lowering the stand:

1. Release the clip pin.
2. Remove the bolt (Fig. 38/1).
3. Raise/lower the stand.
4. Fix the stand with the bolt and secure using the clip pin.



WARNING

Risk of crushing fingers when handling the stand.

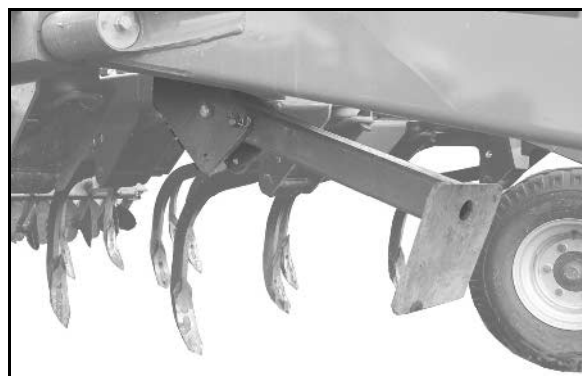


Fig. 37

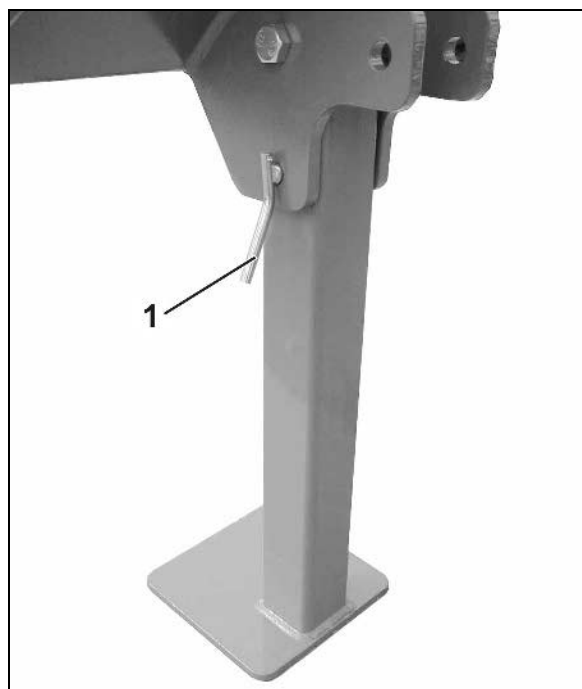


Fig. 38

5.15 Additional ballast

Optional

To obtain a higher level of recompaction, the **Centaur** can be fitted with additional ballast up to 500 kg.

Installation:

- Mount to the outside on the left and right of the rear square tube of the chassis.
- Secure the additional weight (Fig. 40/1) and retaining plate (Fig. 40/2) to the chassis tube using two screws for each.



Fig. 39

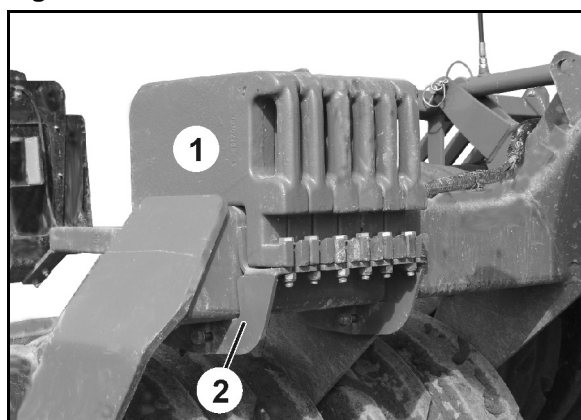


Fig. 40

5.16 Finishing unit

Optional

The rear of the **Centaur** can be fitted with the following:

- Tubbing rollers (Fig. 41)
- Harrows (Fig. 42)

These are additional processing units.

An additional tubbing roller optimises the work result of the standard tyre roller, especially for sites with light soil.

A harrow is suitable for producing a fine seed bed and is interchangeable with the roller.

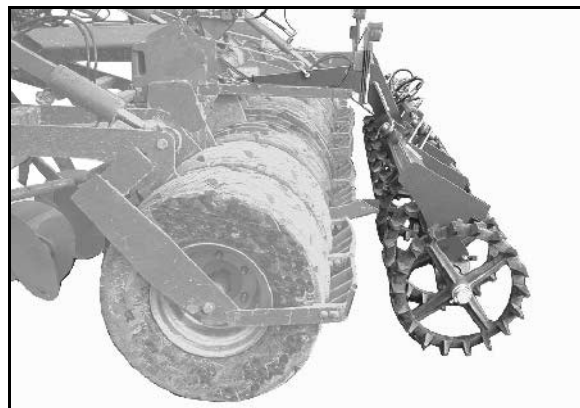


Fig. 41

Setting the harrow

1. Actuate tractor control unit **1** (yellow).
→ The harrow lifts up, releasing the adjusting pins.
- **Move the adjusting pins towards the rear for higher aggressiveness.**
- **Move the adjusting pins towards the front for lower aggressiveness.**
2. Release the clip pin (Fig. 42/1).
3. Secure the adjusting pins (Fig. 42/2) in the desired position.
4. Resecure the clip pin.

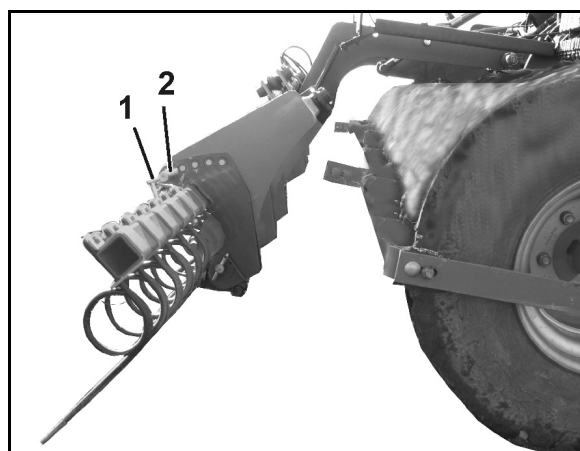


Fig. 42



Fix all harrow adjusting pins 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 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 harrow.

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 24 onwards when
 - connecting and disconnecting the machine,
 - transporting the machine and
 - using 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 an open centre 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 approved 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 approved 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 supported weight 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 approved 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

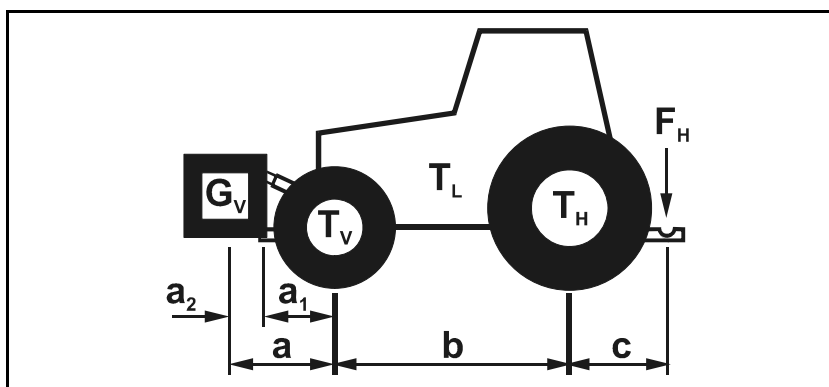


Fig. 43

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 instruction manual	Double approved load capacity (two tyres)
Minimum ballast front / rear	<div>/ kg</div>	--	--
Total weight	<div>kg</div>	<div>kg</div>	--
Front axle load	<div>kg</div>	<div>kg</div>	<div>kg</div>
Rear axle load	<div>kg</div>	<div>kg</div>	<div>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 (\leq) the permissible values!



WARNING

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

It is forbidden to couple the 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:
 - o that the connection fittings on the tractor possess sufficient permissible support capability for the supported weight actually present.
 - o that the axle loads and weights of the tractor altered by the drawbar load are within the approved limits. If necessary, weigh them.
 - o that the tractor's actual static rear axle weight does not exceed the permissible rear axle weight.
 - o that the permissible total weight of the tractor is observed.
 - o that the approved load capacities of the tractor tyres are not exceeded.

