

Operating manual

AMAZONE

Hektor

Trailed reversible plough



MG6213
BAG0186.2 06.20
Printed in Germany

**Read and observe this
operating manual before using
the implement for the first time!
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. Sark.

Identification data

Implement ID No.
Type: Hektor
Permissible system pressure (bar):
Year of manufacture:
Factory:
Basic weight (kg):
Permissible total weight (kg):

Manufacturer's address

AMAZONEN-WERKE
H. DREYER GmbH & Co. KG
Postfach 51
D-49202 Hasbergen, Germany
Tel.: + 49 (0) 5405 50 1-0
E-mail: amazone@amazone.de

Spare part orders

Spare parts lists are freely accessible in the spare parts portal at www.amazone.de.
Please send orders to your AMAZONE dealer.

Formalities of the operating manual

Document number: MG6213

Compilation date: 06.20

© Copyright AMAZONEN-WERKE H. DREYER GmbH & Co. KG, 2020

All rights reserved.

Reprinting, even of sections, only possible with the approval of
AMAZONEN-WERKE H. DREYER GmbH & Co. KG.

This operating manual is valid for all versions of the implement.

All of the equipment is described without indicating it as special optional equipment.

A description may be provided for equipment that is not fitted on the implement or is only available in certain markets. The sales documents provide information on the equipment of your implement or consult your dealer for more detailed information.

All information in this operating manual corresponds to the state of knowledge at the time of publication. Due to ongoing development of the implement, deviations are possible between the implement and the information in this operating manual.

No claims can be made based on differences in the specifications, figures or descriptions.

Figures serve as a reference and are to be understood as representations of the principle.

If you want to sell the implement, ensure that the operating manual is supplied with the implement.

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER GmbH & Co. KG. We thank you for your trust in our products

On receiving the implement, check to see if it has been damaged during transport or if parts are missing. Using the delivery note, check that the implement has been delivered in full, including any special equipment ordered. Damage can only be rectified if problems are claimed immediately.

Before initial operation, read and observe this operating manual, and particularly the safety information. Only after careful reading will you be able to benefit from the full scope of your newly purchased implement.

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

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

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

User evaluation

Dear Reader,

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

AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51

D-49202 Hasbergen, Germany

Tel.: + 49 (0) 5405 50 1-0

E-mail: amazone@amazone.de

1	Implement description	8
1.1	Rating plate	8
1.2	Intended use.....	8
2	General safety instructions	9
2.1	Obligations and liability	9
2.2	Representation of safety symbols	11
2.3	Organisational measures	12
2.4	Safety and protective equipment.....	12
2.5	Informal safety measures	12
2.6	User training	13
2.7	Safety measures in normal operation	14
2.8	Danger from residual energy.....	14
2.9	Maintenance and repair work, fault elimination.....	14
2.10	Design changes.....	14
2.10.1	Spare and wear parts and aids	15
2.11	Cleaning and disposal	15
2.12	User workstation.....	15
2.13	Safety and accident prevention regulations	16
2.14	Warning symbols and other labels on the implement	18
2.14.1	Positions of warning symbols and other labels	19
3	Model overview / Technical data.....	23
4	Preparations on the tractor and plough	24
4.1	Calculating the actual values for the total tractor weight, tractor axle loads and tyre load capacities, as well as the minimum ballast	24
4.1.1	Data required for the calculation	25
4.1.2	Calculation of the required minimum ballasting at the front $G_{V \min}$ of the tractor for assurance of the steering capability.....	26
4.1.3	Calculation of the actual front axle load of the tractor $T_{V \text{ tat}}$	26
4.1.4	Calculation of the actual total weight of the combined tractor and machine.....	26
4.1.5	Calculation of the actual rear axle load of the tractor $T_{H \text{ tat}}$	26
4.1.6	Tyre load capacity	26
4.1.7	Table	27
4.2	Preparations on the tractor.....	28
4.3	Preparation on the plough.....	29
4.4	Traffic safety equipment.....	30
5	Coupling and uncoupling the implement.....	31
5.1	Uncoupling the implement.....	31
5.2	Uncoupling the implement.....	32
5.3	Hydraulic connections	34
5.3.1	Coupling the hydraulic hose lines	35
5.3.2	Uncoupling the hydraulic hose lines.....	35
6	Road transport.....	36
7	Adjusting the plough	38
7.1	Adjusting the cutting width	38
7.2	Front furrow width - rough adjustment to the tractor track width.....	39
7.3	Adjusting the working depth	39
7.4	Adjusting the pitch	40
7.5	Adjusting the track width	41
7.6	Adjusting the disc coulter	41
7.6.1	Disc coulter adjustment for automatic stone release	42

