

Operating manual

AMAZONE

**Grasshopper
SmartCut**

**HorseHopper
SmartCut**

**GH 1800 SUPER
GH 2100 SUPER**

**HH 1800 SUPER
HH 2100 SUPER**



MG5084
BAF0009.6 05.22
Printed in France

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

en



READING THE INSTRUCTION

manual and adhering 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 should 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 good success one should go into the mind of a thing, make himself familiar with every part of the machine and to get acquainted with its handling. Only in this way would you 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 rating plate.

Machine identification number:
(ten-digit)

Type:

GH HH Super SMARTCUT

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. Replacement will be made only if a claim is filed immediately!

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

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

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

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

User evaluation

Dear Reader

We update our operating manuals regularly. Your suggestions for improvement help us to create ever more user-friendly manuals. Please send your suggestions to:

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1 User information

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

1.1 Purpose of the document

This operating manual

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

1.2 Locations in the operating manual

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

1.3 Diagrams used

Instructions for action and reactions

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

Example:

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

Lists

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

Example:

- Point 1
- Point 2

Item numbers in diagrams

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

Example (Fig. 3/6)

- Figure 3
- Item 6



2 General safety instructions

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

2.1 Obligations and liability

Comply with the instructions in the operating manual

Knowledge of the basic safety information and safety regulations is a basic requirement for safe handling and fault-free machine operation.

Obligations of the operator

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

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

The operator is obliged

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

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" 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 that could impair safety immediately.

Guarantee and liability

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

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

2.2 Representation of safety symbols

Safety instructions are indicated by the triangular safety symbol and the highlighted signal word. The signal word (DANGER, WARNING, CAUTION) describes the gravity of the risk and has the following significance:

**DANGER**

Indicates an immediate high risk, which will result in death or extremely 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 (extremely serious) physical injury if not avoided.

If the instructions are not followed, then this may result in death or serious physical injury.

**CAUTION**

Indicates a low risk, which could incur minor or medium level physical injury or damage to property if not avoided.

**IMPORTANT**

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

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

**NOTE**

Indicates handling tips and particularly useful information.

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



2.3 Organisational measures



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

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

The operation manual

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

Check all the available safety equipment regularly.

2.4 Safety and protection equipment

Before each commissioning of the machine, all the safety and protection equipment must be properly attached and fully functional. Check all the safety and protection equipment regularly.

Faulty safety equipment

Faulty or disassembled safety and protection equipment can lead to dangerous situations.

2.5 Informal safety measures

As well as all the safety information in this operating manual, comply with the general, national regulations pertaining to accident prevention and environmental protection.

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



2.6 User training

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

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

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

Legend: X.. permitted --..not permitted

- ¹⁾ A person who can assume a specific task and who can carry out this task for an appropriately qualified company.
- ²⁾ Instructed persons are those who have been instructed in their assigned tasks and in the possible risks in the case of improper behaviour, have been trained if necessary, and have been informed about the necessary protective equipment and measures.
- ³⁾ People with specialist technical training shall be considered as a specialist. Due to their specialist training and their knowledge of the appropriate regulations, they can evaluate the work with which they have been charged and detect possible dangers.

Comment:

A qualification equivalent to specialist training can be obtained through long term activity in the appropriate field of work.



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



2.7 Safety measures in normal operation

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

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

2.8 Dangers from residual energy

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

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

2.9 Maintenance and repair work, fault elimination

Carry out prescribed setting, maintenance and inspection work in a timely manner.

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

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

Regularly check that bolted connections are firmly secured and tighten if necessary.

When the maintenance work is completed, check the function of the safety devices

2.10 Constructive changes

You may not make changes, expansions or conversions to the machine without the authorisation of AMAZONE. This is also valid when welding support parts.

Any expansion or modification work shall require the written approval of AMAZONE. Only use the modification and accessory parts released by AMAZONE so that the operating permit, for example, remains valid in accordance with national and international regulations.

Vehicles with an official type approval or with equipment connected to a vehicle with a valid type approval or approval for road transport according to the German road traffic regulations must be in the state specified by the approval.



WARNING

Risk of being crushed, cut, caught, drawn in or struck if supporting parts break.

It is forbidden to:

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

2.10.1 Spare and wear parts and aids

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

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

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

2.11 Cleaning and disposal

Handle and dispose of any materials used carefully, in particular:

- When carrying out work on lubrication systems and equipment and
- When cleaning using solvents.

2.12 User workstation

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



2.13 Warning symbols and other signs on the machine



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

Warning symbols - structure

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

A warning symbol consists of two fields:



Field 1

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

Field 2

is a symbol showing how to avoid the danger.

Warning symbols - explanation

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

1. A description of the danger.
For example: danger of cutting!
2. The consequence of non-observance 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 symbols

MD 075

Risk of fingers and hands being cut or severed by rotating machine parts.

This hazard can 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 the PTO shaft/hydraulic system connected.

Do not touch machine parts until they have come to a complete standstill.



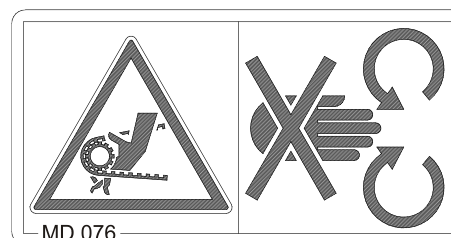
MD 076

Risk of hands or arms being drawn in or caught by power-driven, unprotected chain or belt drives.

This hazard can cause extremely serious injuries, including loss of parts of the body from hands or arms.

Never open or remove protective equipment from chains or belt drives,

- while the tractor engine is running and the PTO shaft is connected/hydraulic drive is engaged
- or the ground wheel drive is in motion



MD 078

Risk of fingers or hands being crushed by accessible moving machine parts.

This hazard can 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 the PTO shaft/hydraulic system connected.

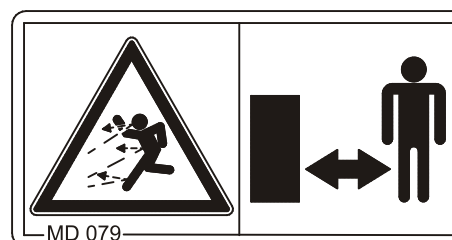


MD 079

Hazard from materials or foreign objects that are thrown from or ejected by the machine.

This hazard can cause extremely serious injuries to any part of the body.

Ensure that persons not involved in the operation of the machine maintain a sufficient safety distance from the danger area created by the machine while the tractor engine is running.



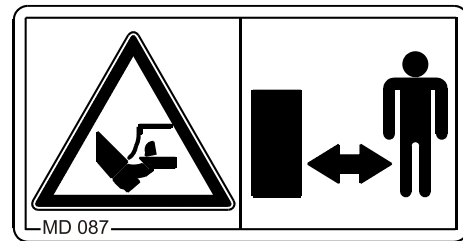


MD 087

Risk of toes or feet being cut or severed by power-driven tools.

This hazard can cause serious injuries, including loss of parts of the body from toes or feet.

Maintain a sufficient safety distance from the danger area while the tractor engine is running and the PTO shaft/hydraulic system is connected.



MD 095

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



MD 096

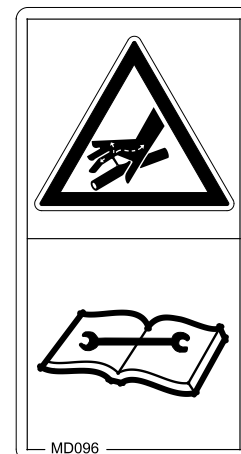
Danger of infection to the whole body from liquids escaping at a high pressure (hydraulic fluid)!

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 attempt to plug leaks in hydraulic lines using your hand or fingers.