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.
- The maximum movement 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
 - o when the machine is being operated.
 - o as long as the tractor engine is running with the PTO shaft / hydraulic system connected.
 - o if the ignition key is in the tractor and the tractor engine can be started unintentionally with the PTO shaft / hydraulic system connected.
 - o 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.
 - o 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 (machine parts).
→ This prevents parts from falling unintentionally.
2. Turn off the tractor engine.
3. Remove the ignition key.
4. Apply the tractor's parking brake.
5. Secure the machine against rolling unintentional (only if the machine is hitched) as follows:
 - o by applying the parking brake (if fitted) or by using wheel chocks, if the terrain is level.
 - o by applying the parking brake and using wheel chocks if the machine is on unlevel terrain or on an incline.

7 Coupling and uncoupling the machine



When coupling and uncoupling machines, follow the instructions given in the section "Safety instructions for the operator" page 24.



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.

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.
- Only use the upper and lower link pins provided for coupling the machine.
- Visually check the upper and lower link pins for obvious defects whenever the machine is coupled. Replace upper and lower link pins if there are clear signs of wear.
- Use a lynch pin on each of the upper and lower link pins in the pivot points on the three-point frame attachment to secure them against unintentional release.



WARNING

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

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

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

1. Using the lower link pins, secure the ball sleeves to the hinging points of the three-point attachment frame.
2. Secure the lower link pins from being released unintentionally using clip pins (Fig. 44/1).
3. Direct people away from the danger area between the tractor and machine before you approach the machine with the tractor.
4. Connect the supply lines before coupling machine and tractor.
 - 4.1 Drive tractor up to the machine in such a way that there remains a gap (approx. 25 cm) between tractor and machine.
 - 4.2 Secure the tractor against unintentional starting and unintentional rolling away.
 - 4.3 Check that the tractor's PTO is switched off.
 - 4.4 Connect the supply lines to the tractor.
 - 4.5 Position the lower link hooks so that they are aligned with the lower linking points on the machine.

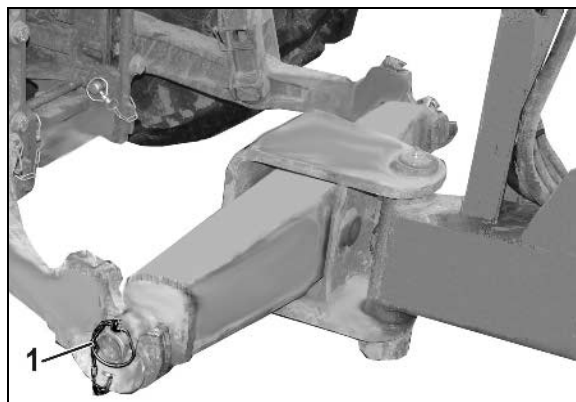


Fig. 44

5. Now reverse the tractor further towards the machine so that the tractor's lower link hooks automatically pick up the ball linings on the machine's lower pivot points.
→ The lower link hooks lock automatically.
6. Raise the stand into the transport position.
7. Before moving off:
 - o Visually check that the lower link hooks are correctly locked.
 - o Remove the wheel chocks.

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.



The **Centaur 4001 / 5001** can be uncoupled as follows:

- When folded out.
Place the machine on the tines.
- When retracted.
Place the machine on the stand.

1. Park the machine on a level parking surface on solid ground.
2. Uncouple the machine from the tractor.
 - 2.1 Secure the machine against unintentionally rolling away.
See page 62.
 - 2.2 Lower the stand.
 - 2.3 Release the lower link.
 - 2.4 From the tractor seat, unlock the lower link hooks and uncouple them.
 - 2.5 Pull tractor forward approx. 25 cm.
→ This will allow more room between tractor and machine and give better access for uncoupling the PTO shaft and supply lines.
 - 2.6 Secure tractor and machine against unintentional starting and rolling away.
 - 2.7 Disconnect the supply lines.
 - 2.8 Fasten supply lines to their respective parking sockets.
3. Secure the machine against rolling away with wheel chocks.

7.2.1 Shunting the uncoupled machine

Dual circuit air brake system



CAUTION

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

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

The brakes on the manoeuvring vehicle must be on.



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

Release the service brake as follows:

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

1. Connect the machine to the manoeuvring vehicle.
2. Actuate the brakes on the manoeuvring vehicle.
3. Remove wheel chocks.
4. Pull out the release valve until it reaches the stop position.
 - This releases the service brake system so that the machine can be shunted.
5. Once shunting is complete, push in the release valve until it reaches the stop position.
 - The pressure from the air reservoir brakes the machine again.
6. Actuate the brakes on the manoeuvring vehicle.
7. Secure the machine against rolling away with wheel chocks.
8. Uncouple the machine from the manoeuvring vehicle.

Hydraulic brake system

**DANGER**

You must be particularly careful when shunting the machine, since only the manoeuvring vehicle is now braking the machine.

The machine must be connected to the manoeuvring vehicle before you release the parking brake.

The brakes on the manoeuvring vehicle must be on.

1. Connect the machine to the manoeuvring vehicle.
2. Actuate the brakes on the manoeuvring vehicle.
3. Remove wheel chocks.
4. Actuate the brakes on the manoeuvring vehicle again once you have finished shunting the machine.
5. Secure the machine against rolling away with wheel chocks.
6. Uncouple the machine from the manoeuvring vehicle.

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 of coulter

- You use mechanical or hydraulic depth adjustment to set the required working depth.
- This sets the rear roller wheels and the front feeler/support wheels (optional) to the precise depth guidance required.
- If neither feeler wheels nor support wheels are mounted, set the front depth guidance using the tractor lower link.

Use the scale on the machine to help you to set the working depth.

- Low numerical value → less working depth
- High numerical value → greater working depth

Fig. 45: **Centaur 4001 / 5001**

Fig. 46: **Centaur 3001**

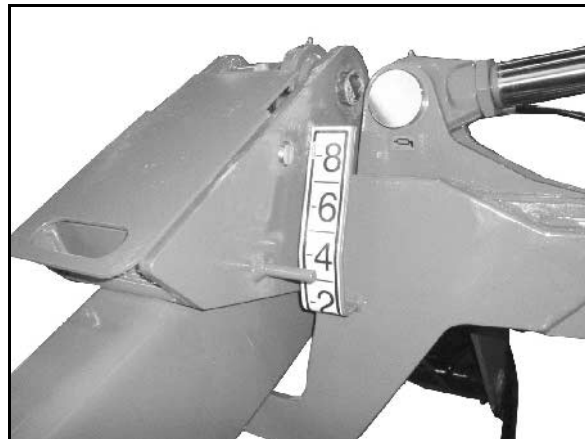


Fig. 45



Fig. 46

8.1.1 Mechanical depth adjustment

Mechanical depth adjustment enables the easy adjustment of the working depth of the **Centaur** on the stand. Spacer elements on the roller and running gear units at the rear and the depth guidance wheels at the front (optional) are mounted so that they can not be detached. They can be tilted in or out in accordance with the required working depth. This allows the working depth range to be set to one of 15 levels. Mechanical depth adjustment is interchangeable with hydraulic depth adjustment.



CAUTION

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



- After setting the working depth at the rear, use the tractor's lower links to place the machine on a level. Use the tine row frame to help you.
- If fitting the **Centaur** with feeler wheels, the machine is to be guided at the front using the lower links of the tractor. The feeler wheels must not be allowed to bear the mass of the machine.

Mechanical depth adjustment for the **Centaur 3001**:

Carry out mechanical depth adjustment:

- On the running gear hydraulic cylinder.

To reduce the working depth:

1. Tractor control unit 1 (2 x yellow).
- Raise the machine, thus relieving spacer elements.
2. Increase the number of spacer elements on the piston rod.

To increase the working depth:

1. Tractor control unit 1 (2 x yellow).
- Raise the machine, thus relieving spacer elements.
2. Reduce the number of spacer elements on the piston rod.



Fig. 47



For the **Centaur 3001 Special**, once the working depth of the coulter has been changed, the working depth of the levelling unit must be adjusted manually. For more information, see page 72.

For the **Centaur 3001 Super**, the working depth of the levelling unit adjusts automatically. However, you can intervene manually if required. See page 72.