7.7	Fertiliser skimmer.....	43
8	Overload safety	44
8.1	Shear bolt.....	44
8.2	Fully automatic stone release	44
8.2.1	Hydraulic stone release with central pressure setting	46
8.2.2	Hydraulic stone release with decentralised pressure setting	47
9	Use	48
9.1	Rotating the plough.....	48
10	Cleaning, maintenance and repair.....	49
10.1	Lubrication schedule	51
10.2	Cleaning	53
10.3	Maintenance schedule – overview	54
10.4	Depressurise the hydraulic system	55
10.4.1	Setting the oil pressure on the hydraulic accumulator	56
10.5	Checking the condition of the shares and wear parts	57
10.6	Checking the shear bolts	57
10.7	Checking the support wheel.....	58
10.7.1	Changing the support wheel	58
10.7.2	Check bearing clearance on wheel hubs	59
10.8	Storage / overwintering	59
10.9	Hydraulic system.....	60
10.9.1	Labelling of hydraulic hose lines	61
10.9.2	Maintenance intervals	62
10.9.3	Inspection criteria for hydraulic hose lines	62
10.9.4	Installation and removal of hydraulic hose lines	63
10.9.5	Installation of hose valve chests with O-ring and union nut.....	63
10.10	Bolt tightening torques	64
11	Malfunctions and their correction	65
12	Hydraulic diagram.....	66

1 Implement description

1.1 Rating plate

The rating plate specifies:

- Vehicle- / machine ID no.:
- Type
- Basic weight kg
- Perm. drawbar load kg
- Perm. Rear axle load kg
- Perm. system pressure bar
- Perm. total weight kg
- Factory
- Model year

AMAZONE			
Amazonen-Werke H. Dreyer GmbH & Co. KG Am Amazonenwerk 9-13 D-49205 Hasbergen			
Fahrz.-/Masch.-Ident-Nr.	<input type="text"/>		
Typ	<input type="text"/>		
Grundgewicht kg	<input type="text"/>	zul. Gesamtgewicht kg	<input type="text"/>
zul. Stützlast kg	<input type="text"/>	Werk	<input type="text"/>
zul. Achslast hinten kg	<input type="text"/>	Modelljahr	<input type="text"/>
zul. Systemdruck bar	<input type="text"/>		

	Baujahr année de fabrication year of construction Год изготовления	<input type="text"/>	
---	---	----------------------	---

1.2 Intended use

The implement has been designed only for conventional use in agricultural work (intended use).

The implement may only be used when it is in perfect technical condition, while keeping safety and potential dangers in mind and observing the operating manual.

"Intended use" also covers:

- Compliance with all the instructions in this operating manual.
- Execution of inspection and maintenance work.
- Exclusive use of genuine AMAZONE spare parts.

Other uses to those specified above are forbidden and shall be considered as improper.

For any damage resulting from improper use

- the operator bears the sole responsibility,
- AMAZONEN-WERKE accepts no liability.



WARNING

It is dangerous to ride on the plough and is considered improper use.

You risk extremely serious injuries and even death.

2 General safety instructions

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

2.1 Obligations and liability

Comply with the instructions in the operating manual

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

Obligations of the operator

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

- are aware of the basic workplace safety information and accident prevention regulations.
- Have been introduced to working with/on the implement.
- have read and understood this operating manual.

The operator is obliged

- to keep all the warning symbols on the implement in a legible state.
- to replace damaged warning symbols.

Obligations of the user

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

- to comply with the basic workplace safety instructions and accident prevention regulations.
- To read and observe the section "General safety information" of this operating manual.
- To read the section "Warning symbols and other labels on the implement" (page 18) of this operating manual and to follow the safety instructions represented by the warning symbols when operating the implement.
- to get to know the implement.
- to read the sections of this operating manual, important for carrying out your work.