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

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

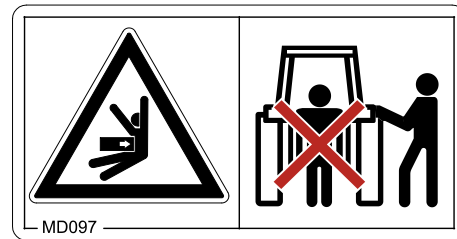


MD 097

Risk of any part of the body being crushed due to standing in the stroke area of the three-point suspension when the three-point hydraulics are operated.

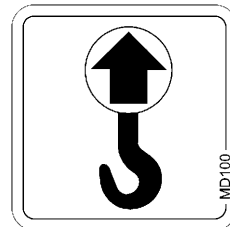
This hazard can cause extremely serious and potentially fatal injuries.

- Personnel are prohibited from standing in the stroke area of the three-point suspension when the three-point hydraulics are operated.
- Actuate the operating controls for the tractor's three-point hydraulic system
 - only from the designated workstation,
 - never from a location in the stroke area between tractor and machine.



MD 100

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

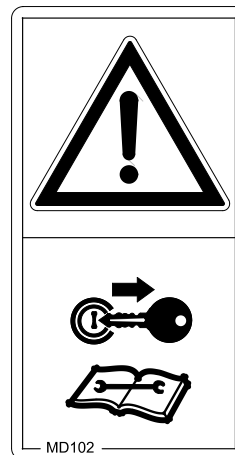


MD 102

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

These dangers can cause extremely serious and potentially fatal injuries.

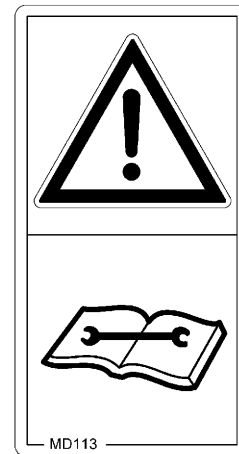
- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- **Read and observe the information in the relevant chapter for the type of intervention**





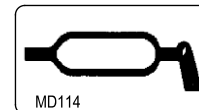
MD 113

Study and observe the instructions for cleaning, servicing and maintaining in the appropriate chapter of the operating manual.



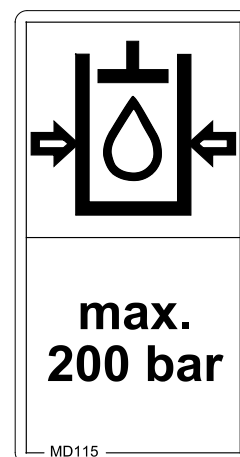
MD 114

This symbol indicates a lubrication point



MD 115

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



MD 118

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

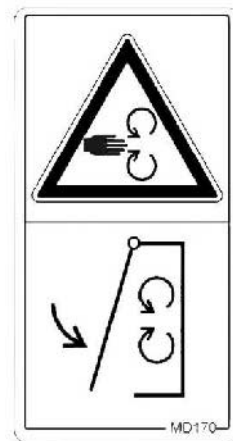


MD 170

Risk of being crushed, drawn in or caught by unprotected, moving machine parts as a result of missing safety devices.

This hazard can cause extremely serious injuries, including the loss of body parts.

Close protective equipment which has been opened or refit protective equipment which has been removed before you start the machine.

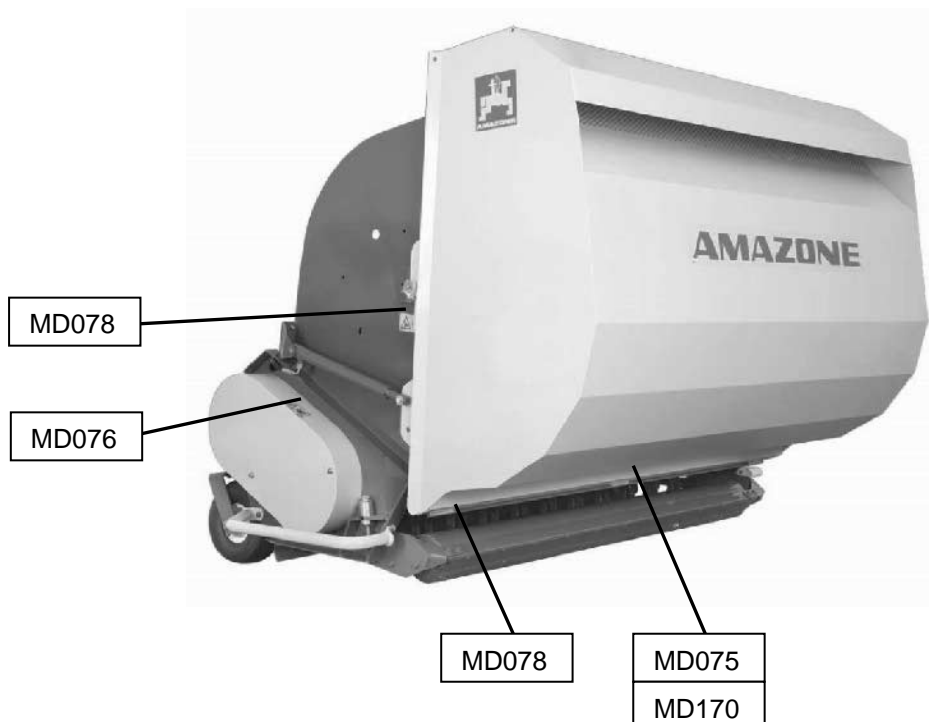
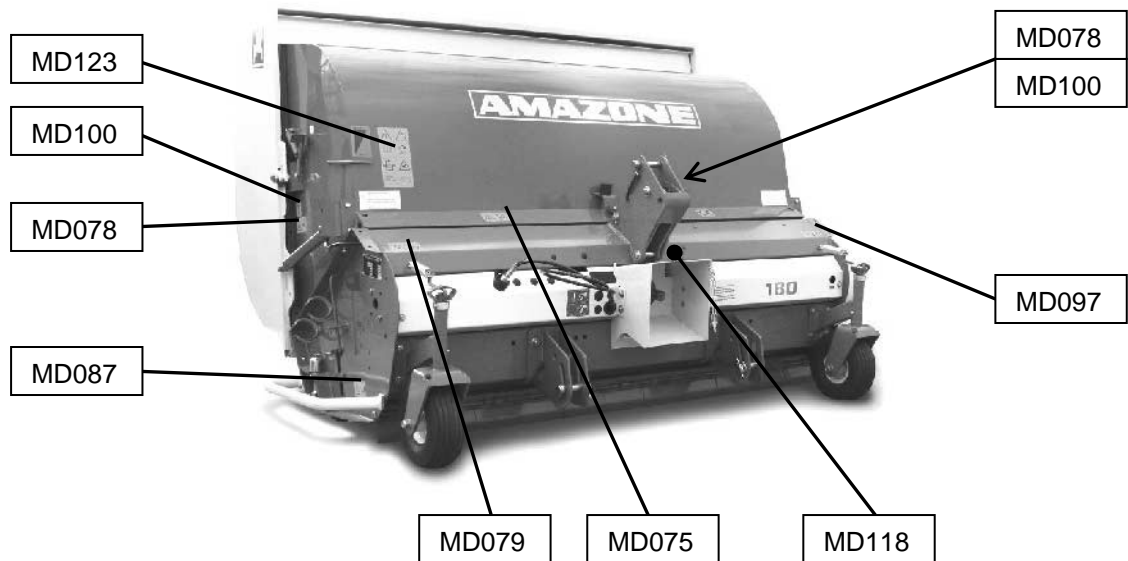




2.13.1 Positioning of warning symbols and other labels

Warning symbols

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





2.14 Dangers if the safety information is not observed

Non-observance 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 symbols.