Adjustments

Mechanical depth adjustment for the Centaur 4001/5001

Carry out mechanical working depth adjustment:

- On the running gear hydraulic cylinder (Fig. 48),
- Using the left and right spacer elements on the rear roller (Fig. 49),
- Using the support or feeler wheels (Fig. 50).



Only make the adjustment with the machine folded out.

To reduce the working depth:

1. Tractor control unit 1 (2 x yellow).
- Raise the machine to release the spacer elements on the running gear cylinder, rollers, and support/feeler wheels.
2. Increase the number of spacer elements on the piston rods by the same amount.

To increase the working depth:

1. Tractor control unit 1 (2 x yellow).
- Raise the machine to release the spacer elements on the running gear cylinder, rollers, and support/feeler wheels.
2. Reduce the number of spacer elements on the piston rods by the same amount.



The weight of rollers and support wheels can be used to enable better collection behaviour on dry ground.

To do so, pivot the free spacer elements on the piston rod in front of the adjustment plate after setting the working depth on the adjustment elements of the rollers/support wheels (Fig. 51).

First:

Actuate tractor control unit 1 (1 x yellow).

→ Lower the machine.

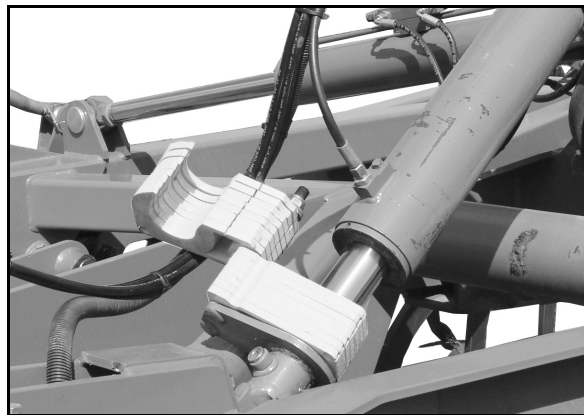


Fig. 48

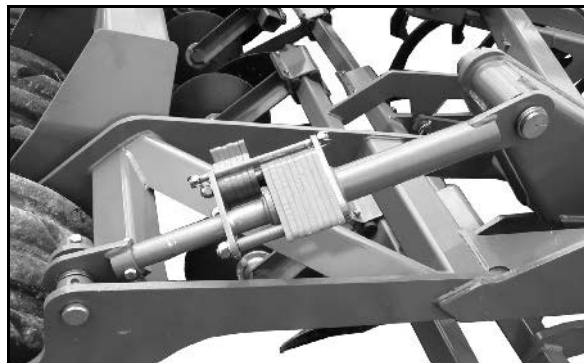


Fig. 49

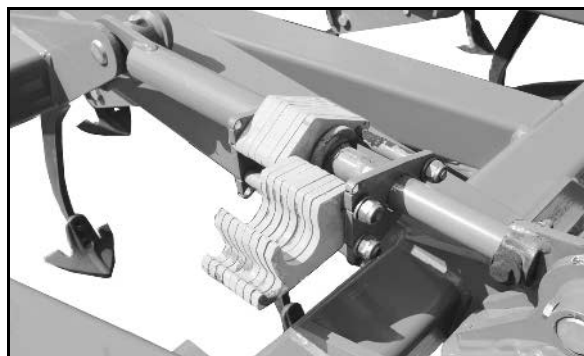


Fig. 50

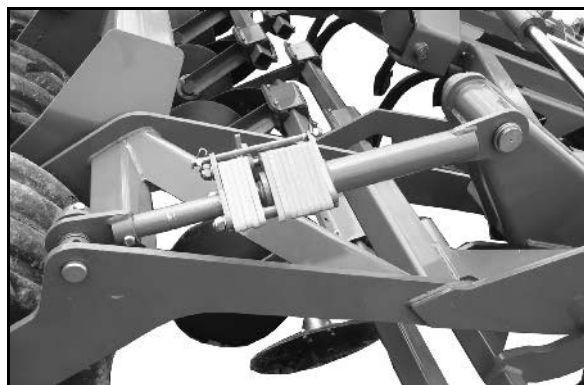


Fig. 51

8.1.2 Hydraulic depth adjustment

Hydraulic depth adjustment (not for the **Centaur 3001 Special**) enables the working depth of the **Centaur** to be adjusted from the tractor.

This adjustment is made as follows:

- Using the running gear hydraulic cylinder (Fig. 52/1)
- Using the hydraulic cylinders of the outer rollers (Fig. 52/2) (**Centaur 4001 / 5001**),
- Using the hydraulic cylinders of the feeler/support wheels (Fig. 52/3) (optional).

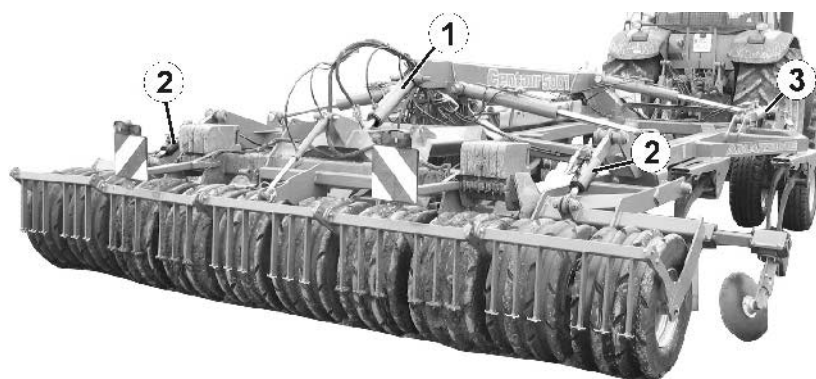


Fig. 52

To reduce the working depth:

Actuate tractor control unit 2 (2 x green).

To increase the working depth:

Actuate tractor control unit 2 (1 x green).



Before setting the working depth, place the machine in the working position. See page 78.

8.2 Working depth of the levelling unit

Levelling units can have their working depth adjusted in line with changing soil types, plant growth, and operational speed.

Setting the working depth of the levelling unit

Set the spindle length:

Use the hand lever with the ratchet to make the adjustment. See page 73.

Centaur Special

Fig. 53: **Centaur 3001 Special**

Fig. 54: **Centaur 4001 / 5001 Special**

- Shorten the spindle:
 - Reduce the working depth.
- Lengthen the spindle:
 - Increase the working depth.
 - o 1 x for the **Centaur 3001**.
 - o Set right and left to the same length for the **Centaur 4001 / 5001**.

Centaur Super

Fig. 55: **Centaur 3001 Super**

Fig. 56: **Centaur 4001 / 5001 Super**

- Shorten the spindle:
 - Increase the working depth.
- Lengthen the spindle:
 - Reduce the working depth.
 - o Set right and left to the same length.

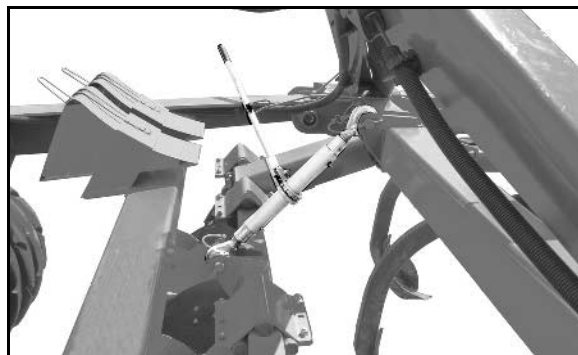


Fig. 53

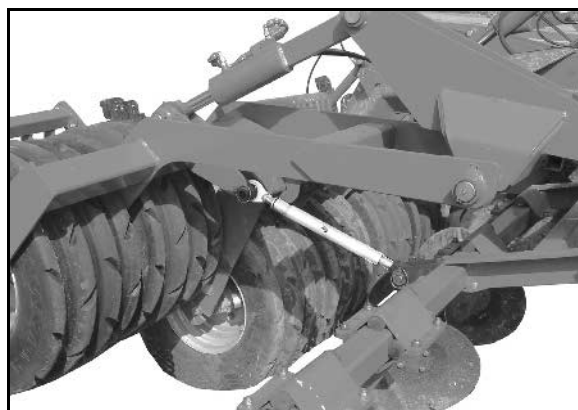


Fig. 54



Fig. 55

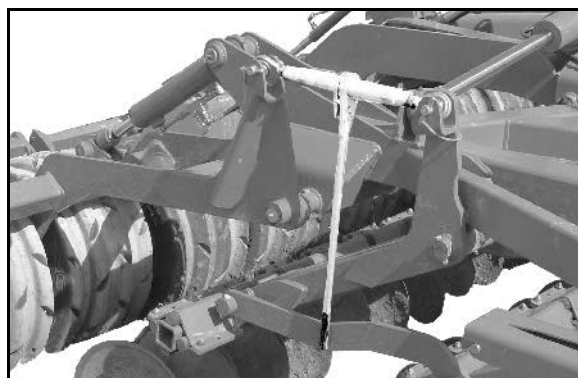


Fig. 56

Scale for adjustment length

The scale helps you to set the spindles to the same length.