If the user discovers that a function is not working properly, then they must eliminate this fault immediately. If this is not the task of the user or if the user does not possess the appropriate technical knowledge, then they should report this fault to their superior (operator).

General safety instructions

Risks in handling the implement

The implement has been constructed to the state-of-the art and the recognised rules of safety. However, operating the implement may cause risks and restrictions

- the health and safety of the user or third parties,
- the implement,
- other property.

Only use the implement

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

Eliminate any faults immediately which could impair safety.

Guarantee and liability

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

- Improper use of the implement.
- Improper installation, commissioning, operation and maintenance of the implement.
- Operation of the implement with defective safety equipment or improperly attached or non-functioning safety equipment.
- Non-compliance with the instructions in the operating manual regarding commissioning, operation and maintenance.
- Unauthorised design changes to the implement.
- Insufficient monitoring of implement parts which are subject to wear.
- Improperly executed repairs.
- Disasters due to the effects of foreign objects and force majeure.

2.2 Representation of safety symbols

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



DANGER

Indicates a direct threat at high risk which can result in death or most serious bodily harm (loss of limbs or long-term harm), should it not be prevented.

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



WARNING

Indicates a medium risk, which could result in death or (serious) physical injury if not avoided.

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



CAUTION

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



IMPORTANT

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

Non-compliance with these instructions can cause faults on the implement or disturbance to the environment.



NOTE

Indicates handling tips and particularly useful information.

These instructions will help you to use all the functions of your implement in the best way possible.

2.3 Organisational measures

The operator must provide the necessary personal protective equipment as per the information provided by the manufacturer of the crop protection agent to be used, such as:

- Protective goggles,
- Safety shoes,
- Protective overall,
- Skin protection agents etc.



The operation manual

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

Check all the available safety equipment regularly.

2.4 Safety and protective equipment

Before starting up the implement each time, all the safety and protection equipment must be properly attached and fully functional. Check all safety and protection equipment regularly.

Faulty safety equipment

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

2.5 Informal safety measures

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

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

2.6 User training

Only trained and instructed persons should be allowed to work with/on the implement. The responsibilities of the operating and maintenance personnel must be clearly defined.

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

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

Key: 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⁾ Persons with specialised technical training shall be considered as a specialist. Due to their specialist training and their knowledge of the appropriate regulations, they can evaluate the work with which they have been charged and detect possible dangers.

Comment:

A qualification equivalent to specialist training can be obtained from several years' experience in the relevant field.



If maintenance and repair work on the implement is additionally marked "Workshop work", only a specialist workshop may carry out such 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 implement in a way which is both appropriate and safe.

2.7 Safety measures in normal operation

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

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

2.8 Danger from residual energy

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

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

2.9 Maintenance and repair work, fault elimination

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

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

Carefully fix and secure larger assembly groups 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 Design changes

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

Any expansion or conversion work shall require the written approval of AMAZONEN-WERKE. Only use modification and accessory parts approved by AMAZONEN-WERKE so that the type approval, for example, remains valid in accordance with national and international regulations.

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

**WARNING**

Risk of crushing, cutting, being trapped or drawn in, or impact through the failure of support parts.

It is strictly forbidden to

- drill holes in the frame or on the running gear.
- increase the size of existing holes on the frame or the running gear.
- weld on load-bearing parts.

2.10.1 Spare and wear parts and aids

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

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

AMAZONEN-WERKE shall accept no liability for damage caused by the use of non-approved spare and wear parts or aids.