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



2.16 Safety information for users



WARNING

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

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

2.16.1 General safety and accident prevention information

- Beside these instructions, comply with the general valid national safety and accident prevention regulations.
- The warning symbols 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.
- Do not stand between the machine and tractor to be coupled while the tractor is approaching 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.



General safety instructions

- Secure the operating lever of the tractor hydraulic system so that unintentional raising or lowering is impossible, before connecting the machine to or disconnecting the machine from the tractor's three-point hydraulic system.
- When coupling and uncoupling machines, move the support equipment (if available) to the appropriate position (stability).
- When actuating the support equipment, there is a risk of injury from nip and shear points.
- Be particularly careful when coupling the machine to the tractor or uncoupling it from the tractor! There are nip and shear points in the area of the coupling point between the tractor and the 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 pins are firmly fixed with the lynch pin against unintentional release.
- Adjust your driving speed to the prevailing conditions.
- Before driving downhill, switch to a low gear.
- Before moving off, always switch off the independent wheel braking (lock the pedals).

2.16.2 Hydraulic system

- The hydraulic system is under a high pressure.
- Ensure that the hydraulic hose lines are connected correctly.
- When connecting the hydraulic hose lines, ensure that the hydraulic system is unpressurised on both the machine and tractor sides.
- It is forbidden to block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:
 - are continuous or
 - are automatically locked or
 - necessarily require an open centre or pressure position to operate correctly
- Before working on the hydraulic system
 - Lower the machine
 - Depressurise the hydraulic system
 - Switch off the tractor engine
 - Apply the parking brake
 - Take out the ignition key
- Have the hydraulic hose line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line if it is damaged or worn. Only use original **AMAZONE** hydraulic hose lines.
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural ageing, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose connections made from thermoplastics, other guide values may be decisive.
- Never attempt to plug leaks in hydraulic lines using your hand or fingers.

Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!
If you are injured by hydraulic fluid, contact a doctor immediately.
Danger of infection.
- When searching for leakage points, use suitable aids, to avoid the serious risk of infection.



2.16.3 Electrical system

- When working on the electrical system, always disconnect the battery (negative terminal).
- Only use the prescribed fuses. If fuses are used with too high a rating, the electrical system will be destroyed – danger of fire.
- Ensure that the battery is connected correctly - firstly connect the positive terminal and then connect the negative terminal. When disconnecting the battery, disconnect the negative terminal first, followed by the positive terminal.
- Always place the appropriate cover over the positive battery terminal. Contact with earth may cause an explosion
- Risk of explosion. Avoid sparking and naked flames in the area of the battery.

3 General description of the machine

3.1 Areas of application

The **AMAZONE** Groundkeeper / **HorseHopper** is intended to be used for grass cutting and scarifying in public parks as well as sports fields and gardens, etc.
It can be used to collect and chop foliage in the autumn.

3.2 Declaration of conformity

The Groundkeeper complies with the requirements of the EC Machinery Directives 2006/42/EC and associated additional guidelines.

3.3 Details required for enquiries



When ordering special optional equipment and spare parts, please always quote the **machine number** of the Groundkeeper / HorseHopper .

Safety requirements are only fulfilled if original **AMAZONE spare parts are used when a repair is undertaken. The use of other parts may remove liability for any consequences which may occur as a result.**

3.4 Identification of the machine

Rating plate on the machine (Fig. 3.4/1)



The whole identification plate has the status of a certificate and must not be altered or made non recognisable.



3.5 Technical data

Model	Working width	Hopper	Tare weight	Permissible total weight	Dimensions L x B x H [m]
GH-1800 Super HH-1800 Super	1,80 m	1800 l	690 kg	1140 kg	1,80 x 2,20 x 1,48
GH-2100 Super HH-2100 Super	2,10 m	2100 l	760 kg	1290 kg	1,80 x 2,50 x 1,48
Front tyres	270 x 185				
Front tyre air pressure	2 bar				
Overall height	1,60 m				

3.5.1 Performance characteristics of the tractor

Model	Tractor attachment	Engine rating	
		Minimum	Maximum
GH-1800 Super HH-1800 Super	Kat. I, II	60 PS	120 PS
GH-2100 Super HH-2100 Super	Kat. I, II	70 PS	130 PS

**Tractor attachment:**

Specified performance characteristics are used to check the lifting capacity and permissible total weight of the tractor.

3.5.2 Noise production data

The emission value (noise level) applicable to the working area is:
LpA = 98 dB(A). Measurements were taken under working conditions close to the driver's ear. Maximum noise emission : LwA = 115 dB(A).



3.6 Intended use

The AMAZONE Groundkeeper // HorseHopper has been designed for conventional use in maintaining grassed open areas and parks (intended use).

Any use which goes beyond these limits is not regarded as the intended use. The manufacturer is not liable for any damages which may result from such use.

The risk involved in such use is borne solely by the user.

Intended use also includes compliance with instructions specified by the manufacturer concerning operation, servicing and maintenance as well as the exclusive use of **genuine AMAZONE spare parts**.

The AMAZONE Groundkeeper / HorseHopper may only be used, serviced and maintained by persons who are familiar with the machine and who have received instruction concerning the risks involved.

All relevant accident prevention regulations and any other generally recognised rules concerning safety, occupational health and traffic laws must be observed and the safety instructions listed on the labels attached to the machine must be strictly followed.

Any unauthorised modification of the machine will automatically render all warranty claims against the manufacturer for resulting damage invalid.



4 Taking delivery of the machine

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Replacements will only be made if claims are submitted promptly to the haulage company. Please check that all the parts listed on the despatch note have been delivered.

Before starting up, completely remove all packaging (including cables) and check lubrication.

5 Attaching and removing the machine at the tractor's rear three-point linkage



Before attaching the machine to the tractor, make sure that the lateral setting of the three-point linkage on the machine matches the mount category of the tractor (CAT I or II).

- Release the fastener on the lower link sockets (Fig. 5-1),
- Move the lower link sockets to the required position and fasten in place with 4 screws each.



- Adjust the lower 3-point linkage to the tractor, so that the tractor tire is in no contact with the machine front castor wheels.



The diameter of the lower link pins corresponds to CAT I.

Adapter sleeves will have to be used for CAT II.

Attaching and removing the machine at the tractor's rear three-point linkage

In order to guarantee that the machine is attached to and detached from the tractor safely, it is recommended that the procedure be carried out in the following sequence:

- Attach the PTO shaft to the free shaft end on the machine. (If freewheel PTO shafts are used, the freewheel must be attached on the machine side).
- Hook the tractor's lower link arms into the three point sockets.
- Secure all pins using the appropriate securing plugs.
- Attach the PTO shaft to the tractor's universal joint shaft. (**Caution:** make sure that the PTO shaft is the correct length, otherwise the tractor or the machine's angular gearbox may be damaged when the machine is raised or lowered).
- Attach the upper link.
- Pretension the upper link to halfway along the slotted hole (see Fig. 5-2/1)
- Plug in the hydraulic lines
- To uncouple the machine, follow the same procedure in reverse.

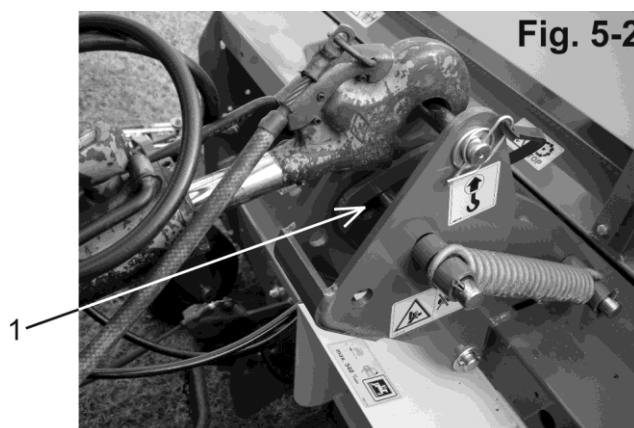


Instruct those present to leave the danger area behind or underneath the machine, since the machine may lurch backwards if the halves of the upper link have been screwed apart by mistake or if they break apart.