Following the adjustment, the indicators (Fig. 57/1) must point to the same marking (Fig. 57/2) on the scale.

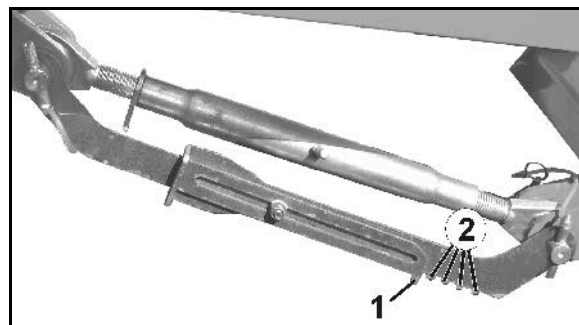


Fig. 57

Adjusting the spindle using the ratchet

1. Remove the clip pin (Fig. 58/3).
2. Engage the turning lever (Fig. 58/2) in the required direction.
3. Use the hand lever (Fig. 58/1) to lengthen or shorten the spindle.
4. Secure using the clip pin (Fig. 58/3).

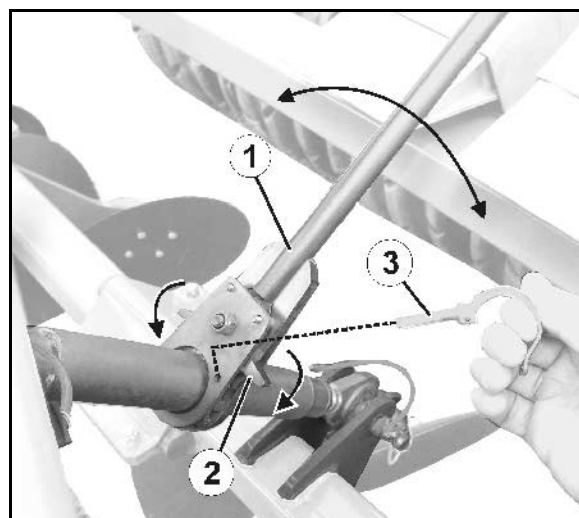


Fig. 58



- For all **Centaur**s apart from the **Centaur 3001 Special**, the working depth of the levelling unit automatically adjusts when the working depth of the coulter is adjusted.
For the **Centaur 3001 Special**, this adjustment must be made manually.
- For the **Centaur Super** in particular, the working depth of the levelling unit significantly influences the traction force demand, which, in turn, influences the fuel consumption in relation to the area. For this reason, you should not set the working depth to a greater value than required.

9 Transportation



- During transportation, follow the instructions given in the section "Safety instructions for the operator", page 26.
- Before moving off, check:
 - o that the supply lines are connected correctly.
 - o the lighting system for damage, proper operation and cleanness,
 - o the braking and hydraulic systems visually for obvious defects.
 - o 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.

Before transportation, make a visual check to ensure that the upper and lower link pins are secured with clip pins to prevent them from coming loose.



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.

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



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 through machine parts extending out into the road area!

Cover any protruding parts on machines.

You must make protruding parts clearly visible if you can not cover them easily.

9.1 Placing the machine in the transport position

Switching the machine from the working position to the transport position:

Centaur 3001:

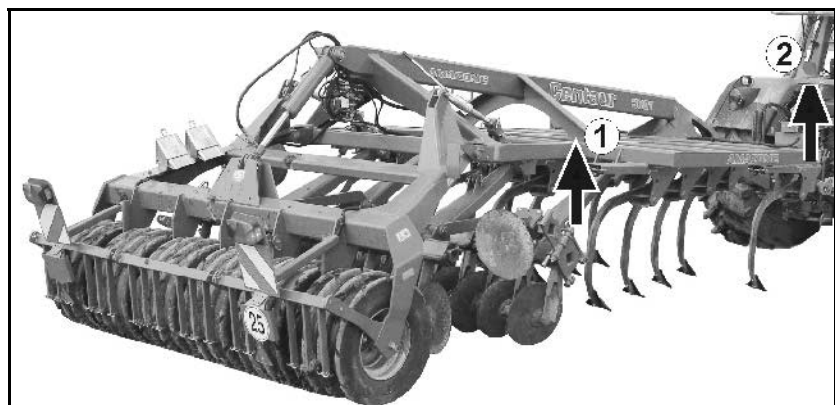


Fig. 59

1. Actuate tractor control unit 1.
- Completely raise the machine (Fig. 60/1), headland setting.
2. Raise the tractor lower links (Fig. 60/2).
3. Place the outside discs in the transport position. See page 50.

Centaur 4001 / 5001:

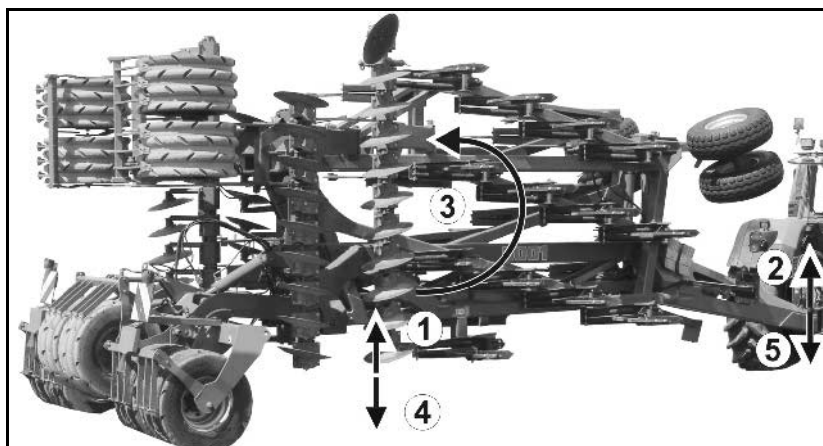


Fig. 60

1. Actuate **tractor control unit 1**.
→ Completely raise the machine (Fig. 60/1), headland setting!
2. Raise the tractor lower links (Fig. 60/2).
3. **Centaur 4001 / 5001**: Actuate **tractor control unit 3**:
→ Completely fold up the machine (Fig. 60/3).



CAUTION

- Note that the maximum transport height is 4 m.
- Make sure that there is enough ground clearance.

4. Close the ball valve (Fig. 61/1) (**position A**).
→ Secure the machine against unintentional folding out.
5. Actuate **tractor control unit 1**.
→ Lower the machine (Fig. 60/4).



The brake must be released when **tractor control unit 1** is actuated.

6. Lower the tractor's lower links (Fig. 60/5).
→ Make sure that there is enough ground clearance.
7. Attach the protective tarpaulins (Fig. 62).
 - Attach the protective tarpaulins to the left and right coulters. Pull the loops on the interior of the tarpaulin over the tines and fix it securely to the frame using tensioning ropes.
 - Move the protective tarpaulins into place. Attach the tarpaulin to the folding disc frame at the front and use tensioning ropes to pull it tight to the folding frame at the rear.

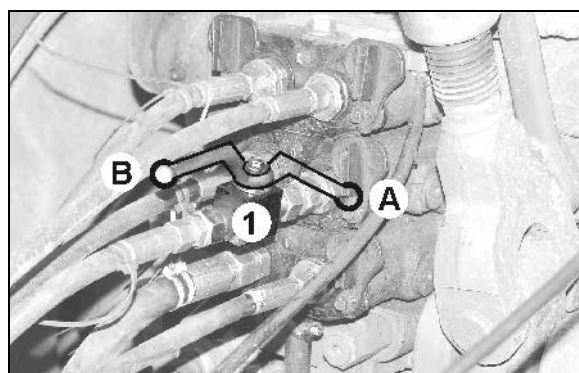


Fig. 61



Fig. 62



CAUTION

Risk of injury from the tines and discs when attaching protective tarpaulins.

