

Operating Manual

AMAZONE

Land roller

AW 12200

AW 15400



MG1433
BAG0030.7 10.22
Printed in Germany

SmartLearning



**Please read this operating
manual before first commis-
sioning.
Keep it in a safe place for
future use.**

en



Reading the instruction

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

Leipzig-Plagwitz 1872. Rud. Stark.

Identification data

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

Machine identification number:
(ten-digit)

Type:

AW

Year of manufacture:

Basic weight (kg):

Approved total weight (kg):

Maximum load (kg):

Manufacturer's address

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Spare part orders

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

Please send orders to your AMAZONE dealer.

Formalities of the operating manual

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Foreword

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER SE & 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. Damage can only be rectified if problems are signalled immediately!

Before first commissioning, read and understand this operating manual, and particularly the safety information. Only after careful reading will you be able to benefit from the full scope of your newly purchased machine.

Please ensure that all the machine operators have read this operating manual before commissioning the machine.

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.

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1 User Information

The User Information section supplies information on handling 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 seen from the direction of travel.

1.3 Diagrams used

Handling instructions and reactions

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

Example:

1. Handling instruction 1
→ Reaction of the machine to handling instruction 1
2. Handling instruction 2

Lists

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

Example:

- Point 1
- Point 2

Number items in diagrams

Numbers in round brackets refer to the item numbers in the diagrams. The first number refers to the diagram and the second number to the item in the figure.

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).

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 immediately, which could impair safety.

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, which are subject to wear.
- Improperly executed repairs.
- Disasters through the impact of foreign bodies and acts of God.

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) A person shall be considered as having been instructed, if they have been instructed in the tasks they have to carry out and in the possible risks in the case of improper behaviour and also 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 on the machine.

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

2.9 Maintenance and repair work, fault elimination

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

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

Carefully fix and secure larger 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 contusions, cuts, dragging, catching or knocks from support parts.

It is forbidden to:

- Drill holes in the frame or on the running gear.
- Increasing the size of existing holes on the frame or the running gear.
- 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. The use of wear and spare parts from third parties does not guarantee that they have been constructed in a way as to meet the requirements placed on them.

AMAZONEN-WERKE accepts no liability for damage arising from the use of non-released 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

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.

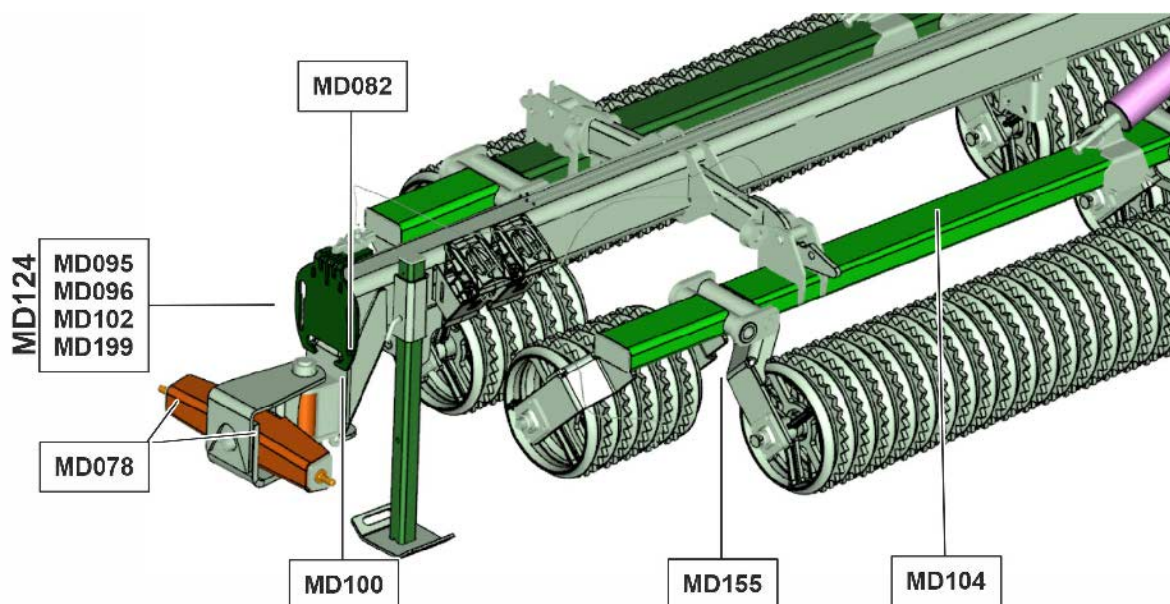


Fig. 1

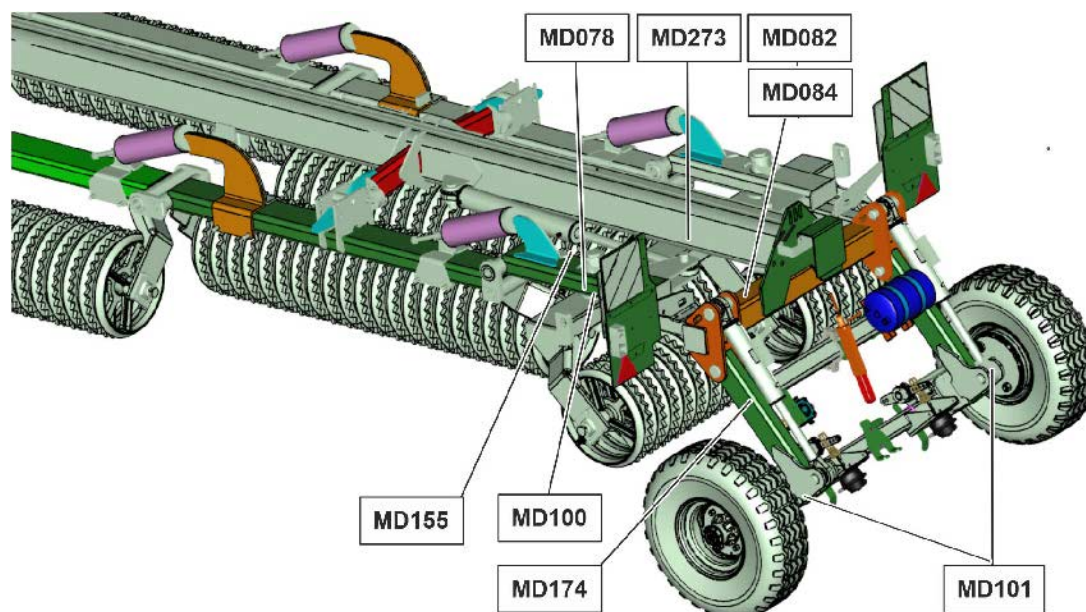


Fig. 2



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 would cause 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 Cardan shaft / hydraulic system connected.



MD082

Danger of falling from treads and platforms when riding on the machine!

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

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

Ensure that no one rides with the machine.



MD084

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 095

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



MD 096

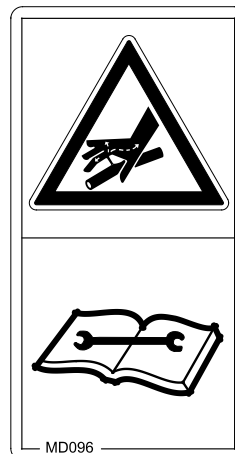
Danger of infection to the whole body from liquids escaping at a high pressure (hydraulic fluid)!

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 try to bung untight hydraulic lines with your hand or with your fingers.

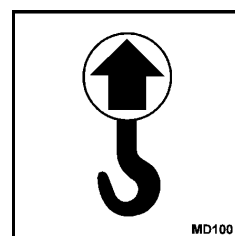
Read and understand the information in the operating manual before carrying out maintenance and repair work.

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



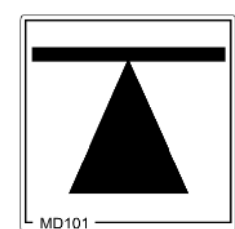
MD100

This symbol indicates lashing points for fastening slinging gear when loading the machine.



MD 101

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

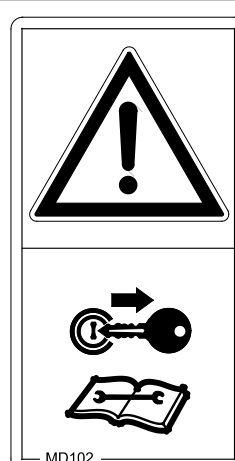


MD102

Danger from unintentional machine starting and rolling during intervention in the machine, e.g. installation, adjusting, trouble-shooting, cleaning, maintaining and repairing.

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

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



MD 104

Danger of your torso getting crushed by laterally swivelling machine parts!

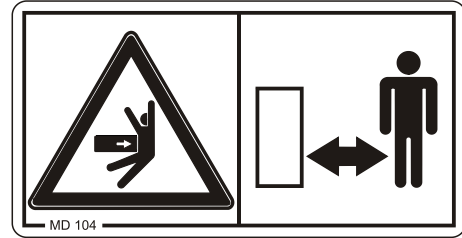
This danger will cause serious injuries to the torso or death.

Maintain a sufficient safety distance between you and any moving machinery parts.

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

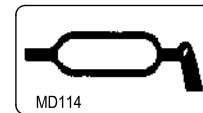
Ensure that all personnel maintain a sufficient safety distance from moving machine parts.

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



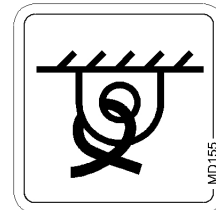
MD 114

This pictogram indicates a lubrication point



MD 155

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

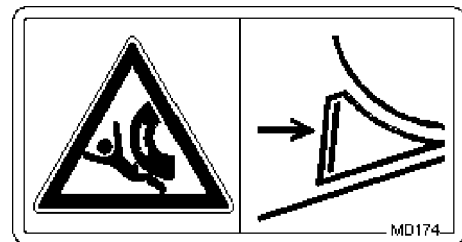


MD174

Danger resulting from the unintentional movement of the machine!

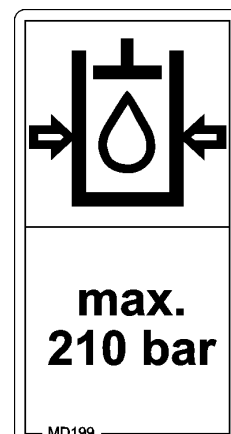
Causes serious injuries anywhere on the body or death.