If fitted, adjust the lowering restrictor on the tractor.

Choice the optimal adjustment of the upper 3-point linkage.





5.1 PTO shaft



Only use the PTO shaft specified by the manufacturer:

- Walterscheid W 2300 with or without freewheel for tractors with max. 40 HP output
- Walterscheid W 2400 with or without freewheel for tractors with outputs higher than 40 HP



If you have a tractor without a double clutch for the universal joint shaft drive, you must necessarily use a freewheel PTO shaft.

Otherwise, the tractor will remain in motion due to the flywheel mass of the rotor, even if the clutch pedal has been depressed.

5.2 Fitting and adjusting the PTO shaft

5.2.1 Fitting the PTO shaft



Before fitting, clean the gearbox input shaft on the machine and always use grease to push the PTO shaft onto the input shaft.

5.2.2 Adjusting the PTO shaft when first attached



When first attached, adjust the PTO shaft to the tractor according to fig. 5.2.2. Since this adjustment is only applicable for this one type of tractor, the PTO shaft adjustment must be checked and repeated if the type of tractor is changed.

When attaching other PTO shaft halves onto the tractor's universal joint shaft profile, fit them without sliding the PTO shaft tubes into each other.

1. Hold the two PTO shaft tubes side by side and check whether the PTO shaft tubes provide a guaranteed sliding profile overlap of **at least 40 % of the LO** both when the machine is lowered and raised.
2. When pushed together, the PTO shaft tubes must not knock against the forks of the universal joint. A minimum safety distance of 10 mm must be observed.
3. To adjust the length, hold the PTO shaft halves alongside each other in the shortest operational position and draw a mark.
4. Shorten the inner and outer protective tube equally.
5. Round off the cut edges and carefully remove swarf.
6. Grease the sliding profiles and slide inside each other.
7. Hook in the supporting chains in such a way that the PTO shaft guard does not turn at the same time during operation.
8. Only use the machine if the drive is fully guarded.

Use PTO shaft with the full PTO shaft protection and supplementary protection at the tractor and machine. Replace protective equipment immediately at the first signs of damage.

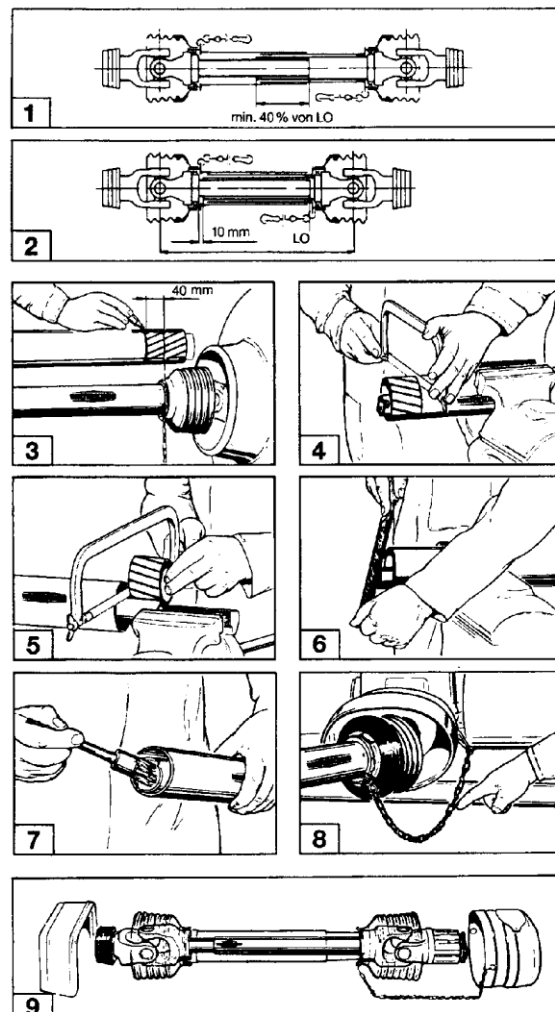


Fig. 5.2.2



The angle defining the maximum joint bends in a universal joint on the PTO shaft can be found in the accompanying operating manual provided by the manufacturer.

This manual also contains information on fitting and maintenance that must be observed.



To avoid damage, only connect the universal joint shaft slowly when the tractor engine is running at low revs.

5.3 Groundkeeper / HorseHopper transmission input speed

The gearbox on the Groundkeeper / HorseHopper is equipped with a universal joint shaft connection. The machine must be powered with a maximum drive speed of 540 rpm:

Drive speed $n = 540$ rpm.



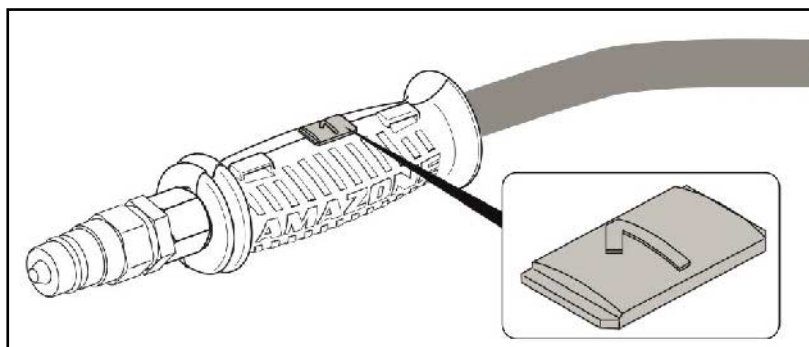
Drive speeds higher than specified will cause the rotor to turn at a significantly higher speed. In extreme cases, this may lead to blades being released which could endanger personnel and damage property.

Warranty claims for damage which can be traced back to an excessively high drive speed of the universal joint shaft will not be recognised.

5.4 Hydraulic connections




- All hydraulic hose lines are equipped with grips.


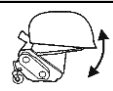



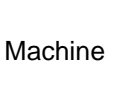







Coloured markings with a code number or code letter have been applied to the gripping sections in order to assign the respective hydraulic function to the pressure line of a tractor control unit!



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	
yellow			Hopper	raise	Double acting	
				lower		
green			Machine	raise	Double acting	
				lower		
nature		Drawbar+ (Cutting deck operation)			Single acting	
red		Flow for Hydraulic block			Single acting	
red		Pressure-free return flow				



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.

Check the maximum permissible pressure in oil return!

Therefore do not connect the oil return to the tractor control unit, but to a pressure-free oil return flow with a large plug coupling.



WARNING

For the oil return, use only DN16 lines and select short return paths.

Pressurise the hydraulic system only when the free return has been correctly coupled.

Install the coupling union (supplied) on the pressure-free oil return flow.

5.4.1 Coupling hydraulic hose lines



WARNING

Risk of crushing, cutting, being trapped or drawn in, or impact through faulty hydraulic functions when hydraulic hose lines are incorrectly connected.

When coupling the hydraulic hose lines, please note the coloured markings on the hydraulic plugs.



- Check the compatibility of the hydraulic fluids before connecting the machine to the tractor hydraulic system.
Do not mix any mineral oils with biological oils.
- Observe the maximum permissible hydraulic fluid pressure of 200 bars.
- Only couple clean hydraulic connectors.
- Plug the hydraulic plug(s) into the hydraulic sockets until you can feel the hydraulic plug(s) locking.
- Check the coupling points on the hydraulic hose lines, to see if they are sitting correctly and are sealed.