10 Use of the machine



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

- "Warning signs and other labels on the machine", from page 16 and
- "Safety instructions for operators", from page 24.

Observing this information is important for your safety.



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 upper and lower link pins are secured with a lynch pin against unintentional release.

10.1 Placing the machine in the working position

Switching the machine from the transport position to the working position:

Centaur 3001:

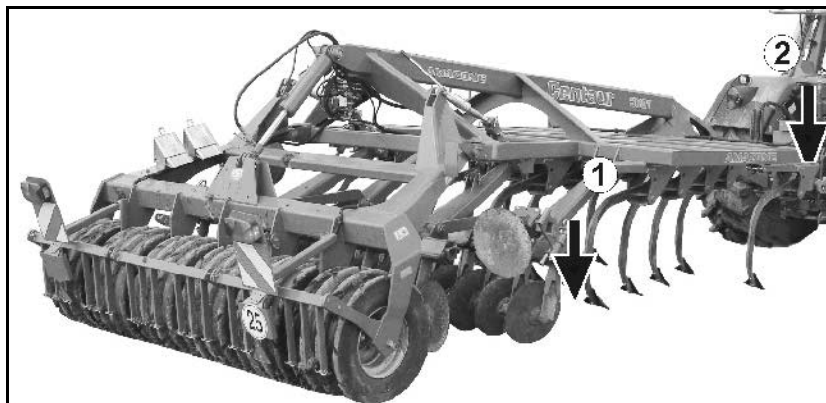


Fig. 63

1. Place the outside discs in the working position. See page 50.
 2. Actuate tractor control unit 1.
- Completely lower the machine (Fig. 63/1), headland setting.
3. Lower the tractor's lower links until the frame is horizontal (Fig. 63/2).

The optional feeler wheels may not bear the weight of the machine.

Centaur 4001 / 5001:

1. Remove protective tarpaulins.
2. Open the ball valve (Fig. 64/1) (**position B**).

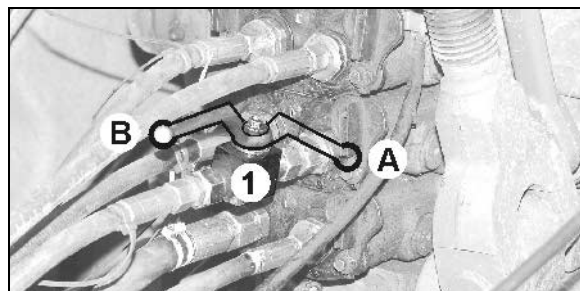


Fig. 64



Fig. 65

3. Actuate **tractor control unit 1**.
→ Completely raise the machine (Fig. 65/1).
4. Raise the tractor lower links (Fig. 65/2).
5. Actuate **tractor control unit 3**:
→ Completely unfold the machine (Fig. 65/3).
6. Actuate **tractor control unit 1**.
→ Completely lower the machine (Fig. 65/4).
7. Lower the tractor's lower links (Fig. 65/5)
until the frame is horizontal.
- Feeler wheels: the optional feeler wheels may not bear the weight of the machine.
- Support wheels (optional): the machine is parked on the support wheels.
8. Actuate **tractor control unit 2**.
→ Hydraulically set the working depth (optional).
9. Attach the protective tarpaulins to the frame.

10.2 During the work



Machine with support wheels:

- Drive the tractor lower links in the float position.
- If the slippage on the rear tractor wheels is too high, we recommend that you transfer some of the weight from the machine to the tractor by slightly lifting the lower links.

Machine without support wheels:

- Place the machine in a horizontal position using the tractor's lower links.

Machine with feeler wheels:

- Place the machine in a horizontal position using the tractor's lower links.
- The feeler wheels may not bear the weight of the machine.
- When cornering sharply, the machine is to be lifted using the tractor's lower links.



Different working depths across the working width with hydraulic depth adjustment?

Calibrate the hydraulic cylinders (page 81)!

10.3 Headland

Before turning on headlands:

- Actuate **tractor control unit 1**.
 - Raise the tractor's lower links.
- Raise the machine.

After turning:

- Actuate **tractor control unit 1**.
 - Lower the tractor's lower links.
- Work now continues.

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

The roller tyres of the central and lateral rollers must be at the same height. In addition, you should make sure that the tine bar is level. If this is not the case with hydraulic depth adjustment, the hydraulic cylinders need to be calibrated to the same length. Proceed as follows to do so:

1. Actuate **tractor control unit 1**.
→ Completely lower the machine.
2. Actuate **tractor control unit 2**.
→ Set the maximum working depth.
3. Hold down **tractor control unit 2** in this position for another 10 seconds.
→ All hydraulic depth adjustment cylinders adjust to the same length in the retracted position.
4. Actuate **tractor control unit 2**.
→ Set the machine to the required working depth.

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.

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

12.2 Lubrication specifications (workshop work)



Grease all lubricating nipples (keep seals clean).

Lubricate/grease the machine at the specified intervals.

Lubrication points on the machine are indicated with the foil (Fig. 66).

Carefully clean the lubrication points 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.