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



MD199

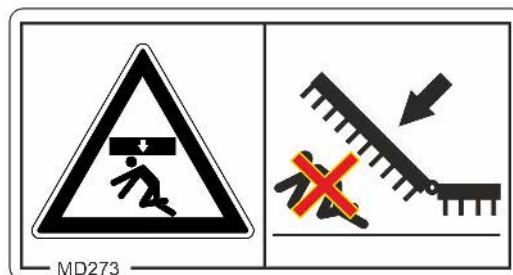
The maximum operating pressure of the hydraulic system is 210 bar.



MD 273

Risk of crushing for the whole body from lowering implement parts!

Make sure that nobody is standing in the danger area.



2.14 Dangers if the safety information is not observed

Nonobservance of the safety information

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

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

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

2.15 Safety-conscious working

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

Comply with the accident prevention instructions on the warning pictograms.

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

2.16 Safety information for users



WARNING

Risk of contusions, cuts, dragging, catching or knocks from insufficient traffic and operational safety.

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

2.16.1 General safety and accident prevention information

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

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

Connecting and disconnecting the machine

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

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

General Safety Instructions

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

Use of the machine

- Before starting work, ensure that you understand all the equipment and actuation elements of the machine and their function. There is no time for this when the machine is already in operation!
- Do not wear loose-fitting clothing! Loose clothing increases the risk over being caught by drive shafts!
- Only start-up the machine, when all the safety equipment has been attached and is in the safety position!
- Comply with the maximum load of the connected machine and the approved axle and 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:
 - the correct connection of the supply lines
 - the lighting system for damage, function and cleanliness
 - the brake and hydraulic system for visible damage
 - that the parking brake is released completely
 - the proper functioning of the braking system
- Ensure that the tractor has sufficient steering and braking power. Any machines and front/rear weights connected to the tractor influence the driving behaviour and the steering and braking power of the tractor.
- If necessary, use front weights.

The front tractor axle must always be loaded with at least 20% of the empty tractor weight, in order to ensure sufficient steering power.
- Always fix the front or rear weights to the intended fixing points according to regulations.
- Comply with the maximum 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 moving off, secure the operating lever of the three-point hydraulic system against unintentional raising or lowering of the connected machine.
- Check that the transport equipment, e.g. lighting, warning equipment and protective equipment, is correctly mounted on the machine.
- Before transportation, carry out a visual check that the upper and lower link bolts 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 try to bung untight hydraulic lines with your hand or with your fingers.

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

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

2.16.3 Electrical system

- When working on the electrical system, always disconnect the battery (negative terminal).
- Only use the prescribed fuses. If fuses are used with too high a rating, the electrical system will be destroyed – danger of fire.
- Ensure that the battery is connected correctly - firstly connect the positive terminal and then connect the negative terminal. When disconnecting the battery, disconnect the negative terminal first, followed by the positive terminal.
- Always place the appropriate cover over the positive battery terminal. Contact with earth may cause an explosion
- Risk of explosion: avoid the production of sparks or the presence of naked flames in the vicinity of the battery.
- The machine can be equipped with electronic components, the function of which may be influenced by electromagnetic interference from other units. Such interference can pose risks to people, if the following safety information is not followed.
 - In the case of retrofitting of electrical units and/or components on the machine, with a connection to the on-board power supply, the user must check whether the installation might cause faults on the vehicle electronics or other components.
 - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 2014/30/EU in the appropriate version and carry the CE label.

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.
- Implements without brake system:
Observe the national regulations for implements without brake system.

2.16.5 Braking 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:
 - the air tank can be moved in the tensioning belts
 - the air tank is damaged
 - 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:
 - the drive is switched off
 - the tractor engine is at a standstill
 - the ignition key has been removed
 - the connector to the machine has been disconnected from the on-board computer
- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- If the machine or parts of the machine are raised, secure them against unintentional lowering before cleaning, maintaining or repairing the machine.
- When replacing work tools with blades, use suitable tools and gloves.
- Dispose of oils, greases and filters in the appropriate way.
- Disconnect the cable to the tractor generator and battery, before carrying out electrical welding work on the tractor and on attached machines.
- Spare parts must meet at least the specified technical requirements of AMAZONEN-WERKE! This is ensured through the use of original AMAZONE spare parts.

3 Loading and unloading

Loading and unloading with a tractor

**WARNING**

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



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

Compressed air brake system:

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

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

Loading:

For loading, a person is required to help with manoeuvring.

Secure the machine according to instructions. Apply the parking brake.

Then uncouple 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.

Loading using a lifting crane

The implement has 3 lashing points for slings for lifting.



Warning

Risk of accidents due to improperly attached slings for lifting

If the slings are not attached at the marked lashing points, the implement can be damaged during lifting and endanger safety.

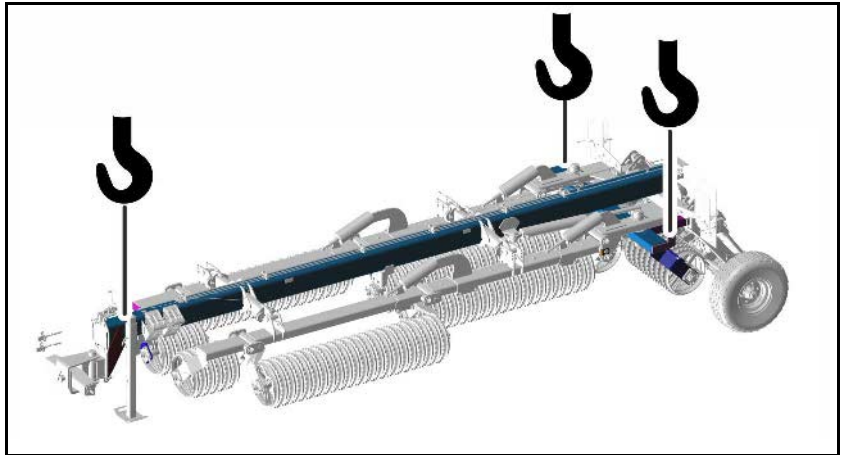


Fig. 3

		AW 12200	AW 15400
The minimum tensile strength per sling		3000 kg	3000 kg

1. Attach the slings for lifting on the intended lashing points.
2. Slowly lift the implement.



Warning

Risk of accidents due to improperly attached lashing straps

If the lashing straps are not attached at the marked lashing points, the implement can be damaged during lashing and endanger safety.

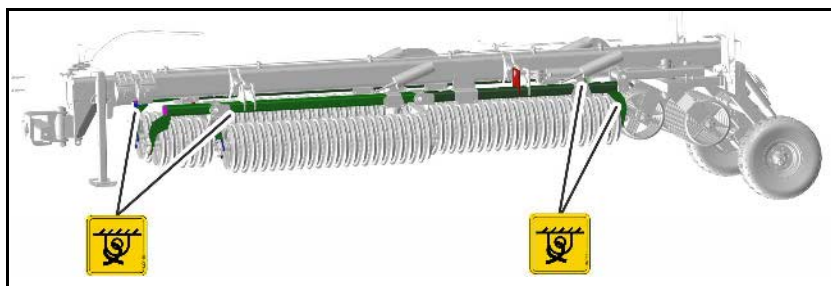


Fig. 4

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

4 Product description

This section:

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

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

The machine is composed of the following main components:

- chassis
- frame
- rollers

4.1 Overview of subassemblies

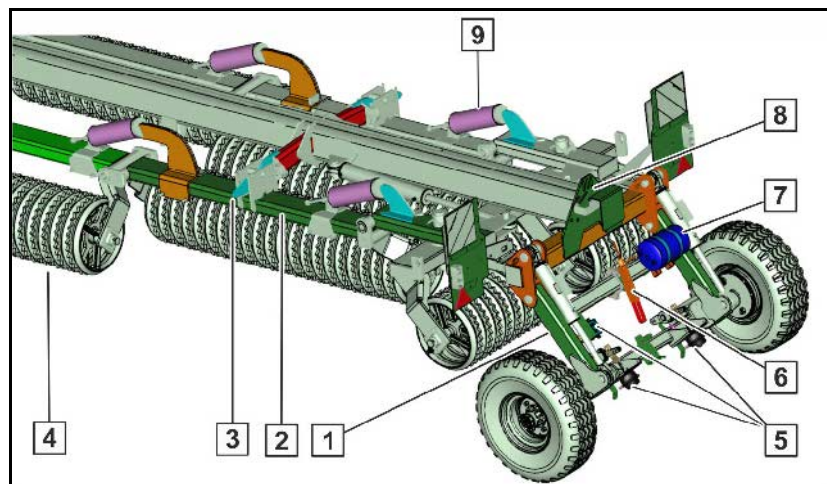


Fig. 5

- (1) Chassis
- (2) Foldable arm
- (3) Arrester hook for securing machine arm during transportation
- (4) Rollers
- (5) Dual-circuit service brake system, alternatively Hydraulic brake system
- (6) Braking system
- (7) Air reservoir**
- (8) AW15400: Running gear / outer roller hydraulic system control valve
- (9) Pressure device

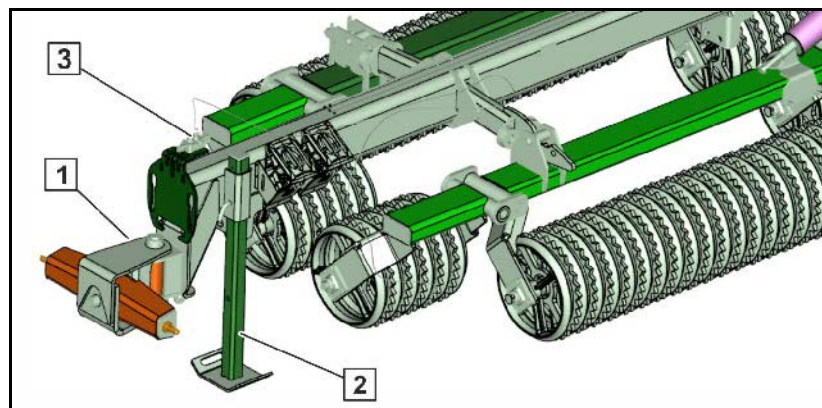


Fig. 6

- (1) Towing crosspiece
- (2) Stand
- (3) Cable pull-operated safety valve

4.2 Safety and protection equipment

Safety valve against unintentional unfolding.
Actuated from the tractor using the cable pull.