1. Swivel the actuation lever on the control valve on the tractor to float position (neutral position).
2. Clean the hydraulic plugs on the hydraulic hose lines before coupling the hydraulic hose lines with the tractor.
3. Connect the hydraulic hose line(s) to the tractor control unit(s).



5.4.2 Disconnecting hydraulic hose lines

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



6 The mower unit

The Groundkeeper / HorseHopper Super has a flail-type mower unit. This involves free-moving cutting tools which are suspended on a large-diameter tube. When the rotor starts to turn, the cutting and scarifying blades are erected by centrifugal force, which allows them to reach into the grass which is to be cut and mow it off. The blades are made of special steel and suspended in four rows around the rotor from so-called clip bolts

6.1 Fitting the mowing and scarifying tools

There are 5 different tool arrangements as shown in table 11.

If the mowing blades (tab. 11, A) or scarifying blades (tab. 11, B) have been worn out on one side only, they can be turned round and used again. This is possible because both the front side and the rear side of the blades have been provided with a cutting edge.

The blades can be turned or replaced without the use of tools (fig. 6.1-1).



Care must be taken to ensure that the rotor is equally fitted with blades. If cutting tools are missing or have been incorrectly fitted, an imbalance is created which, over time, will lead to the whole machine being damaged.

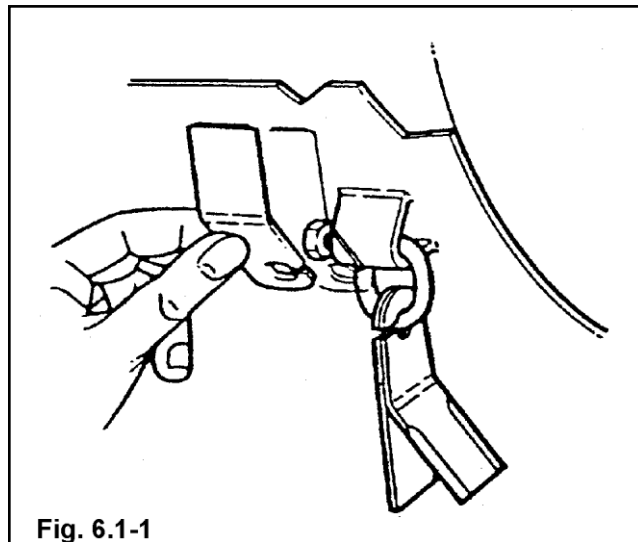


Fig. 6.1-1

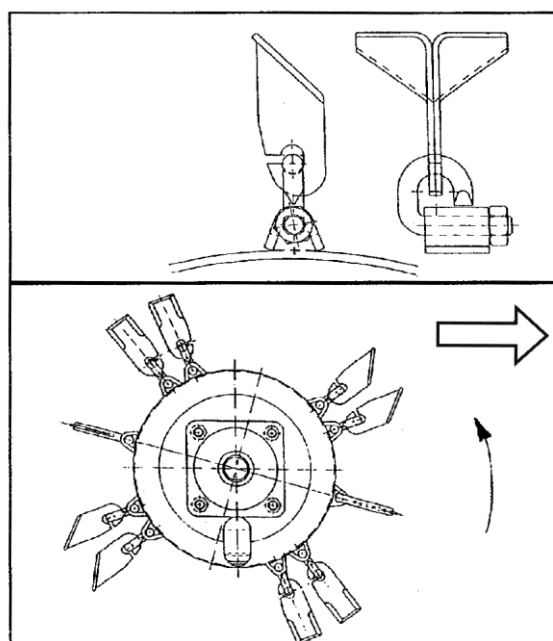



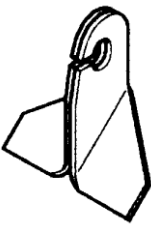
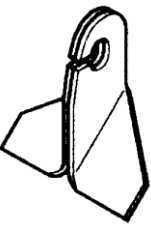
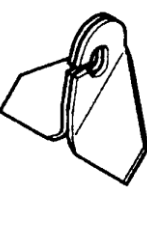


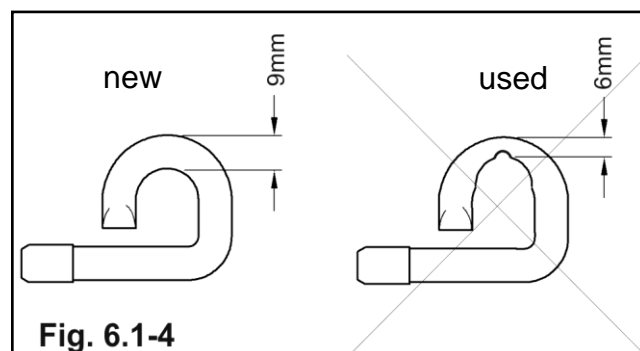
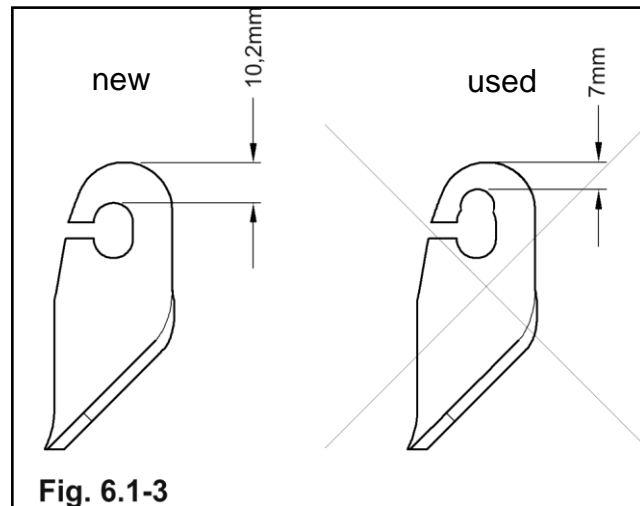
Fig. 6.1-2

						
	50 %	100 %	100 %	50 %	100 %	100 %
	Mowing blade	Scarifying blade (2 mm)	Scarifying blade (3 mm)	Wing blade, long, H77 ground	Wing blade, long, H77 ground sharpened	Wing blade, long, H60 ground
	Piece	Piece	Piece	Pair	Pair	Pair
Working width 1.80 m	100 pcs	100 pcs	100 pcs	50 pairs	100 pairs	100 pairs
Working width 2.10 m	116 pcs	116 pcs	116 pcs	58 pairs	116 pairs	116 pairs

Wear limit of suspended tools:

The blade fasteners and clip bolts must be checked regularly for wear. Heavily worn tools must be promptly replaced.

Figs. 8.1-2 and 8.1-3 show the limits of wear for the mounting brackets.


























CAUTION



The blades and the blade fasteners must be checked before the start of every run.