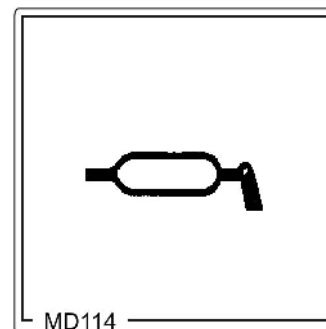


Fig. 66

Lubricants

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

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

12.2.1 Lubrication point overview

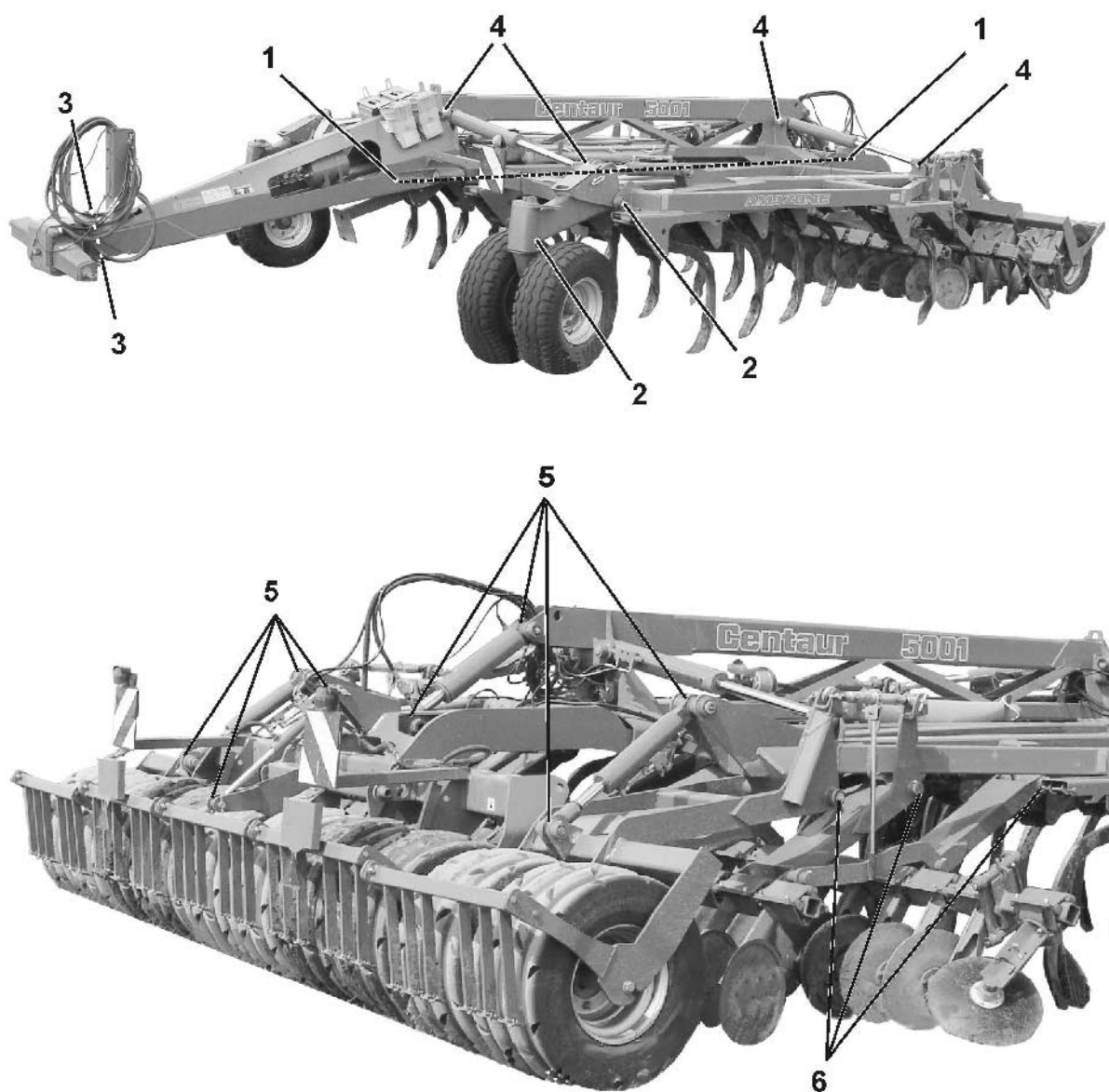


Fig. 67

	Lubricating points	Interval [h]	Quantity
1	Machine wing bearing (Centaur 4001 / 5001)	50	4
2	Support/feeler wheel	50	4 / 2
3	Tensioned crosspiece	50	2
4	Hydraulic folding cylinder (Centaur 4001 / 5001)	50	8
5	Hydraulic roller cylinder	50	2 to 8
6	Roller and disc crosspiece bearings	50	4 to 12

12.3 Maintenance 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 	93	
Hydraulic system	<ul style="list-style-type: none"> • Inspection for defects • Check leak tightness 	85	X

Daily

Component	Servicing work	see page	Workshop work
Air reservoir	<ul style="list-style-type: none"> • Drain 	89	

Weekly / every 50 working hours

Component	Servicing work	see page	Workshop work
Hydraulic system	<ul style="list-style-type: none"> • Inspection for defects 	85	X
Wheels	<ul style="list-style-type: none"> • Check air pressure 	93	
Brake system	<ul style="list-style-type: none"> • Check brake fluid level 	91	

Every three months / 200 working hours

Component	Servicing work	see page	Workshop work
Dual-circuit service brake system	<ul style="list-style-type: none"> • Inspection according to check instructions 	90	X
	<ul style="list-style-type: none"> • Clean line filter 	89	
Brake system	<ul style="list-style-type: none"> • Brake pad check 	92	

Each year / 1000 operational hours

Component	Servicing work	see page	Workshop work
Brake system	<ul style="list-style-type: none"> • Brake check on hydraulic part of brake system 	92	X

Every 2 years

Component	Servicing work	see page	Workshop work
Brake system	• Check brake fluid	92	X

As required

Component	Servicing work	see page	Workshop work
Electric lighting	• Changing defective bulbs	98	
Coulter	• Replace	87	X
Scraper	• Adjust	86	
Disc XL011	• Wear check - replace if minimum diameter 360mm	87	X
Upper/lower link pin	• Replace	98	

12.4 Mounting and removing tines (workshop work)



CAUTION

The overload protection on the tines consists of 2 tension springs in each case. They are under high pretension. You must use the VM700064000 device to mount and remove tines.

Otherwise, there is a risk of injury.

12.5 Scraper

Adjust scraper:

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



There must be a minimum gap of **25 mm** between the scraper and the wedge ring tyres.

If the minimum distance is not observed, the tyres may be damaged, which could lead to accidents!

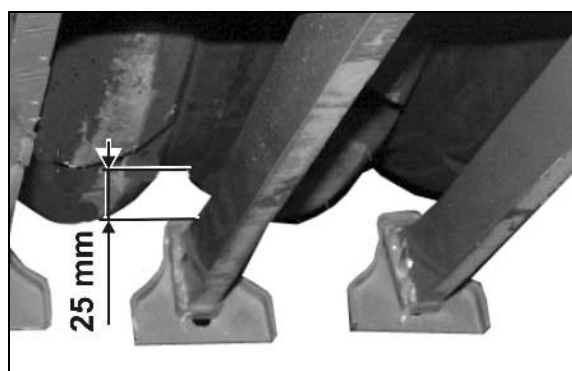


Fig. 68

12.6 Changing the coulter (workshop work)



CAUTION

Take special care when changing coulters.

Do not turn the screws on the square shaft.

Risk of injury from sharp edges.



Fig. 69

12.7 Changing a clip-on coulter (workshop work)

To remove a clip-on coulter, knock the spiral pin with the bolt downwards and then remove the coulter towards the front.

To mount a clip-on coulter, slide it in and secure with the spiral pin.



CAUTION

Coulters are made of hardened material. If you use a hammer for the mounting/removal procedures, the ends may break off and cause considerable injury.

You must wear protective goggles and gloves.

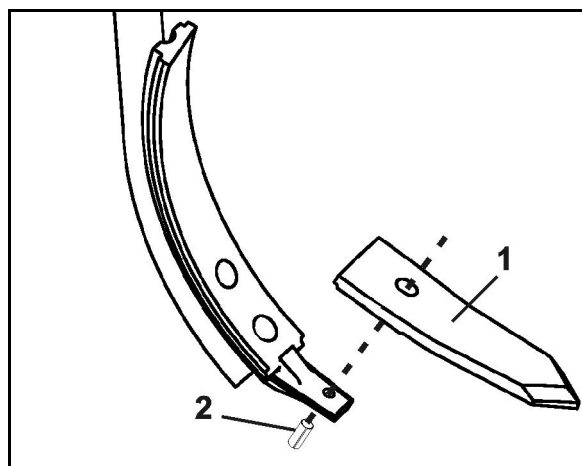


Fig. 70

12.8 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
1. Release the four screws securing the disc.
 2. Remove the disc.
 3. Secure the new disc with 4 screws.

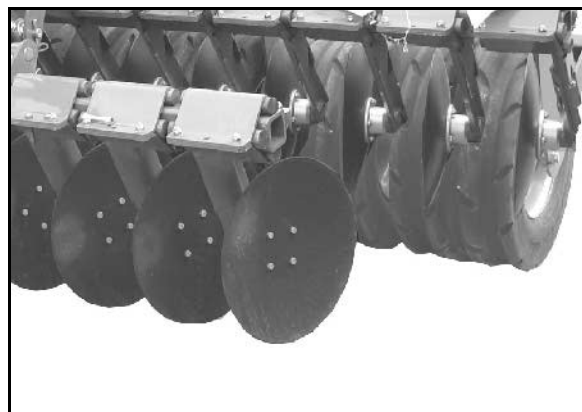


Fig. 71

12.9 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
 - o Must be properly run.
 - o May not have any visible cracks.
 - o May not be knotted.
- Check the piston stroke on the brake cylinders, and adjust as necessary.
- The air reservoir must not
 - o move around in the tensioning belts.
 - o be damaged.
 - o show any outward signs of corrosion damage.

12.9.1 Draining the air reservoir

1. Pull the drain valve (Fig. 72/1) in a sideways direction using the ring until no more water escapes from the air reservoir.
- Water flows out of the drain valve.
2. Unscrew the drain valve from the air reservoir and clean the reservoir if there are signs of dirt.

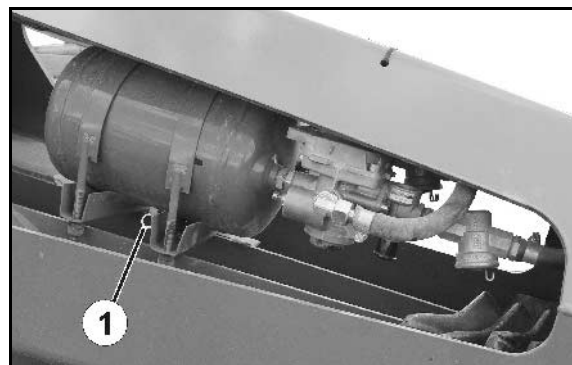


Fig. 72

12.9.2 Cleaning line filters

Clean the two line filters (Fig. 73/1) every 3 months (more frequently in harsh operating conditions). Proceed as follows to do so:

- (1) Press the two lugs (Fig. 73/2) together and remove the locking piece with the O-ring, pressure spring, and filter insert.
- (2) Clean (rinse out) the filter insert with petrol or thinner and then dry it with compressed air.