2.11 Cleaning and disposal

Handle and dispose of any materials used carefully, in particular

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

2.12 User workstation

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



2.13 Safety and accident prevention regulations

1. Operators shall wear close-fitting clothing. Solid footwear must be worn.
2. Special care is to be taken when handling any sharp and pointed tools and components - Risk of injury!
3. Before initial operation, please familiarize yourself with all equipment and operating elements as well as their function - both on the tractor and on the plough!
It is too late to do this during working operation.
4. Use only stipulated parts for mounting the plough!
5. The mounting category (pin diameter, ball diameter) for three-point linkage must be compatible for tractor and plough!
6. Special care must be taken when mounting or dismounting the implement onto or from the tractor!
7. Prior to connecting and disconnecting implement to the three-point suspension, place operating equipment in such a position as to prevent unintentional lifting or lowering!
8. When actuating the external controls for three-point linkage, do not step between tractor and plough!
9. When working between the tractor and the implement, ensure that the vehicle is secured by the parking brake and/or wheel chocks to prevent it from rolling away!
10. Before starting vehicle, check its road and operating safety!
11. Stickers concerning safety warnings must be kept clean and legible! If damaged, they must be replaced.
12. Couple the implement according to the instructions. Handling, steering and braking are all influenced by implement, and ballast weight. For this reason, always ensure sufficient steering and braking capacity!
13. The respective road traffic regulations must be observed at all times when using public roads.
14. When implement is in transport position, always ensure that there is sufficient lateral locking of the tractor's three-point linkage!
15. Packer arms must be swivelled in and locked before road transport!
16. Observe the authorised axle loads, drawbar loads and total weights!
17. Check surrounding vicinity (children!) before driving off!
18. When driving in curves, take account of the wide sweep and/or centrifugal mass of the implement!
19. Do not leave the driver's platform while tractor is in motion!
20. Riding on the implement during work or road transport is not permissible.
21. Before leaving the tractor, lower the implement to the ground, switch off the engine, and remove the ignition key!
22. Before each transport journey, check the implement for any damage, material fatigue, as well as for safe functioning of relevant safety parts for road transport.

23. If using subsoilers, the subsoiler(s) must be dismantled on the release side and removed to ensure the stability of the plough.
24. Make sure that no people or animals are within the working and swivelling range of the plough. The implement operator is responsible for people and animals in work area.
25. All hydraulically controlled folding parts have shear and crush zones!
26. The implement must only be parked on level, firm, and horizontal ground.
RISK OF OVERTURNING!
27. The turning cylinder of implements with single-acting turning cylinder must be hydraulically locked using stop tap.
28. Put the stand supports in the correct position and fasten securely when mounting or dismantling the plough!
29. Maintenance, repair, and adjustment work shall only be carried out when the implement has been lowered to the ground.
30. For spare parts or accessories, use only original parts! Do not make any "independent" changes to the implement.
31. When carrying out electrical welding work on the tractor and mounted implement, disconnect the cable on the generator (alternator) and battery!
32. The hydraulic system is under pressure!
33. When connecting the hydraulic hoses to the tractor's hydraulic system, ensure that the hydraulics are depressurised on both the tractor side and the implement side!
34. Label coupling sleeves and plugs to exclude operating errors! When the connections are inverted, the inverse function is performed (e.g. lifting / lowering)
Risk of accident!
35. Check hydraulic hose lines regularly and replace if damaged or worn! The replacement lines must comply with the technical requirements of the implement manufacturer!
36. Fluids (hydraulic oil) escaping under high pressure can penetrate the skin and cause serious injuries! In the event of injury, seek medical advice immediately. Risk of infection!
37. Lower the implement on the ground before working on the hydraulic system. Depressurise system and switch off engine.
38. Check the nuts and bolts regularly for tight fit and retighten if necessary!
39. For maintenance work - e.g.: the replacement of wearing parts – that is performed when the implement is raised, always secure with suitable support mechanisms!
40. Replacement parts must at least meet the technical requirements stipulated by the implement manufacturer! This is guaranteed by using original replacement parts.

2.14 Warning symbols and other labels on the implement



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 pictograms indicate danger areas on the implement and warn of residual dangers. Permanent or unexpected dangers exist in these areas.