All screw unions must be firmly tightened.









































The mower unit

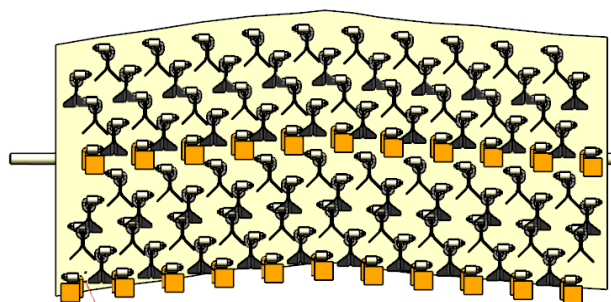
Blade overview					
Blade replacement without tools		100% Cutting blade	50% Cutting blades + 50% Wing cutting blades long H77	100% Wing cutting blades long H77	100% Wing cutting blades extralong H88
Flower residue and environmental sites (biotopes, annual moving, fallow land)	Dry conditions				
	Wet conditions				
Mowing lawns, parks	Dry conditions				
	Wet conditions				
Mowing fairways, lawns and sports fields	Dry conditions				
	Wet conditions				
Fine cutting and grass grooming					
Cleaning of horse paddocks					
Leaf collection	Dry conditions				
	Wet conditions				
Scarifying and collecting in one single pass					
Scarifying fairways, sports fields or turf					

 Very good result  Good result



						
100% Scarfing blade	100% Cutting blades and scarfing blades combined*	50% Cutting blades and scarfing blades combined* + 50% Wing cutting blades long H77 and scarfing blades combined*	100% Wing cutting blade, H60 and scarfing blades combined*	100% Wing cutting blade long H77 and scarfing blades combined *	Scarfing blade for combination*	
					2mm	3mm
						✓
						✓
						✓
						✓
					✓	
					✓	
					✓	
						✓
						✓
						✓
						✓
					✓	

 Very good result  Good result



The figure shows the standard equipment with cutting blades and flail blades H77.



Caution:

When you intend to work on the rotor with the hopper raised, make sure that the rotor is stationary and engage the retaining hook on the container.

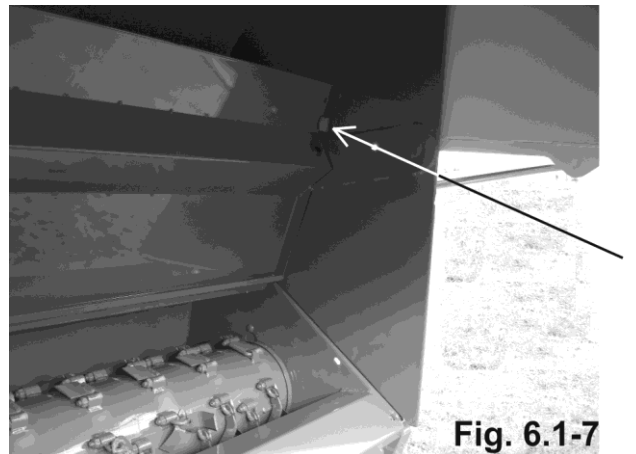
The rotor is accessed in the following manner:

- Attach the machine to a tractor.
- Open container to max. position,
- Turn off the tractor engine.
- Hang in retaining hook (Fig. 6.1-5)

Fig. 6.1-5



- Remove the screws for the intermediate hood (Fig. 6.1-6), fold up and engage with retaining hook (Fig. 6.1-7/1).



6.2 Mowing

The cutting tools described above are used for mowing or scarifying. The working speed depends on the density and wetness of the turf. It must be adjusted to suit the conditions. The maximum PTO shaft speed of 540 rpm must be observed. The hopper must be emptied in good time to ensure tidy collection. If the container is too full, this may cause a blockage in the vertical shaft above the rotor that does not dislodge when the container is emptied.

The hopper is fitted with an indicator that shows whether the container needs to be emptied (Fig. 6.2).

Cuttings can still be collected while the indicator is in the lower position.

When the pointer starts to move, the catch basket should be emptied. If the pointer is in the upper position, the catch basket needs to be emptied.

The sensitivity of the display depends on the type of cuttings.



Fig. 6.2

6.3 Scarifying

Scarifying is usually carried out at the start or end of the vegetation period.

It is possible to clean and aerate turf containing thatch and moss by simultaneously mowing, scarifying and collecting in one operation.

To achieve this, straight scarifying blades are fitted between the pairs of curved mowing blades. If the turf has already been cut short, only the straight scarifying blades are fitted. The combination of mowing and scarifying blades produces the best suction effect. Therefore, a combination of mowing and scarifying blades should be used for wet and difficult conditions.

- **Wide scarifying, blade spacing 51 mm**

In this case, 2 mm or 3mm thick scarifying blades are mounted on the rotor.

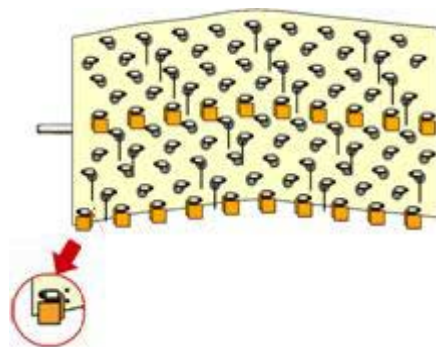


CAUTION

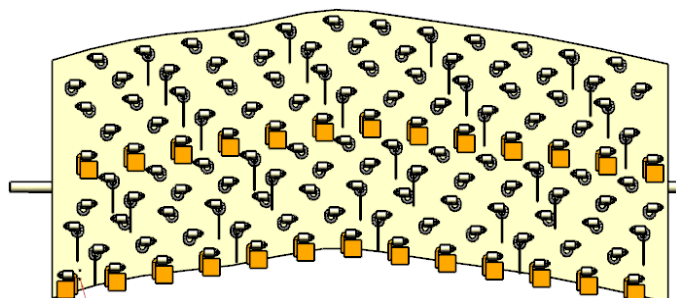
Always mount only one type of scarifying blade on the rotor as otherwise the machine will be out of balance and will be damaged!

This allows the working depth to be increased without engaging too aggressively with the turf.

Marker for row 1

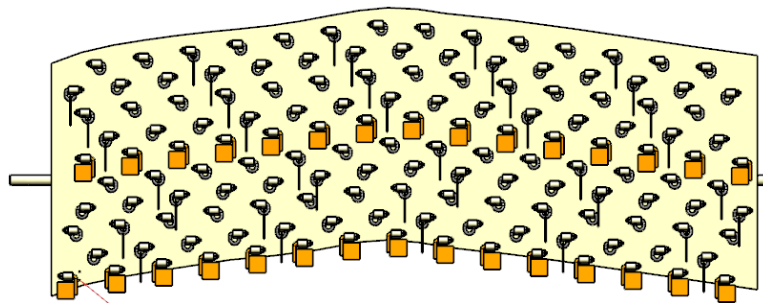


GH 1800





GH 2100



- **Narrow scarifying, blade spacing 17 mm**

Scarifying blades must be attached to all clip bolts on the rotor.

This type of scarifying is relatively aggressive and is suitable for restorative work on heavily thatched turf (moss) in the spring.

CAUTION



1. It must be ensured that the rotor is equipped with one of the above blade arrangements. If cutting tools are missing or have been incorrectly fitted, an imbalance is created which, over time, will lead to the whole machine being damaged.
2. Only one type of scarifying blade may be used! Risk of imbalance.
3. If a high proportion of soil content is produced from scarifying, only fill the hopper to approximately half way as otherwise there is a risk that the tractor and machine frame will be overloaded when driving with a full hopper.
4. By the same token, the tractor must also be driven carefully across uneven terrain when the hopper is full and the machine is raised as otherwise the frame may be damaged due to overloading.
5. When the container is full the machine must always be lowered slowly. There is a risk of damaging the machine if the rear cage roller strikes stones or fixed edges.

6.4 Mulching

If the mowing material is only to be mowed down, pulverised and then deposited immediately, the machine can be driven with the container open. (Fig. 6.4)

The intermediate hood must be closed and screwed tight during this operation.



6.5 Collecting

Because of the strong suction effect produced by the rotor, the machine can also be used for collecting mowed grass or any other material lying loose on the ground. The material is then lifted up by air suction, chopped to smaller pieces by the rotating blades and conveyed through the chute to the hopper.

6.6 Emptying the hopper

The machine is first raised by the tractor's three-point hydraulic system. The hopper is then opened on its rotary axes by the laterally-mounted hydraulic cylinder; the mowing material falls downwards and lands on the ground.