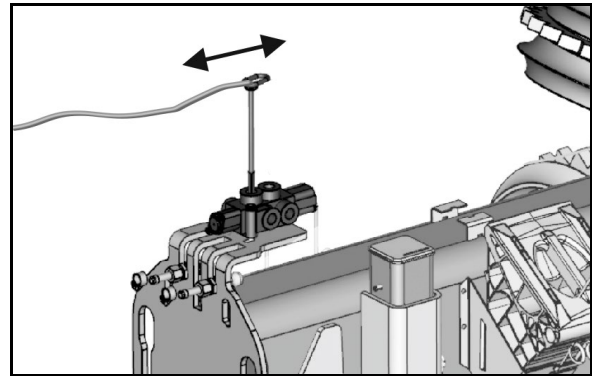


Fig. 7

4.3 Overview – Supply lines between the tractor and the machine

- Hydraulic hose lines
- Electric cable for lighting
- Air-pressure braking system
 - Brake line with coupling head (yellow)
 - Supply line with coupling head (red)

Alternativ

- Hydraulic braking system with

(1) **Hose cabinet**

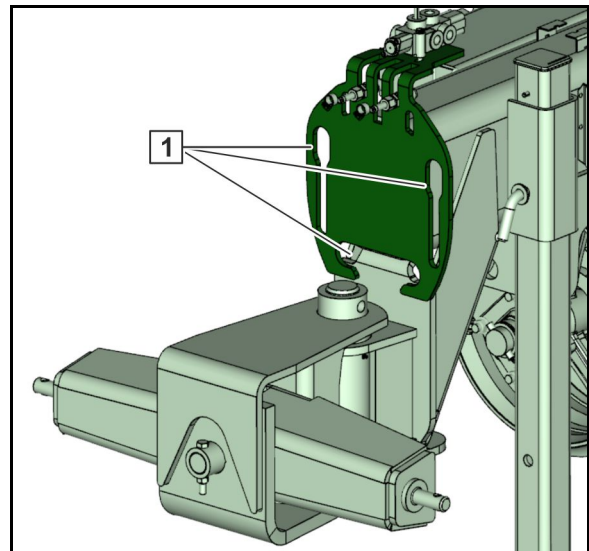


Fig. 8

4.4 Transportation equipment

- (1) 2 Warntafeln (viereckig)
- (2) 2 turn indicators (required when the tractor turn indicator is obscured)
- (3) Reflector (triangular)

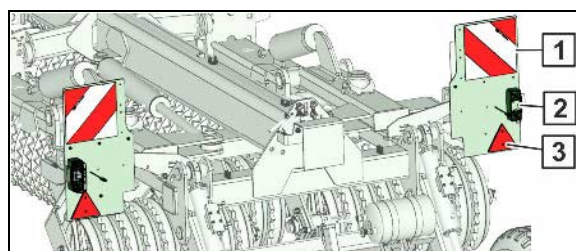


Fig. 9

- (1) 2 warning signs (square)
- (2) 2 side lights

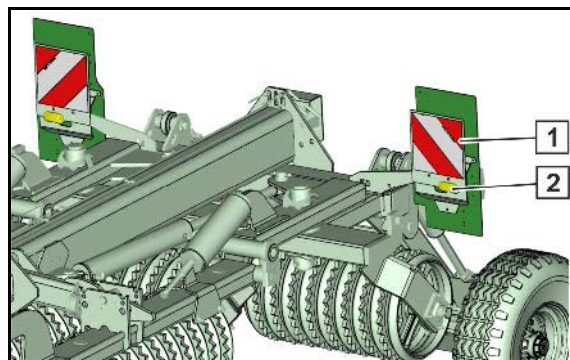


Fig. 10

- (1) 2 x 3 reflectors, yellow
(at the side, max. 3m apart)

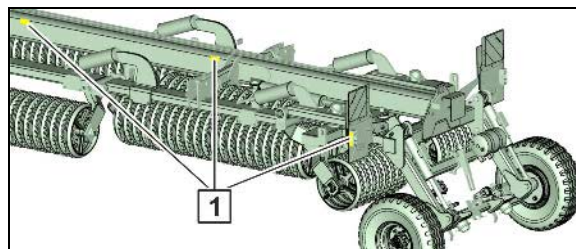


Fig. 11

4.5 Intended use

The **AW** roller

- is designed exclusively for normal use in agricultural work.
- is coupled to a tractor using the tractor lower link and is operated by an additional person.

Slopes can be travelled

- 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 %

Optimum soil tillage can only be achieved up to a soil hardness of 3.0 MPa (in the range of the selected working depth).

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 bodies thrown out of 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 Cardan 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.

Danger points exist:

- between the tractor and machine, especially when coupling and uncoupling.
- near moving parts.
- when the machine is in motion.
- within the arm's pivoting range.
- underneath raised, unsecured machines or parts of machines.

4.7 Rating plate

Machine rating plate

- (1) Implement number
- (2) Vehicle identification number
- (3) Product
- (4) Permissible technical implement weight
- (5) Model year
- (6) Year of manufacture



AMAZONE
AMAZONEN-WERKE H. DREYER SE & Co. KG
Am Amazonenwerk 9-13 D-48206 Hasbergen

Maschinen-Nr. **1**

Fahrzeug-Ident-Nr. **2**

Produkt **3**

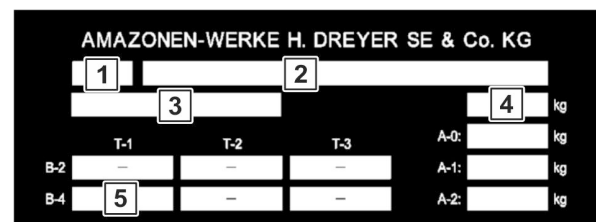
zul. techn. Maschinengewicht kg **4** Leergewicht kg **5** Modelljahr **6**

CE UK CA Baujahr
année de fabrication
year of construction
Год изготовления **7**

AMAZONE

Additional rating plate

- (1) Note for type approval
- (2) Note for type approval
- (3) Vehicle identification number
- (4) Permissible technical total weight
- (5) Permissible technical trailer load for a drawbar trailer vehicle with pneumatic brake
- (A0) Permissible technical drawbar load A-0
- (A1) Permissible technical axle load for axle 1
- (A2) Permissible technical axle load for axle 2



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1 **2**

3 **4** kg

T-1 T-2 T-3 A-0: kg

B-2 A-1: kg

B-4 **5** A-2: kg

4.8 Technical data

AW	12200	15400
Working width	12,20 m	15,40 m
Transport width	2,60 m	
Wheel track	1800 mm	
Total length	8,30 m	
Number of roller sections	7	
Working speed	12 km/h maximum	
Transportation speed	40 (25) km/h maximum	
Coupling point category	Kat. 3 - 4	
	Kat. K700	
Tyres	380/55 17	

4.8.1 Payload

Maximum payload	=	Permissible technical implement weight	-	Tare weight
------------------------	----------	---	----------	--------------------



DANGER

Exceeding the maximum permissible payload is prohibited.

Risk of accident due to unstable driving conditions!

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



- The permissible technical implement weight is specified on the implement rating plate.
- Weigh the empty implement to determine the tare weight.

Tyre load capacity per wheel

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

Load index	140	141	142	143	144	145	146	147
Tyre load capacity (kg)	2500	2575	2650	2725	2800	2900	3000	3075
Load index	148	149	150	151	152	153	154	155
Tyre load capacity (kg)	3150	3250	3350	3450	3550	3650	3750	3850
Load index	156	157	158	159	160	161	162	163
Tyre load capacity (kg)	4000	4125	4250	4375	4500	4625	4750	5000
Load index	164	165	166	167	168	169	170	171
Tyre load capacity (kg)	5000	5150	5300	5450	5600	5800	6000	6150
Load index	172	173	174	175	176	177	178	179
Tyre load capacity (kg)	6300	6500	6700	6900	7100	7300	7500	7750

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

Driving with reduced inflation pressure


- When the inflation pressure is lower than the nominal pressure, the tyre load capacity is reduced!
In that case, observe the reduced payload of the implement.
- Please also follow the specifications of the tyre manufacturer!


WARNING

Danger of accident!

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

4.9 Necessary tractor equipment

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

Tractor engine power

AW 12200	from 110 KW / 150 PS
AW 15400	from 130 KW / 180 PS

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">• 210 bar
Tractor pump power:	<ul style="list-style-type: none">• At least 15 l/min at 150 bar
Implement hydraulic fluid:	<ul style="list-style-type: none">• HLP68 DIN 51524 <p>The implement hydraulic fluid is suitable for the combined hydraulic fluid circuits of all standard tractor brands.</p>
Control units:	<ul style="list-style-type: none">• 2 double action control units

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 brake system:	<ul style="list-style-type: none">• 1 hydraulic coupling, conforms to ISO 5676



The hydraulic brake system is prohibited in Germany and several other EU countries.

4.10 Noise production data

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

Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5 Structure and function

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

5.1 Mode of operation

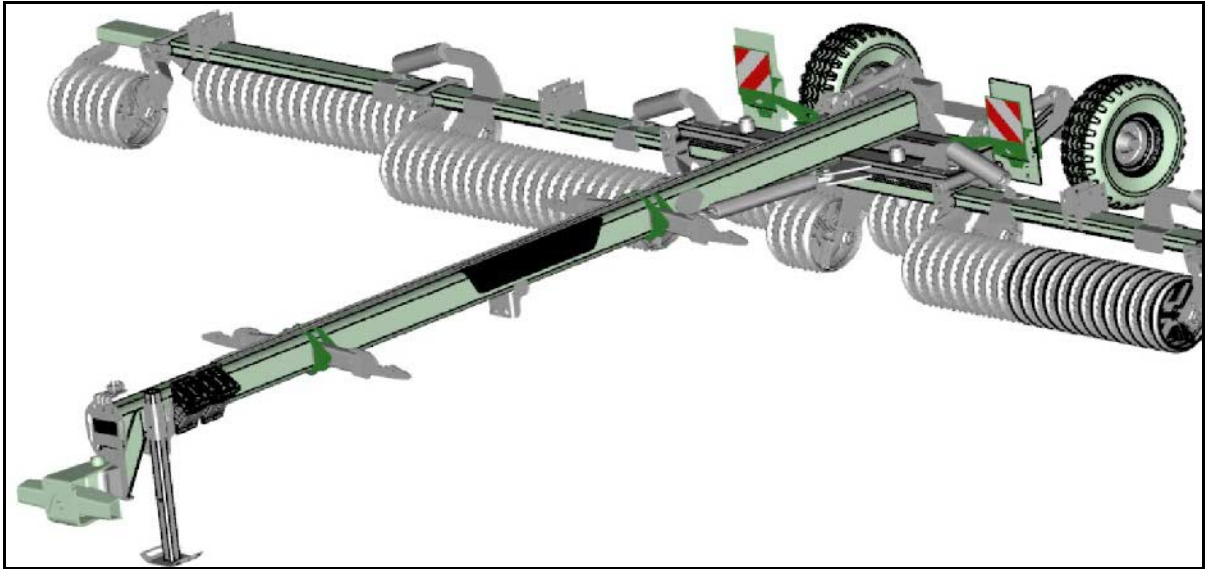


Fig. 12

The AW roller is suitable for rolling after sowing on light or heavy soils. The whole of the surface is crumbled and reconsolidated which improves the flow of water to the seeded area.