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

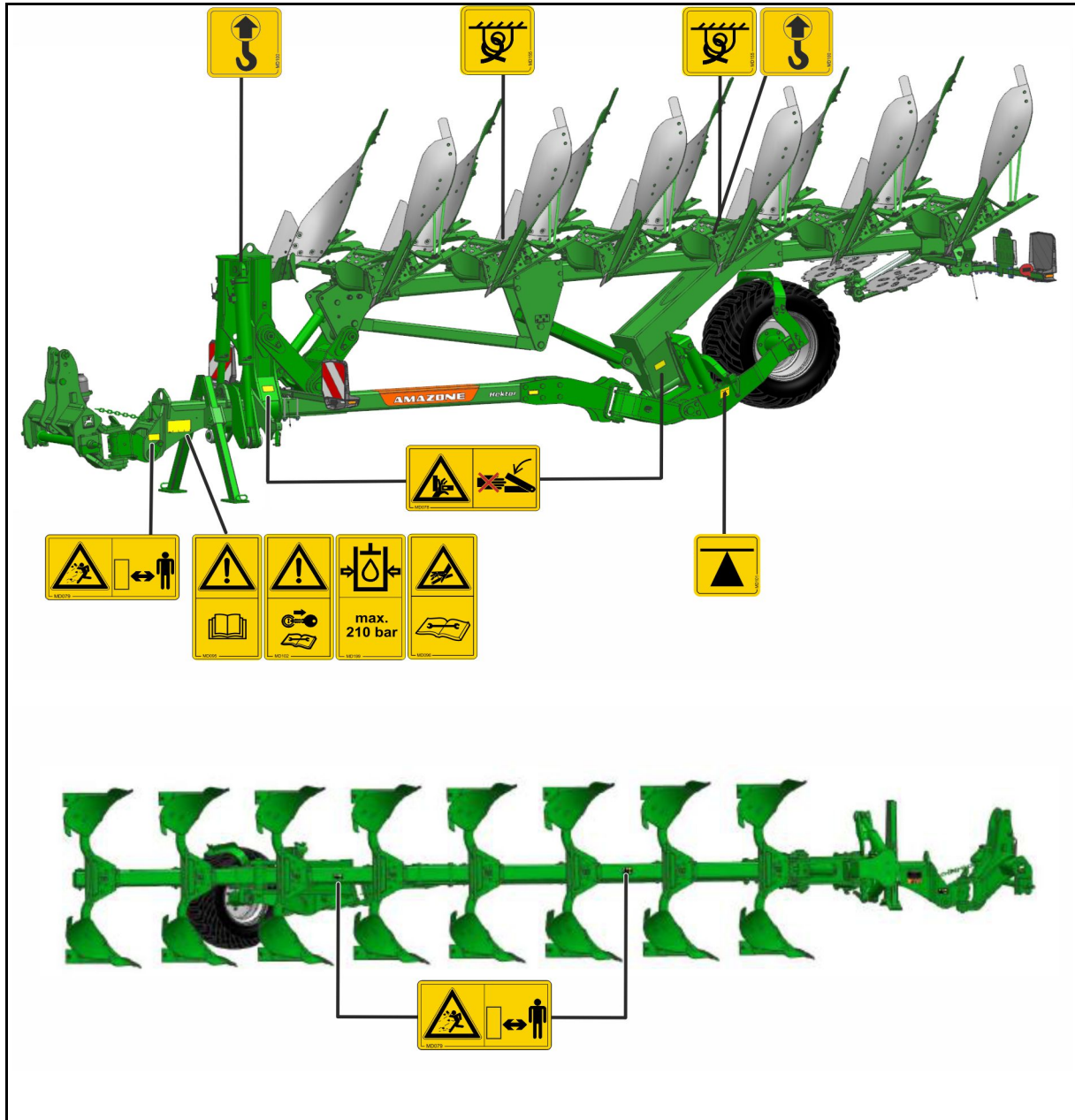
The column **Order number and explanation** provides an explanation of the neighbouring warning symbol. The description of the warning symbols is always the same and specifies, in the following order:

1. A description of the danger.
For example: risk of cutting
2. The consequence of non-compliance with the risk avoidance instructions.
For example: causes serious injuries to fingers or hands.
3. The risk avoidance instructions.
For example: only touch implement parts when they have come to a complete standstill.

2.14.1 Positions of warning symbols and other labels

Warning symbols

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



General safety instructions

Order number and explanation

Warning symbols

MD 078

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

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

Never reach into the hazardous area while the engine of the tractor with connected universal joint shaft/hydraulics/electronic system is running.