**CAUTION:**

Never unload on a side embankment.

Always drive with great care if the hopper is open.

The opening procedure for the hopper should take at least 8 seconds. This opening speed can be adjusted via the integrated check valve (Fig. 6.6-1 and 6.6-2) mounted on the front next to the angular gear-box.

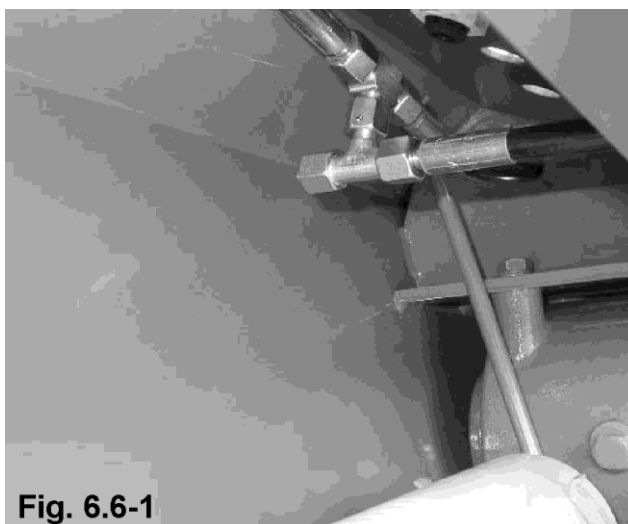


Fig. 6.6-1

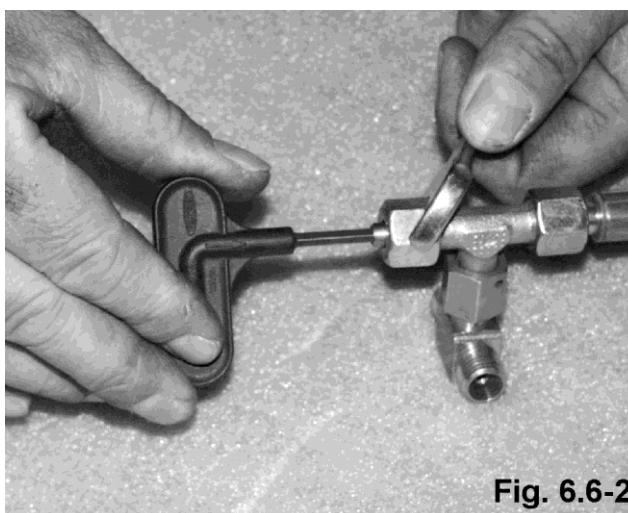


Fig. 6.6-2



7 Adjusting the cutting height

The cutting height of the Groundkeeper / HorseHopper Super can be adjusted via the front guide wheels and rear cage roller.

The height of the guide wheels is adjusted by removing and repositioning the distance sleeves (fig. 7-1). To adjust the wheels, it is necessary to raise the machine using the tractor's hydraulic system. The lynch pins must be removed and the sleeves positioned according to the required working height. Then hook the lynch pin back in and secure.



Fig. 7-1

The height of the rear cage roller is adjusted as follows:

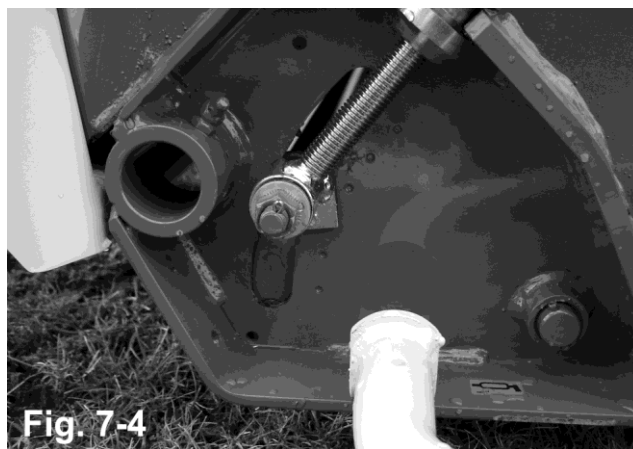
- Raise the machine.
- Loosen the clamping screw (fig. 7-2),



Fig. 7-2

- Select the required working height via the height-adjusting screw (Fig. 7-3)
- Tighten the clamping screw (Fig. 7-2)

Care must be taken to ensure that the cage roller is equally adjusted on both sides. For this purpose, a check scale has been fitted (Fig. 7-4).





7.1 Front roller (option)

A front roller is available as a special accessory for scarifying on uneven terrain. It is fitted into the holders of the front guide wheels (fig. 7.1-1).



Fig. 7.1-1

To adjust the height of the machine it must be raised and the lynch pin and bolt on both sides removed. The roller is then located in the desired position and the bolt secured with the lynch pin. (fig. 7.1-2).



Fig. 7.1-2

8 Cleaning the machine

The machine can, on occasion, become heavily soiled, especially when mowing and scarifying wet grass which is also sometimes interspersed with earth. In such cases, it is recommended to clean the rotor and the hopper intensively with a jet of water.

The rotor and hood can be accessed as follows:

- Open container and secure with hook (Fig. 8-1)
- The cover flap is then opened towards the rotor compartment. The rotor compartment can now be accessed for cleaning (Fig. 8-2)





9 Maintenance and care

The Groundkeeper was designed to be largely maintenance free.
However, the following points must be observed.

9.1 Oil level in the angular gearbox

9.2 Lubricating the implement



IMPORTANT

Never operate the machine if the protective plate is not installed at the drive as this may damage the hydraulic hoses. Use the crank to set the height of the rear cage roller to position 3 when removing the V-belt guard; this makes it easier to remove.

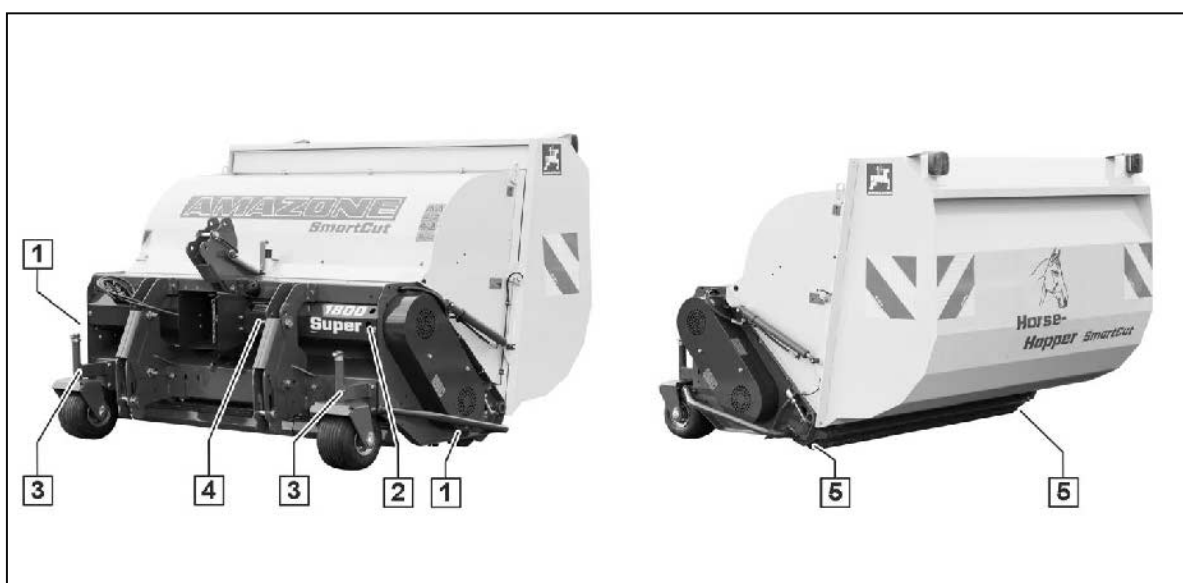


IMPORTANT

Implement damage due to improper lubricating

- Lubricate the implement at the marked lubrication points according to the lubrication schedule.
- Clean the grease nipples and the grease guns carefully to prevent dirt from being pressed into the lubrication points.
- Only lubricate the implement with multi-purpose grease.
- Press the dirty grease completely out of the bearings.