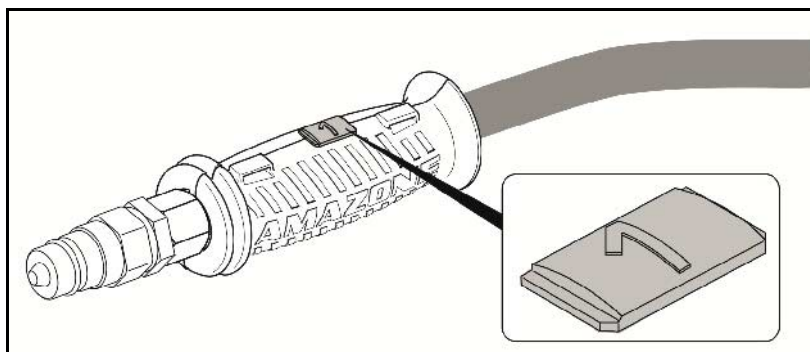
The accumulation of waste grain and weed seeds after stubble processing can also be improved by rolling.

For transportation, the arms are swung alongside the frame. The chassis and the tractor lower link hydraulics lift the machine into the transportation position.

5.2 Hydraulic connections




- All hydraulic hose lines are equipped with grips.

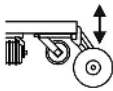





Coloured markings with a code number or code letter have been applied to the gripping sections in order to assign the respective hydraulic function to the pressure line of a tractor control unit!



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

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

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

Folding using tractor control units			Function		Hose identification	
green	1		Chassis	Working position	Double acting	 
	2			Transportation position		
green	1	Can be switched using the switch tap	Fold rollers externally (only AW15400)	Fold out	Double acting	
	2			Fold in		
blue	1		Rollers	Fold out	Double acting	
	2			Fold in		



WARNING

Risk of infection from hydraulic fluid escaping at high pressure.

When coupling/uncoupling the hydraulic hose line, ensure that the hydraulic system is not under pressure on the tractor or machine side.

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

5.2.1 Coupling the hydraulic hose lines



WARNING

Risk of contusions, cutting, catching, drawing in and knocks from 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 210 bar.
- Only couple clean hydraulic connectors.
- Push the hydraulic plug(s) into the hydraulic sockets until the hydraulic plug(s) is (are) felt to lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Set tractor control unit to open centre position (neutral position).
2. Before coupling, clean hydraulic plugs on hydraulic hose lines.
3. Couple hydraulic hose line(s) with the tractor control unit(s).

5.2.2 Uncoupling the hydraulic hose lines

1. Set tractor control unit to open centre position (neutral position).
2. Release hydraulic plug from the hydraulic sockets.
3. Fasten the hydraulic plugs in the empty coupling points.

5.3 Dual-circuit service brake system



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

- Supply line with coupling head (red).
 - Brake line with coupling head (yellow)
- (1) Brake valve.
 - (2) Actuation button for release valve (actuate only in uncoupled state);
 - o Must be pushed in up to the stop to release the service brake, e.g. to manoeuvre the uncoupled trailer.
 - o Must be pulled out up to the stop and the trailer is braked again by the supply pressure coming from the air reservoir.

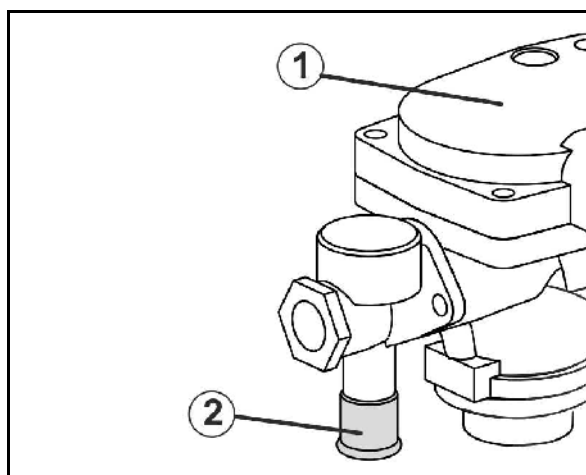


Fig. 13

5.3.1 Connecting the brake and supply line



WARNING

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

- When coupling the brake and supply line, ensure that:
 - o the coupling head seals are clean.
 - o 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. Release the parking brake and/or remove the wheel chocks.

5.3.2 Disconnect the brake and supply line



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. Securing the machine against unintentionally rolling away. Use wheel chocks for this purpose.
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 Parking brake

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

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

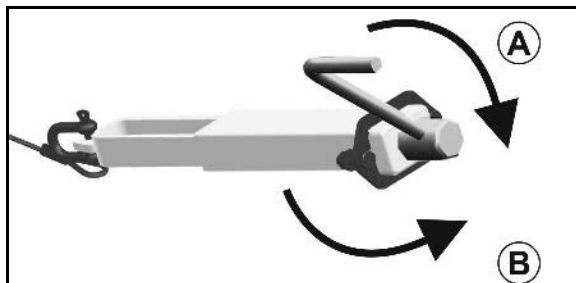


Fig. 14



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

5.5 Safety chain between tractor and implements

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

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

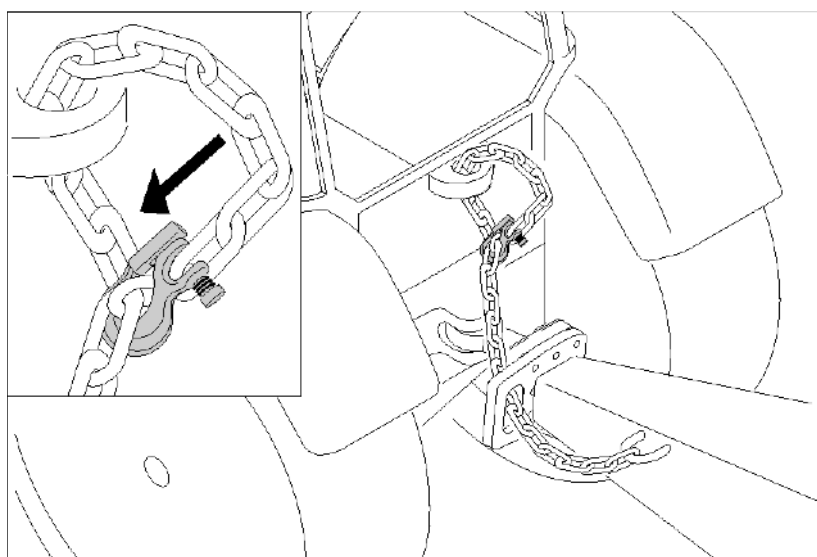


Fig. 15

5.6 Roller segments

The sections consist of several roller segments.

Each roller segment is articulated, so that each roller segment can adapt to the ground surface.

Roller in working position:

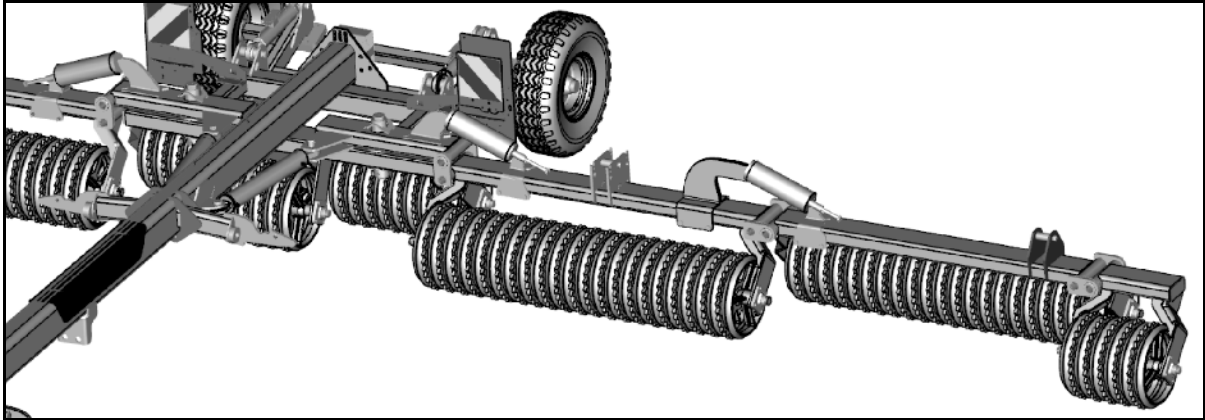


Fig. 16

Roller in transport position:

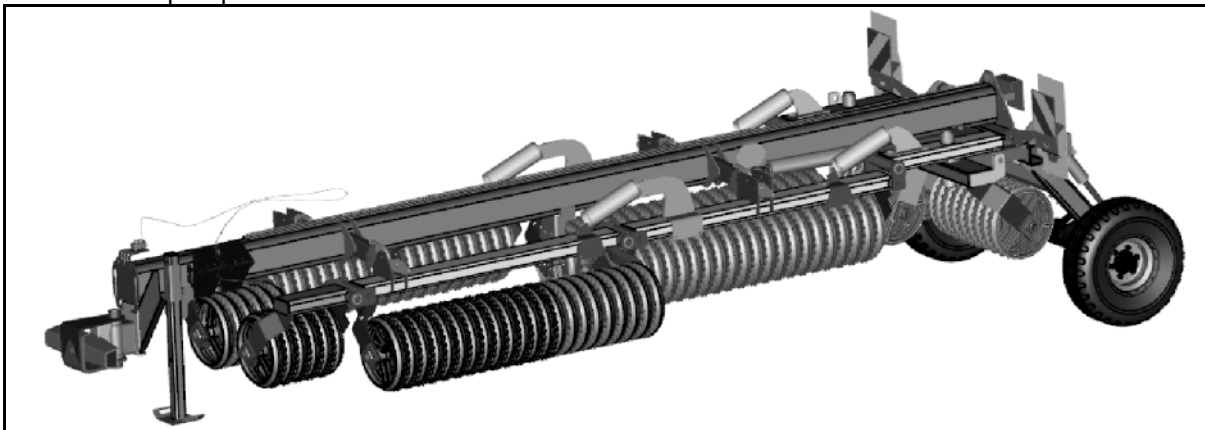


Fig. 17

AW 15400: Roller in transport position

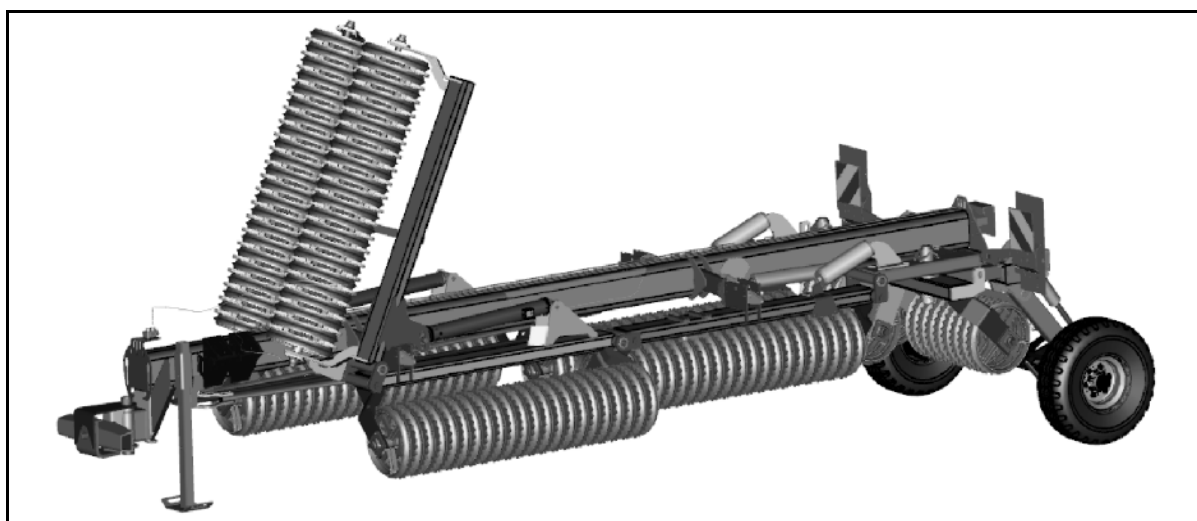


Fig. 18

The AW 15400 has vertically folding outer roller segments for road transport.

Switch tap for vertical folding of the outer roller segments in position **B**

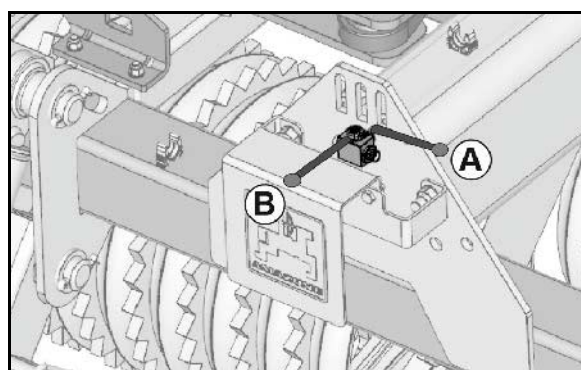


Fig. 19

For road transport, lock the folded up outer roller segments on the pins (Fig. 19/2) using the transport bar (Fig. 19/1), and secure with a spring cotter pin (Fig. 19/3).

During operation, the transport bar is fastened to the pin of an outer roller segment.

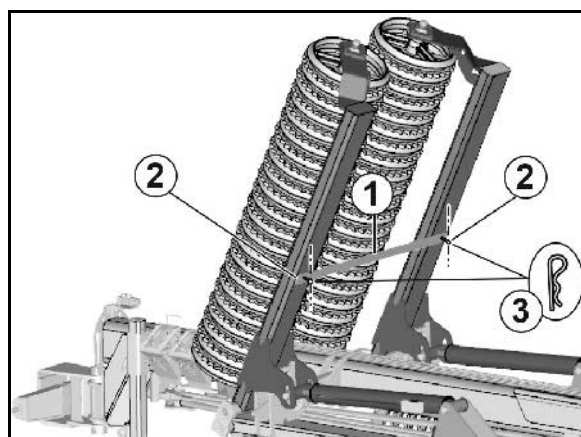


Fig. 20

5.7 Towing crosspiece

The machine is attached to the tractor lower link by the towing crosspiece.



WARNING

Make sure that the tractor and the machine have the same attachment category.

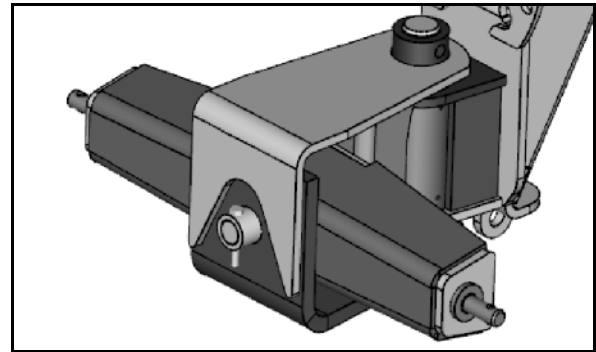


Fig. 21

5.8 Stand

- Stand raised when in use or during transportation.
- Stand lowered when the machine is uncoupled (Fig. 21/1).

Raising and lowering stand (Fig. 21/1):

1. Release spring clip (Fig. 21/3).
2. Pull out pin (Fig. 21/2).
3. Raise / lower stand
4. Peg stand with pin and secure with spring clip.

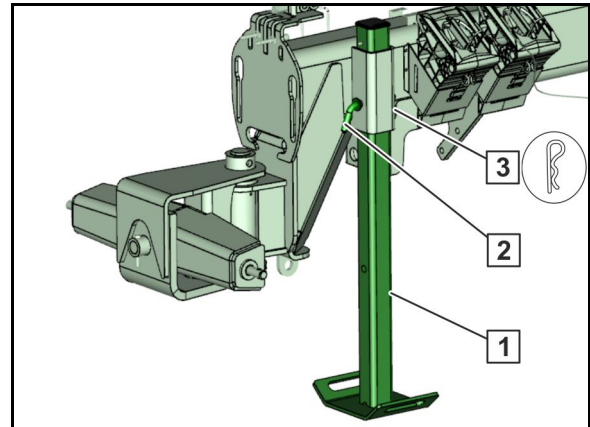


Fig. 22

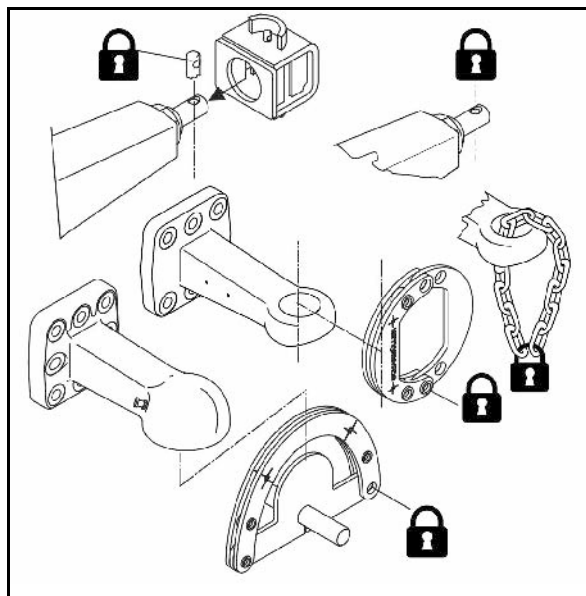


WARNING

Risk of crushing fingers when operating the stand.

5.9 Safety device against unauthorised use

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



5.10 Pressure mechanism (option)

The pressure mechanism (Fig. 22/1) increases the pressure which the roller exerts on the ground.

Each arm is fitted with a pressure mechanism.

The pressure mechanism consists of a pressure spring which is pretensioned with a screw.

Adjusting the pressure mechanism:

1. Loosen both lock nuts (Fig. 22/2).
 2. Tighten screw (Fig. 22/3).
- Increase pressure on roller sections.
Undo screw.
- Reduce pressure on roller sections.
3. Retighten lock nuts.

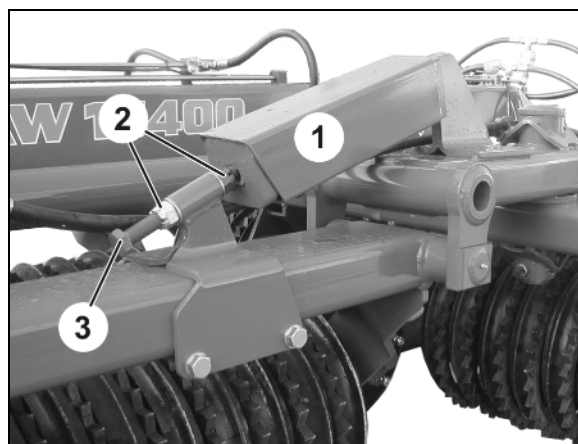


Fig. 23

5.11 Shuttle valve (option)

For information on switching hydraulic functions on tractors with only one double action control unit, see Seite 84.