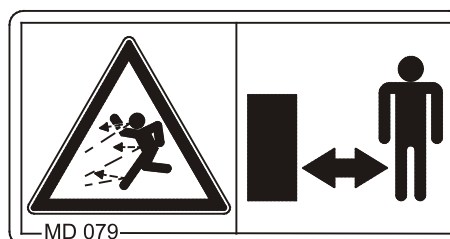


MD 079

Risk of materials or foreign objects being flung away by or out of the implement!

These dangers can cause extremely serious and potentially fatal injuries.

- Keep a sufficient safety distance from the implement as long as the tractor engine is running.
- Ensure that all other persons also keep a sufficient safety distance from the danger area of the implement as long as the tractor engine is running.



MD 095

Before commissioning the implement read and observe the operating manual and the safety instructions carefully!

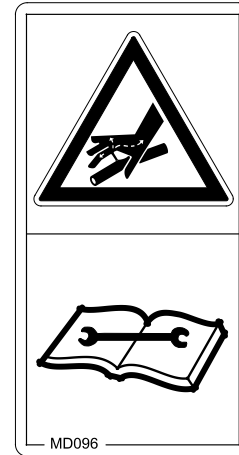


MD 096

Danger from escaping high-pressure hydraulic fluid due to leaking hydraulic hose lines.

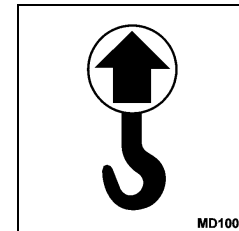
This danger may cause serious injuries, perhaps even resulting in death, if escaping high-pressure hydraulic fluid passes through the skin and into the body.

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



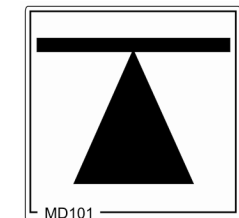
MD 100

This symbol indicates attachment points for lifting gear for loading the implement.



MD101

This symbol indicates application points for using lifting gear (jack).

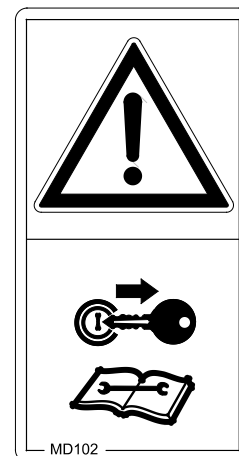


MD 102

Dangerous situations for the operator due to unintentional starting / rolling of the implement during all work on the implement, e.g. installation, adjustment, troubleshooting, cleaning or maintenance.

The potential dangers can inflict severe and potentially fatal injuries on all parts of the body.

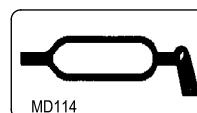
- Secure the tractor and the implement against unintentional start-up and rolling before any intervention in the implement.
- Depending on the type of intervention, read and understand the information in the relevant sections of this operating manual.



General safety instructions

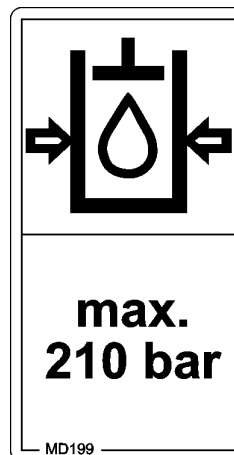
MD 114

This pictogram indicates a lubrication point.



MD 199

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



3 Model overview / Technical data

Type	Number of shares	Interbody clearance	Underbeam clearance	Weight
Stone release: Shear pin (double-cut shear bolt):				
Hektor 5+1-1000	6 furrows	100 cm	82 cm	3,090 kg
Hektor 6-1000	6 furrows			3,070 kg
Hektor 6+1-1000	7 furrows			3,360 kg
Hektor 7-1000	7 furrows			3,340 kg
Hektor 7+1-1000	8 furrows			3,630 kg
Hektor 8-1000	8 furrows			3,610 kg
Stone release: NON STOP hydraulic (compact accumulator):				
Hektor 5+1-1000 S	6 furrows	100 cm	82 cm / 78 cm	3,500 kg
Hektor 6-1000 S	6 furrows			3,480 kg
Hektor 6+1-1000 S	7 furrows			3,830 kg
Hektor 7-1000 S	7 furrows			3,810 kg
Optional equipment				
Plough body	WY400 / WL430 / WXH400 / WXL430 / WX400 / WX400 PE UN400 / UN430 / slatted body WST430			
Share systems	<ul style="list-style-type: none">RH share 430 - (NOT for WXH400 body)Share system with exchangeable tip 430M			
Lower link axle	Cat. 3 / 4N			
Working width adjustment	for each body 38-42-46-50 cm, mechanically adjustable			