9.2.1 Overview of lubrication points



9.2.2 Lubrication schedule

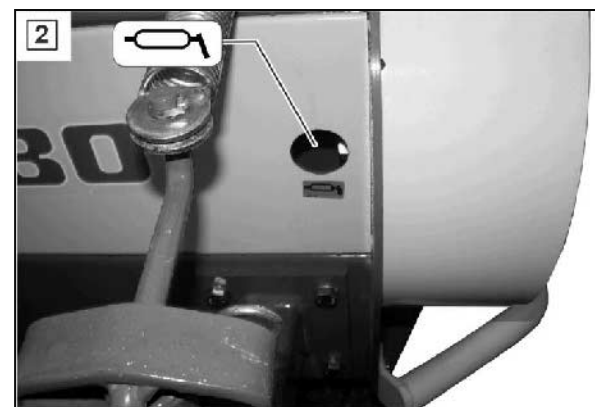
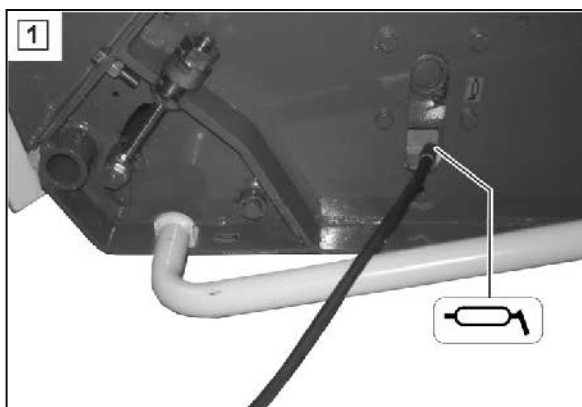
Every 10 operating hours/daily



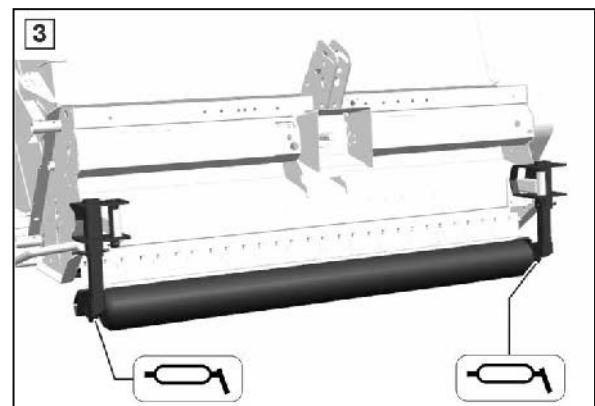
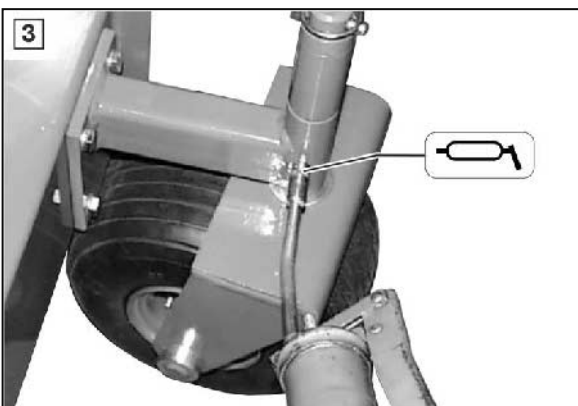
Up to implement number GH00006411

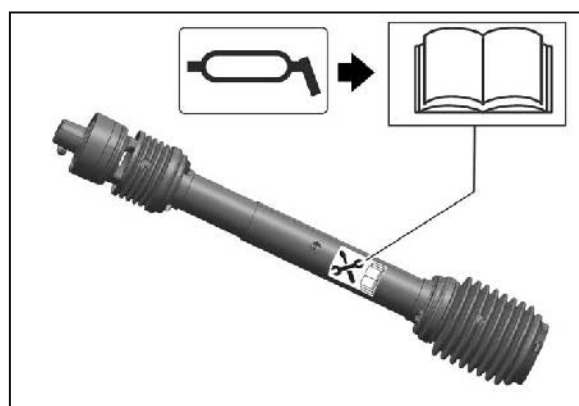
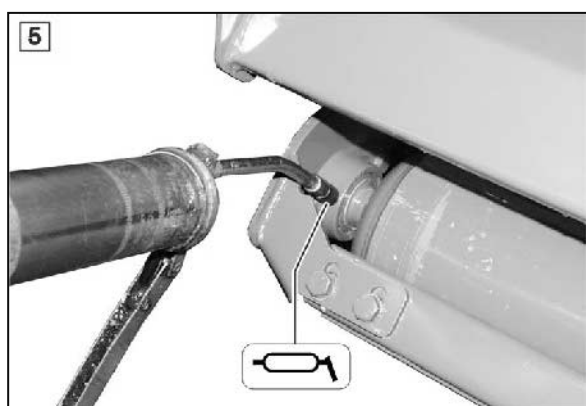
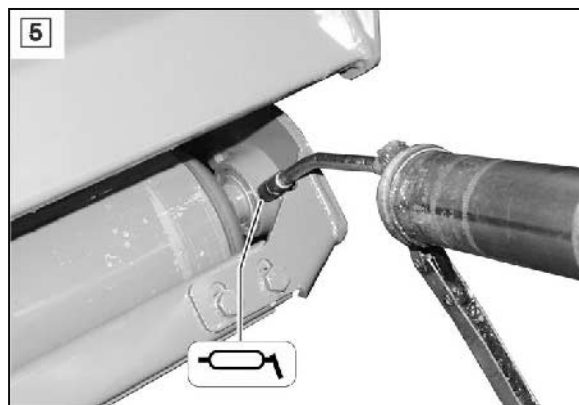
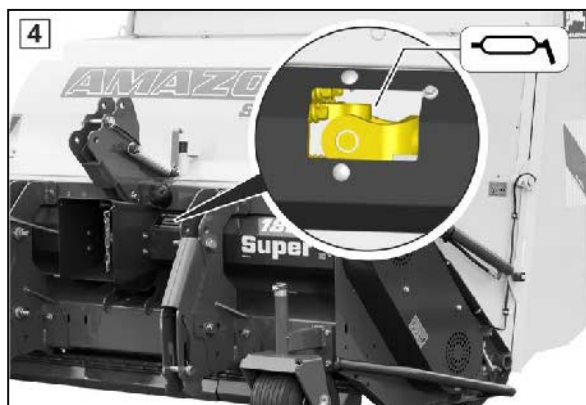


From implement number GH00006412



Every 50 operating hours/weekly





9.3 V-belt drive

Regularly check (every 50 – 75 operating hours) that all drive belts are tensioned correctly and are undamaged.

Replace damaged belts

The service life of the belt depends on the transmission forces of the PTO shaft drive, and type of use.

9.4 Extended periods of downtime

If the machine is not to be used for a long period of time, it is recommended that, before storing, the machine is cleaned and sprayed with a suitable preservative. Before recommissioning, an authorised garage should check that the overload clutch between the angular gearbox and the belt drive is operating correctly.

9.5 Tyre pressure

Front guide wheels: 2 bar



When removing or fitting tyres, the tyres must always be fully deflated (a split tyre wall can fly apart with explosive force during removal).



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