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

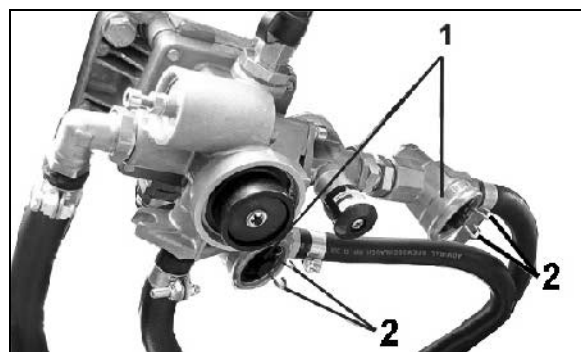


Fig. 73



12.9.3 Checking instructions for dual circuit service brake system (workshop work)

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 leakproof 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 sleeves or gaiters 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.

12.9.4 Hydraulic component of brake system

12.9.4.1 Checking the brake fluid level

Check brake fluid level:

The equalising tank (Fig. 74) 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.".



If any brake fluid is lost, visit a specialist workshop!

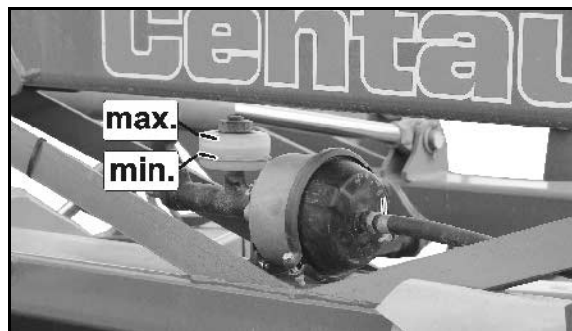


Fig. 74

12.9.4.2 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.

12.9.4.3 Brake check on hydraulic component of 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.

12.9.4.4 Replacing brake fluid (workshop work)

If possible, change the brake fluid after the winter.

12.9.4.5 Checking brake pad thickness (workshop work)

Checking brake pad thickness:

The brake pads must be checked for wear every 500 operating hours or at least once 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.

If the remaining brake pad is less than 1.5 mm, replace the brake shoes (only use original brake shoes with type-tested brake pads). When you do this, the shoe return springs may have to be renewed.

12.9.4.6 Bleeding 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 lines.

The brake system is bled in the specialist workshop using a brake filling and bleeding device as follows:

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 valve 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 valve 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 that all connections are leak-tight.



Following any repair work to the brake system, check that it is working properly by braking several times on a road with little traffic. When you do this, you must perform at least one emergency braking application.

Caution: Pay attention to any traffic behind you when testing the brake system.

12.10 Tyres / wheels



- Check chassis wheels regularly for damage and firm seating on the wheel rim.
- There must be a minimum gap of at least 25 mm between the scraper and the running gear tyres.



- Required tyre pressure.
 - Running gear/roller tyres: **4.3 bar**
 - Feeler/support wheels: **1.8 bar**
- Required tightening torque for wheel nuts or bolts:
 - Roller wheels: **350 Nm**
 - Support wheels: **250 Nm**
- Required tightening torque for axle bolts: **450 Nm**



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

12.10.1 Tyre pressures



- The required tyre pressure is dependent on
 - tyre size.
 - tyre load rating.
 - speed of travel.
- The operational performance of the tyres is reduced
 - by overloading.
 - if tyre pressure is too low.
 - if tyre pressure is too high.



- Check tyre pressures 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 pressure can be raised by up to 1 bar after a fast run or in warm weather. Tyre pressure should on no account be reduced as it is then too low when the tyres cool down.

12.10.2 Mounting 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.

12.11 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 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 line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line 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 connections 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.

12.11.1 Labelling hydraulic hose lines

The assembly labelling provides the following information:

Fig. 75/...

- (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).

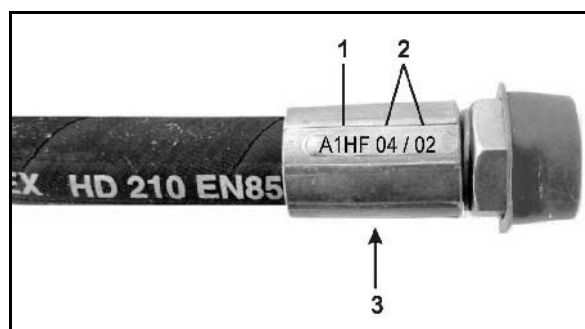


Fig. 75

12.11.2 Maintenance intervals

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

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

Before each start-up:

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

12.11.3 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".

12.11.4 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 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. Avoid using hose clips in places where they impede the natural movement and length changes of the hose.
- Painting over hydraulic lines is not permitted.

12.12 Top and lower link pins



WARNING

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

Check the upper and lower link pins for visible damage each time you couple the machine. Replace upper and lower link pins if there are clear signs of wear.

12.13 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.

12.14 Hydraulic cylinder for foldable extension arms



Required tightening torque for lock nut on hydraulic cylinder for foldable extension arms: **300 Nm**