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 21 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 nameplate 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 dead-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

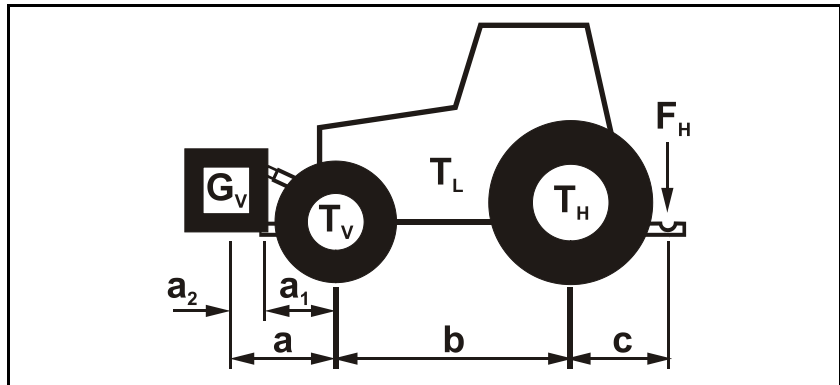


Fig. 24

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	Actual drawbar load	determining
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 style="border: 1px solid black; padding: 10px; display: inline-block;">/ kg</div>	--	--
Total weight	<div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>	--
Front axle load	<div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>
Rear axle load	<div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; display: inline-block;">kg</div>



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


WARNING

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

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

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



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

6.1.2 Requirements for tractor operation with attached machines

**WARNING**

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

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

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



WARNING

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

- **unintentional lowering of the machine when it is raised with the tractor's three-point hydraulic system and unsecured.**
- **unintentional lowering of parts of the machine when in a raised position and unsecured.**
- **Unintentional start-up and rolling of the tractor-machine combination.**
- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- It is forbidden to make any intervention in the machine, such as installation, adjustment, troubleshooting, cleaning, maintenance and repairs
 - when the machine is being operated.
 - as long as the tractor engine is running with the Cardan shaft / hydraulic system connected.
 - if the ignition key is in the tractor and the tractor engine can be started unintentionally with the Cardan shaft / hydraulic system connected.
 - if the tractor and machine have not each been prevented from unintentionally rolling away by applying their parking brakes and/or securing them with wheel chocks
 - if moving parts are not blocked against unintentional movement.

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

11. Lowering machine and machine parts when raised and unsecured.

→ This is how to prevent unintentional falling:

2. Turn off the tractor engine.
3. Remove the ignition key.
4. Apply the tractor's parking brake.
5. Secure the machine against unintentionally rolling away (hitched machine only)
 - by applying the parking brake (if fitted) or by using wheel chocks, if the terrain is level.
 - 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 21.



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 57.



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 52.



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.
You must upgrade the machine's cat. II upper and lower links to cat. III with the aid of adapter sleeves if your tractor has a cat. III three-point hydraulic system.
- 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. Fasten ball linings over the lower link pins in the three-point frame attachment.
You must upgrade the machine's cat. II lower link pins to cat. III with the aid of adapter sleeves if your tractor has a cat. III three-point hydraulic system.
2. Use a lynch pin (Fig. 24/1) to secure each of the lower link pins against unintentional release.
3. Direct people away from the danger area between the tractor and machine before you approach the machine with the tractor.

**Fig. 25**

Coupling and uncoupling the machine

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 shaft 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.
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 stand to transportation position.
7. Before driving off:
 - o Visually check that the lower link hooks are correctly locked before you drive off.

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 machine in a level parking area on solid ground.



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.

1. Park the machine in a level parking area on solid ground.
2. Uncouple the machine from the tractor.
 - 2.1 Secure the machine against unintentionally rolling away. See page 57.
 - 2.2 Lower stand.
 - 2.3 Release lower link.
 - 2.4 From the tractor seat, unlock lower link hooks and uncouple.
 - 2.5 Pull tractor forward approx. 25 cm.
 - This will allow more room between tractor and machine and give better access for uncoupling the Cardan shaft and supply lines.
 - 2.6 Secure tractor and machine against unintentional starting and rolling away.
 - 2.7 Disconnect supply lines.
 - 2.8 Fasten supply lines to their respective parking sockets.

7.2.1 Manoeuvring the machine after uncoupling

Dual-circuit compressed-air braking system



CAUTION

Special care is required for manoeuvring work when the service braking system has been released as the machine is now braked exclusively by the manoeuvring vehicle.

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

The manoeuvring vehicle must be braked.



The service brake system can no longer be released via the release valve if the air pressure in the air reservoir falls to less than 3 bar (e.g. through repeated operation of the release valve or because of leaks in the braking system).

To release the service brake

- fill the air reservoir.
- remove all air from the braking system at the drain valve on the air reservoir.

1. Connect machine to the manoeuvring vehicle.
2. Brake the manoeuvring vehicle.
3. Remove wheel chocks.
4. Pull out release valve to the stop.
 - The service braking system releases and the machine can be marshalled.
5. When manoeuvring is completed, press the release valve in to the stop.
 - The machine can once again be braked by the supply pressure from the air reservoir.
6. Apply the brakes to manoeuvring vehicle.
7. Secure the machine against rolling away with wheel chocks.
8. Uncouple the machine and manoeuvring vehicle.

8 Transportation



- On transportation journeys, follow the instructions given in the section "Safety instructions for the operator", page 23.
- Before moving off, check:
 - that the supply lines are connected correctly.
 - the lighting system for damage, proper operation and cleanness,
 - the braking and hydraulic systems visually for obvious defects.
 - that the parking brake is completely released
 - 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, carry out a visual check that the upper and lower link pins are secured with a lynch pin against unintentional release.



WARNING

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

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



WARNING

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

- Drive in such a way that you always have full control over the tractor with the attached machine.
In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.
- Before transportation, fasten the side locking of the tractor lower link, so that the connected or coupled machine cannot swing back and forth.



WARNING

Risk of falling from the machine if riding against regulations!

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

8.1 Preparing the machine for transportation

Moving the implement from working position to transport position:

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

AW 15400:

2. Move the switch tap to position **B**.
→ Hydraulic function of the outer rollers is switched on.
3. Actuate **green** tractor control unit.
→ The outer roller segments are folded up.
4. Move the switch tap to position **A**.
→ The running gear hydraulic function is switched.

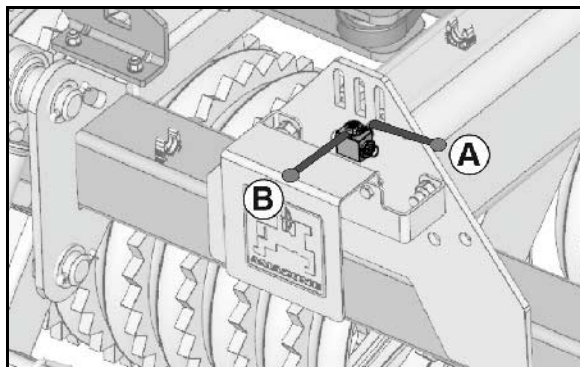


Fig. 26

5. Actuate the **blue** tractor control unit.
→ The sections are folded in by rolling the roller on the ground.



Slowly driving in reverse is helpful for rolling the roller during the folding procedure.



Adjust the height of the implement with the tractor control unit and the tractor lower link hydraulic system such that the sections are locked when folded into transport position (Fig. 26/1).

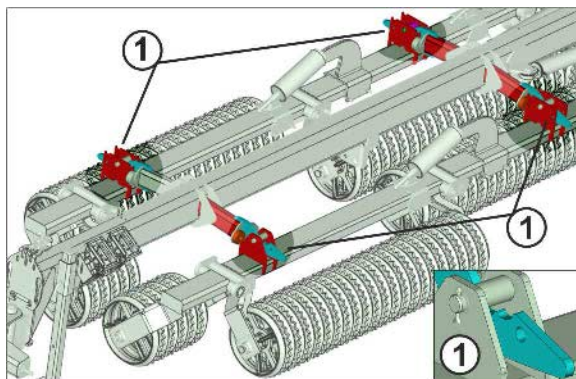


Fig. 27



WARNING

AW 15400: Secure the outer rollers by installing the transportation bolt

6. Operating **tractor control unit green** and tractor lower link hydraulic system:
→ Lift the machine into the transportation position.



CAUTION

Make sure that there is sufficient ground clearance.

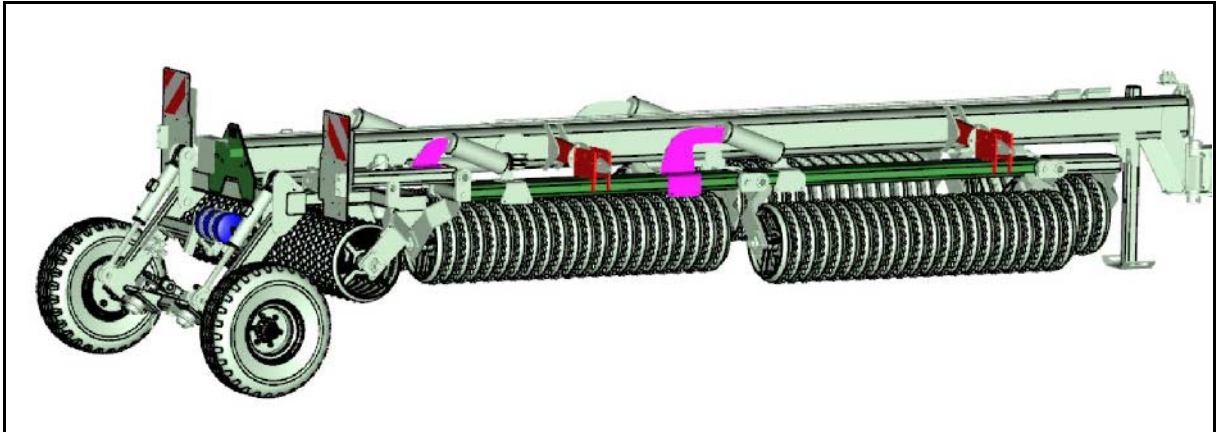


Fig. 28

9 Use of the machine



When using the machine, observe the information in the sections

- "Warning signs and other labels on the machine", from page 16 and
- "Safety instructions for operators", from page 21

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.



WARNING

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

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

9.1 Move the implement from transport position to working position

Move the implement from transport position to working position:

1. Park the machine on a level parking surface with solid ground.
2. Actuate the *green* tractor control unit and the tractor lower link hydraulic system.
- Completely lower the implement.
- The transport locking mechanism (Fig. 28/1) is unlocked.
3. AW 15400: Remove the transport locking mechanism of the roller.



Damage to the frame.

Only unfold the roller when it is resting on the ground.

4. Unlock the stop tap using the cable pull from the tractor seat.
- At the same time, actuate the *blue* tractor control unit.
- Unfold the sections by rolling the roller on the ground.

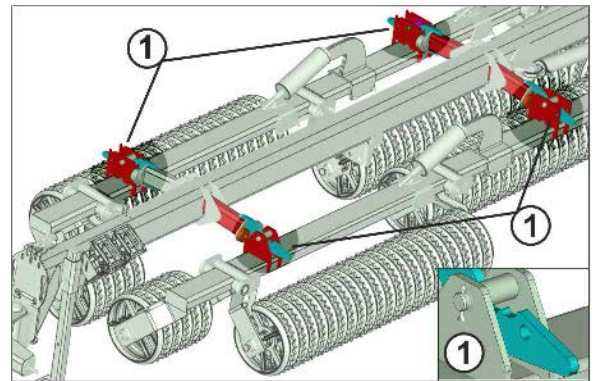


Fig. 29



- Slowly driving forward is helpful for rolling the roller during the folding procedure!