12.15 Hydraulics diagram

Centaur 3001 Special

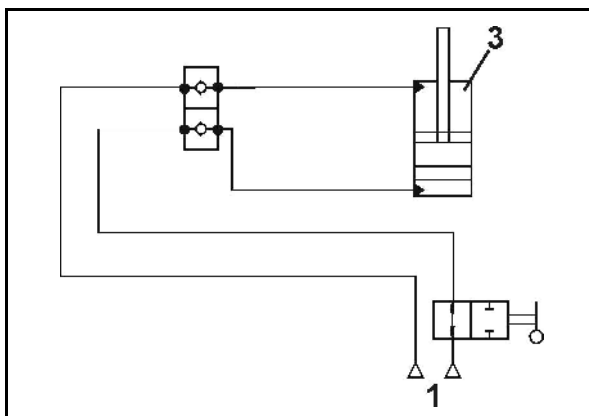


Fig. 76

Centaur 3001 Super

Mechanical depth adjustment

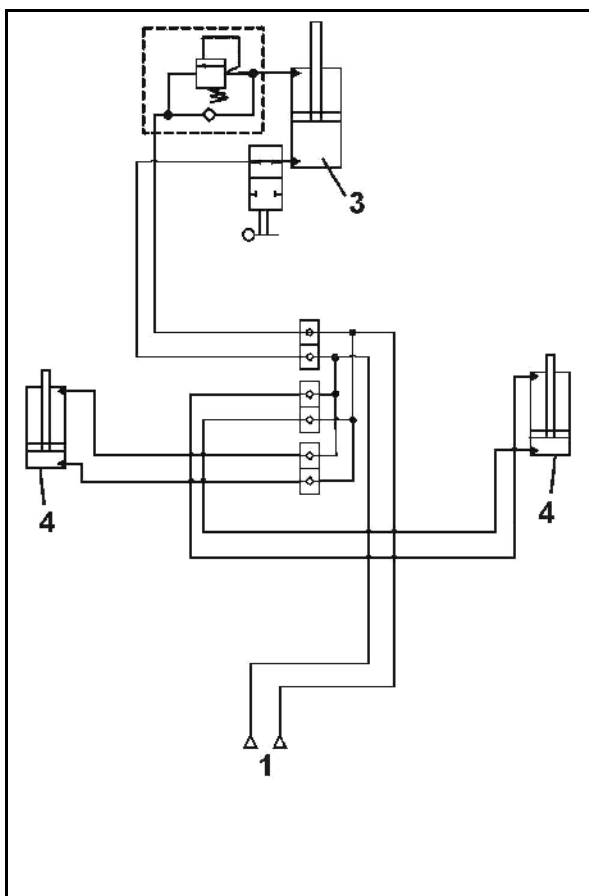


Fig. 77

Hydraulic depth adjustment

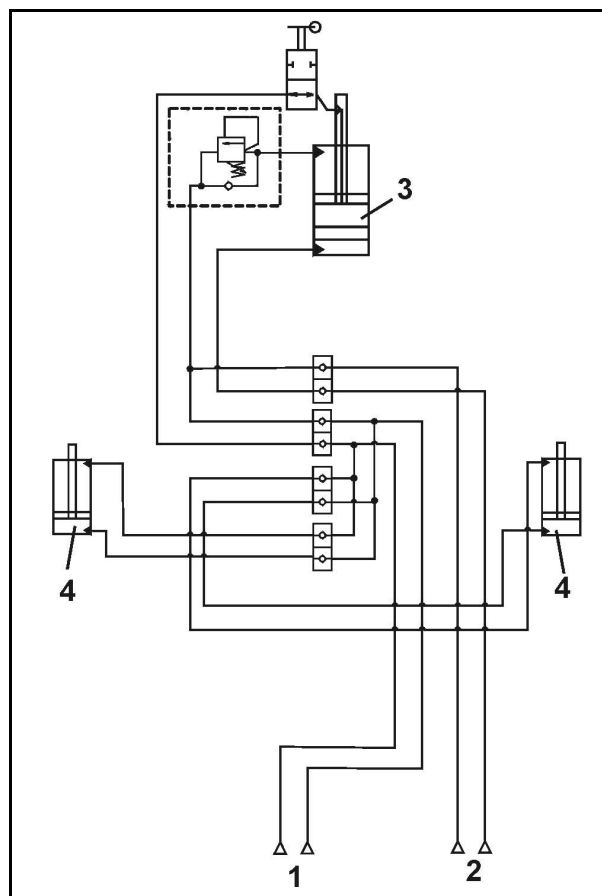


Fig. 78

Fig. 76; Fig. 77 and Fig. 78...

- (1) Connection to double-action **tractor control unit 1**, yellow hose marking
- (2) Connection to double-action **tractor control unit 2**, green hose marking

- (3) Chassis hydraulic cylinder
- (4) Hydraulic cylinder for disc mount

Centaur 4001 / 5001 Special / Super

Mechanical depth adjustment

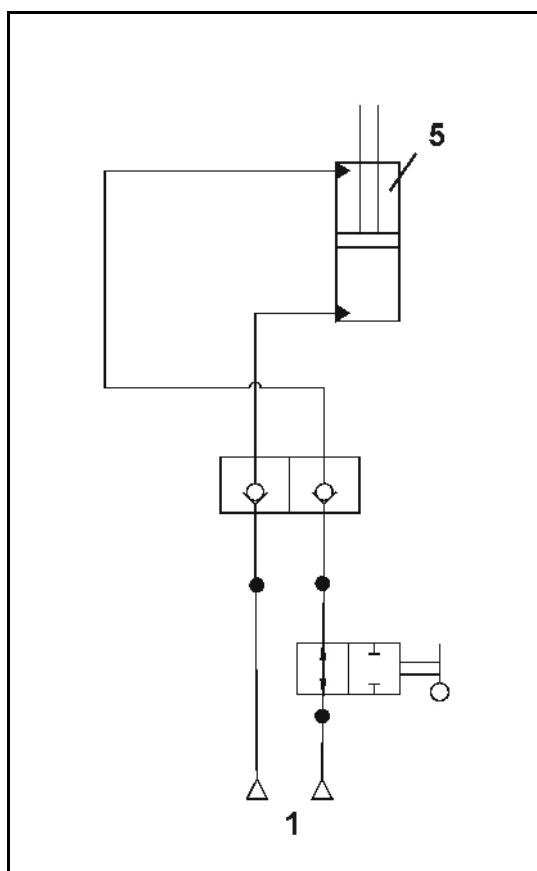


Fig. 79

Hydraulic depth adjustment

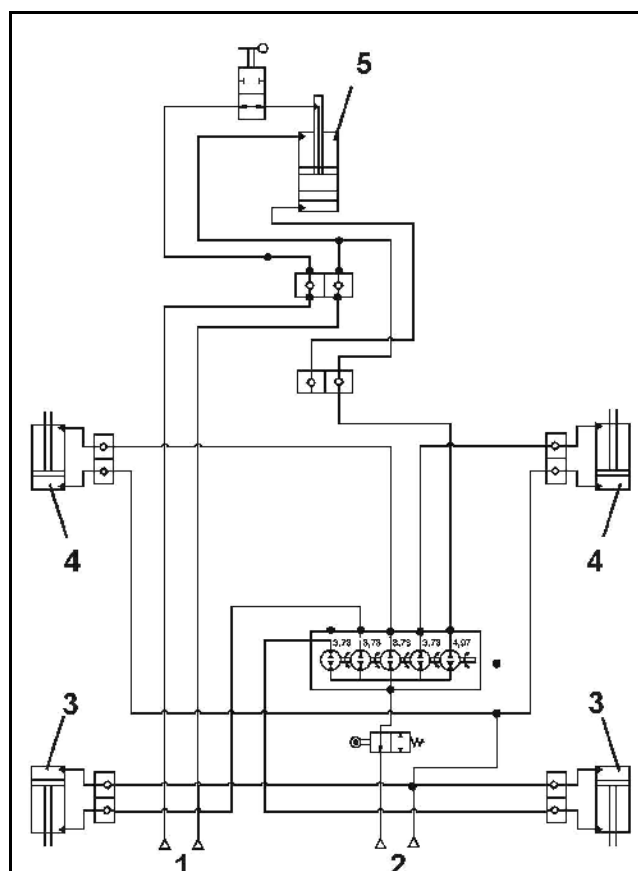


Fig. 80

Fig. 79 / Fig. 80:

- (1) Connection to double-action **tractor control unit 1**, yellow hose marking
- (2) Connection to double-action **tractor control unit 2**, green hose marking
- (3) Support/feeler wheel hydraulic cylinder
- (4) Outer roller hydraulic cylinder
- (5) Chassis hydraulic cylinder

Centaur 4001 / 5001 Special / Super

Folding circuit

Fig. 81/...

- (1) Connection to **tractor control unit 3**,
blue hose marking
- (2) Hydraulic folding cylinder

A: Only for machines with braked running gear:

- (3) Central roller wheel hydraulic cylinder

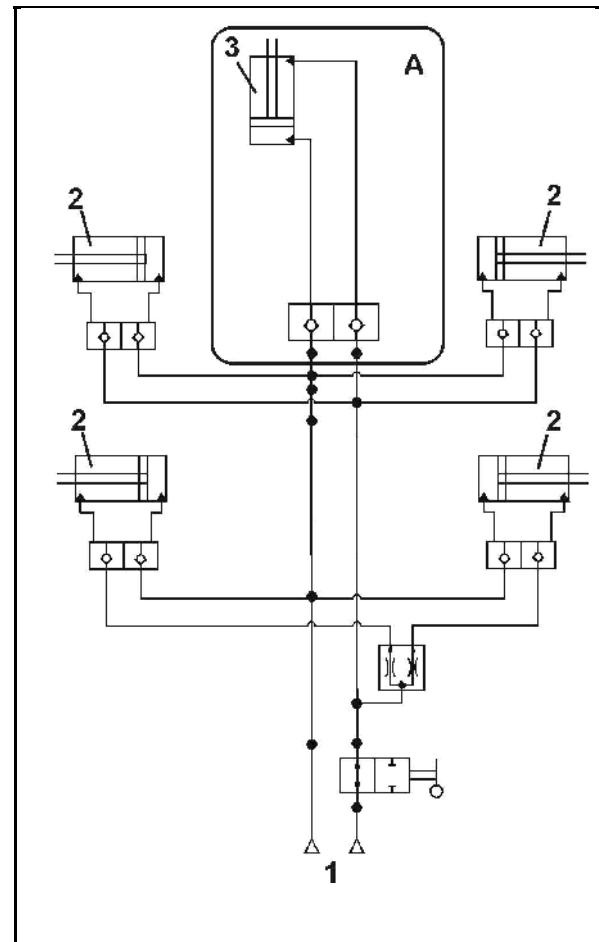


Fig. 81

12.16 Screw tightening torques

Thread	Width across flats [mm]	Tightening torques [Nm] depending on the quality of the nuts/bolts		
		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





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