AW 15400:

5. Move the switch tap to position **B**.
- Outer roller segment hydraulic function is switched.
6. Actuate *green* tractor control unit.
- The outer rollers fold down.

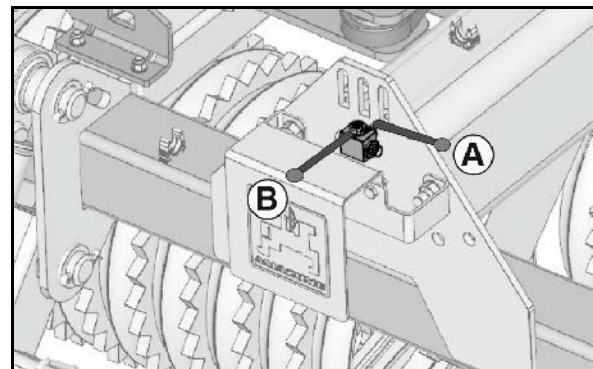


Fig. 30

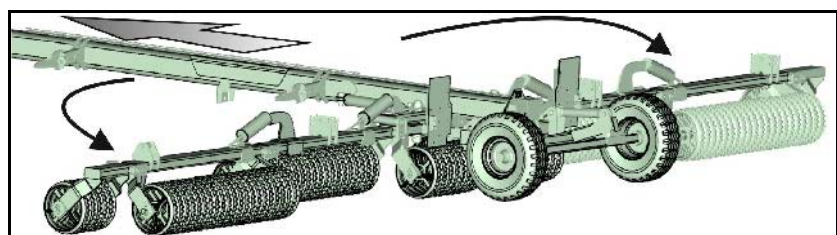


Fig. 31

Use of the machine



- When at work, operate **tractor control unit *green*** in open centre position.
- Do not lift up the rollers on bends.

9.2 Turning area



CAUTION

When turning, the machine must be left in the working position.

The frame can be damaged by lifting the rollers from the working position.

10 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 57.



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.

10.1 Cleaning



- Pay particular attention to the brake, air and hydraulic hose lines.
- Never treat brake, air and hydraulic hose lines with benzene, benzole, 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 pressure washer / steam jet for cleaning:
 - Do not clean any electrical components.
 - Do not clean any chromed components.
 - Never aim the cleaning jet of the cleaning nozzle of the high pressure cleaner/steam jet directly at lubrication points, bearings, rating plates, warning signs, and stickers.
 - Always maintain a minimum jet distance of 300 mm between the pressure washer or steam jet cleaning nozzle and the machine.
 - The set pressure of the high-pressure cleaner / steam jet must not exceed 120 bar.
 - Comply with safety regulations when working with pressure washers.

10.2 Lubrication regulations



Lubricate all grease nipples (keep gaskets clean).

Lubricate / grease the machine at the specified intervals.

Lubrication points on the machine are indicated with the foil (Fig. 31).

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.

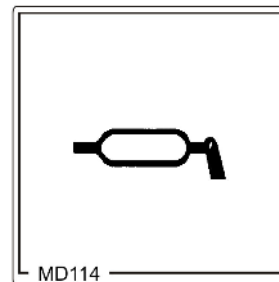


Fig. 32

10.2.1 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	Retinax A	Tetinax AM

10.2.2 Lubrication point overview

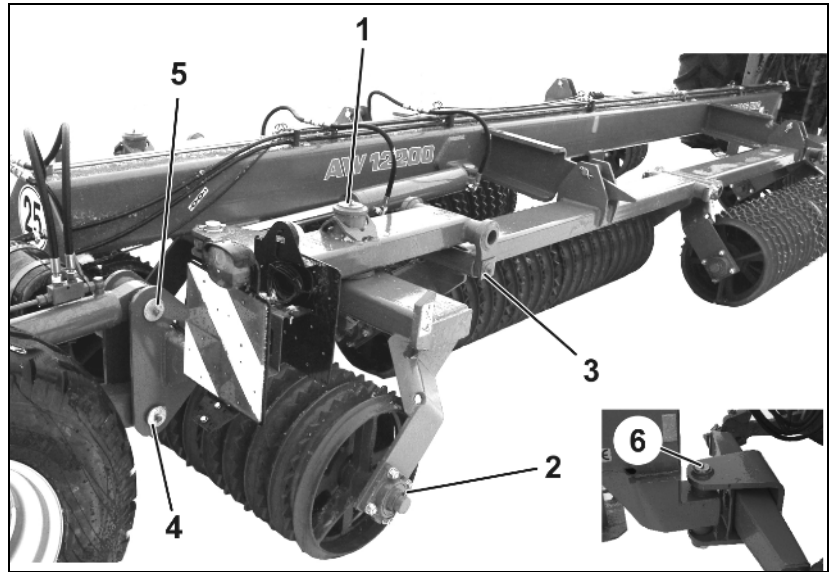


Fig. 33

Fig. 32	Lubrication point	Interval [h]	Quantity
1	Arm pivot point	100	2
2	Roller flange bearings	100	10 / 14
3	Roller sections	100	4 / 6
4	Chassis attachment	100	2
	Chassis hydraulic cylinder	100	2
6	Towing crosspiece	100	1
above Fig.	Outer roller pivot point (AW15400)	100	2

Axle	Lubrication point	Interval [h]	Quantity
1	Wheel hub bearings	200	2
2	Camshaft	100	2
3	Cam bearing	100	2

10.3 Service plan – overview



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

After the first working run

Component	Servicing work	see page	Workshop work
Wheels	<ul style="list-style-type: none"> • Wheel nut check 	78	
Hydraulic system	<ul style="list-style-type: none"> • Inspection for defects • Check leak tightness 	72	X

Daily

Component	Servicing work	see page	Workshop work
Air reservoir	<ul style="list-style-type: none"> • Drain 	75	

Weekly / every 50 working hours

Component	Servicing work	see page	Workshop work
Hydraulic system	<ul style="list-style-type: none"> • Inspection for defects 	81	X
Wheels	<ul style="list-style-type: none"> • Check air pressure 	78	
Coupling device	<ul style="list-style-type: none"> • Check for damage, deformation and cracks 	80	

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 	76	X
	<ul style="list-style-type: none"> • Clean line filter 	75	
	<ul style="list-style-type: none"> • Brake pad check 	76	X
	<ul style="list-style-type: none"> • Check play on wheel hub bearings 	77	X
	<ul style="list-style-type: none"> • Linkage adjuster setting 	77	X
Coupling device	<ul style="list-style-type: none"> • Check the fastening bolts for wear and tight fit 	80	

Every year

Component	Servicing work	see page	Workshop work
Brake drum	<ul style="list-style-type: none"> Checking for dirt 	75	X

As required

Component	Servicing work	see page	Workshop work
Electric lighting	<ul style="list-style-type: none"> Changing defective bulbs 	83	

10.4 Axle and brake



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

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



WARNING

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

General visual inspection



WARNING

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

- Pipe lines, hose lines and coupler heads must not be externally damaged or rusted.
- Hinges, e.g. on fork heads, must be properly secured, easy to move, and not worn out.
- Ropes and cables
 - 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
 - o not move around in the tensioning bands.
 - o not be damaged.
 - o not show any outward signs of corrosion damage.

10.4.1 Checking the brake drum for dirt

1. Unscrew the two cover plates (Fig. 33/1) on the inside of the brake drum.
2. Remove any dirt and plant debris which may have entered the drum.
3. Refit the cover plates.



CAUTION

Dirt entering the drums may be deposited on the brake pads (Fig. 33/2) and thus die appreciably reduce brake performance.

Risk of accident.

If dirt is discovered in the brake drum, the brake pads must be inspected by a specialist workshop.

For this to happen, the wheel and brake drum must be removed.

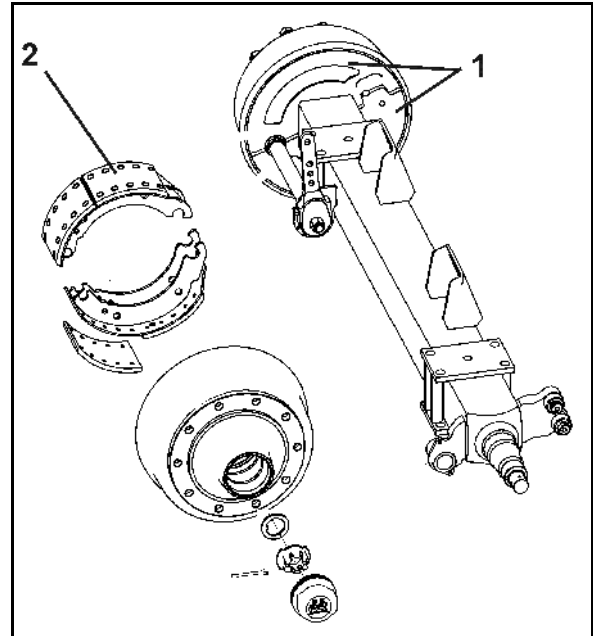


Fig. 34

10.4.2 Draining the air reservoir

1. Use the ring to keep the drain valve (Fig. 34/1) pulled sideways until no more water flows out of the air reservoir.
- Water flows out of the drain valve.
2. Unscrew the drain valve from the air reservoir and clean the air reservoir if you find dirt deposits.

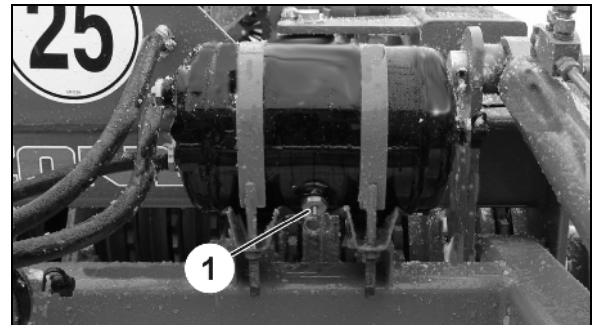


Fig. 35

10.4.3 Cleaning the line filter

Clean the two line filters (Fig. 35) every 3 months (more frequently in harsh operating conditions).

To do so:

1. press the two clips together and take out the fastener piece complete with O-ring, pressure spring and filter insert.
2. clean (wash out) the filter element with petrol or thinner and dry with compressed air.

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



Fig. 36

10.4.4 Inspection 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.

10.4.5 Checking brake lining thickness (workshop work)

Checking brake lining thickness:

Wear on brake linings must be checked by the start of the season at the latest.

This servicing interval is a recommendation. Depending on the deployment, e.g. constant driving on hilly terrain, this may have to be shortened.

Renew the brake shoes at a residual lining thickness of less than 1.5 mm (use only genuine brake shoes with type-tested brake linings).

When doing so the shoe return springs may have to be renewed.

10.4.6 Checking play on wheel hub bearings (workshop work)

To check the play on wheel hub bearings, raise axle until the wheels turn freely. Release brake. Place a lever between tyre and ground and check play.

If bearing play can be detected:

Adjusting bearing play

1. Remove dust cap.
2. Remove split pin from the axle nut.
3. Tighten axle nut while turning the wheel at the same time until the wheel hub is lightly braked as it turns.
4. Turn axle nut back to the next available split pin hole. On match, turn it to the next hole (max. 30°).
5. Fit split pin and bend slightly open.
6. Reload dust cap with high melting point grease and drive it into, or screw it onto the wheel hub.

10.4.7 Setting the linkage adjuster (workshop work)

When the brake is applied, the brake cylinder stroke must be no more than 10% to 50% of the total brake cylinder stroke. If it is more than 50%, the linkage adjuster must be reset immediately.

Resetting linkage adjuster:

1. Remove circlip.
2. Set the linkage adjuster back on the ratchet until the free movement on the brake cylinder is no more than 10% of the brake cylinder stroke.
3. Fit circlip.

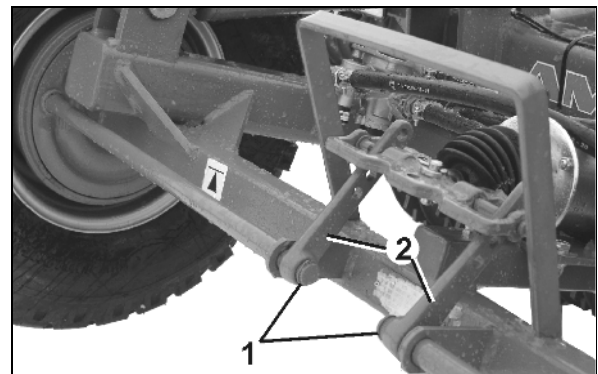


Fig. 37



CAUTION

- Reset both linkage adjusters equally.
- After setting, check that both wheels are braked equally.

10.5 Tyres / wheels



Check chassis wheels regularly for damage and firm seating on the wheel rim.



Wheels

Required tightening torque for wheel nuts or bolts

M18 x 1,5

270 Nm (-0/+20)

M20 x 1,5

350 Nm (- 0/+30)

M22 x 1,5

450 Nm (-0/+60)



- **Required tightening torque for wheel nuts or bolts:**
270 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.

10.5.1 Tyre pressures



Inflate the tyres with the indicated nominal pressure.

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



- Check 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.

10.5.2 Fitting tyres



- 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.

10.6 Check the coupling device



DANGER!

- Replace a damaged drawbar with a new one immediately - for road traffic safety reasons.
- Repairs may only be carried out by the manufacturer factory.
- For safety reasons, it is forbidden to weld on and drill holes in the drawbar.

Check the coupling device (drawbar, lower link traverse, ball coupling, drawbar eye) for the following:

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

Coupling device	Wear dimension	Fixing bolts	Number	Tightening torque
Lower link traverse	Cat. 3: 34.5 mm Cat. 4: 48.0 mm Cat. 5: 56.0 mm	M20 8.8	8	410 Nm
Ball coupling				
K80 (LI009)	82 mm	M16 10.9	8	300 Nm
K80 (LI040)	82 mm	M20 10.9	8	560 Nm
K80 (LI015)	82 mm	M20 10.9	12	560 Nm
Drawbar eye				
D35 (LI038)	42 mm	M16 12.9	6	340 Nm
D40 (LI017)	41.5 mm	M16 10.9	6	300 Nm
D40 (LI006)	42.5 mm	M20 8.8	8	395 Nm
D46(LI034)	48 mm	M20 10.9	12	550 Nm
D50 (LI037)	60 mm	M16 12.9	4	340 Nm
D50 (LI010)	51.5 mm	M16 10.9	8	300 Nm
D50 (LI059)	51,5 mm	M20 10.9	4	560 Nm
D50 (LI011)	51,5 mm	M20 8.8	8	410 Nm
D50 LI060)	52,5 mm	M20 10.9	8	560 Nm
D51 (LI039)	53 mm	M20 10.9	12	600 Nm
D51 (LI069)	53 mm	M16 10.9	6	290 Nm
D58 (LI031)	60 mm	M20 10.9	12	550 Nm
D62 (LI007)	63.5 mm	M20 10.9	8	590 Nm
D79 (LI021)	81 mm	M20 10.9	12	550 Nm

10.7 Hydraulic system



WARNING

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

- Only a specialist workshop may carry out work on the hydraulic system.
- Depressurise the hydraulic system before carrying out work on the hydraulic system.
- When searching for leak points, always use suitable aids.
- Never try to bung untight hydraulic lines with your hand or with your 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.

10.7.1 Labelling hydraulic hose lines

The assembly labelling provides the following information:

Fig. 37/...

- (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).

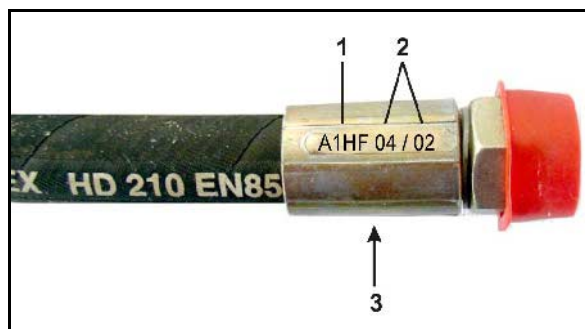


Fig. 38

10.7.2 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.

10.7.3 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).
- Untight 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".

10.7.4 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 overtensioned.
- Fix the hydraulic hose lines to the intended fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- It is forbidden to paint over hydraulic hose lines!

10.8 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.

10.9 Hydraulics diagram

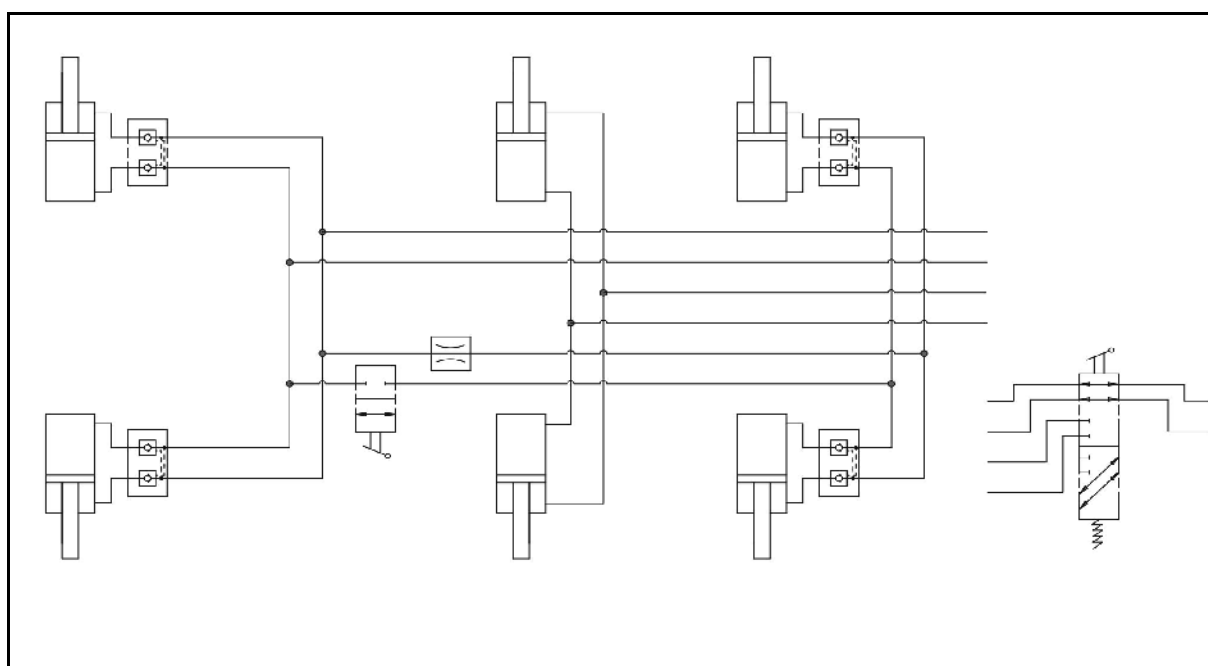
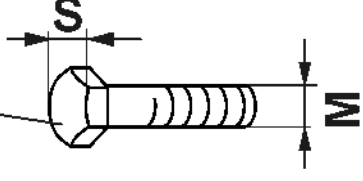
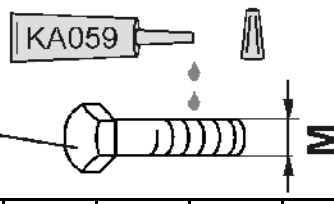


Fig. 39

10.10 Screw tightening torques

<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> 8.8 10.9 12.9 </div>  </div>				
M	S	Nm		
		8.8	10.9	12.9
M 8	13	25	35	41
M 8x1		27	38	41
M 10	16 (17)	49	69	83
M 10x1		52	73	88
M 12	18 (19)	86	120	145
M 12x1,5		90	125	150
M 14	22	135	190	230
M 14x1,5		150	210	250
M 16	24	210	300	355
M 16x1,5		225	315	380
M 18	27	290	405	485
M 18x1,5		325	460	550
M 20	30	410	580	690
M 20x1,5		460	640	770
M 22	32	550	780	930
M 22x1,5		610	860	1050
M 24	36	710	1000	1200
M 24x2		780	1100	1300
M 27	41	1050	1500	1800
M 27x2		1150	1600	1950
M 30	46	1450	2000	2400
M 30x2		1600	2250	2700

<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> A2-70 A4-70 </div>  </div>												
M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
Nm	2,4	4,9	8,4	20,6	40,7	70,5	112	174	242	342	470	589



Coated bolts have different tightening torques.

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



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