4 Preparations on the tractor and plough

4.1 Calculating the actual values for the total tractor weight, tractor axle loads and tyre load capacities, as well as the minimum ballast



The permissible total tractor weight, specified in the vehicle documentation, must be greater than the sum of the

- Tractor empty weight,
- Ballast weight and
- Total weight of the connected machine or drawbar load of the connected machine



This information is only valid for the Federal Republic of Germany:

If, having tried all possible alternatives, it is not possible to comply with the axle loads and / or the permissible total weight, then a survey by an officially-recognised motor vehicle traffic expert can, with the approval of the tractor manufacturer, be used as a basis for the authority responsible 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.

4.1.1 Data required for the calculation

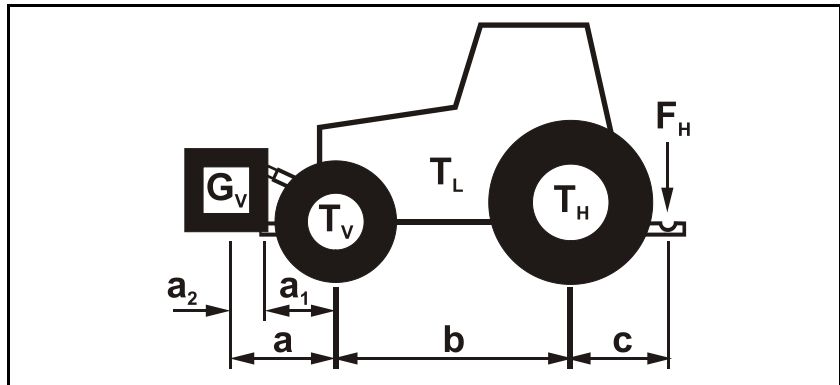


Fig. 1

T_L	[kg]	Tractor empty weight	See tractor operating manual or vehicle documentation
T_V	[kg]	Front axle load of the empty tractor	
T_H	[kg]	Rear axle load of the empty tractor	
G_V	[kg]	Front weight (if available)	See front weight in technical data, or weigh
F_H	[kg]	Maximum drawbar load	See technical data of machine
a	[m]	Distance between the centre of gravity of the front machine mounting or the front ballast and the centre of the front axle (total $a_1 + a_2$)	See technical data of tractor and front machine mounting or front ballast 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 ballast (centre of gravity distance)	See technical data of front machine mounting or front ballast 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

4.1.2 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 4.1.7).

4.1.3 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 4.1.7).

4.1.4 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 4.1.7).

4.1.5 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 4.1.7).

4.1.6 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 4.1.7).

4.1.7 Table

	Actual value according to calculation	Permissible value according to tractor operating manual	Double the permissible load capacity (two tyres)
Minimum ballast front / rear	<div style="border: 1px solid black; padding: 10px; text-align: center;">/ kg</div>	--	--
Total weight	<div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>	--
Front axle load	<div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>
Rear axle load	<div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>	≤ <div style="border: 1px solid black; padding: 10px; text-align: center;">kg</div>



- You can find the permissible 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 crushing, cutting, being caught or drawn in, or impact 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 permissible value.
- there is no front ballast (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 ($G_{V \min}$).

4.2 Preparations on the tractor



- Familiarize yourself with all functions on the tractor!
- Read the operating manual of the tractor manufacturer!



Tyres:

Tyre pressure, especially that of the tractor's rear wheels, must be identical.

Ballast weights:

Ensure adequate front ballasting of your tractor. The weight of the plough on the rear lifting gear of the tractor relieves the load on the front axle and can impair the steering and braking behaviour.

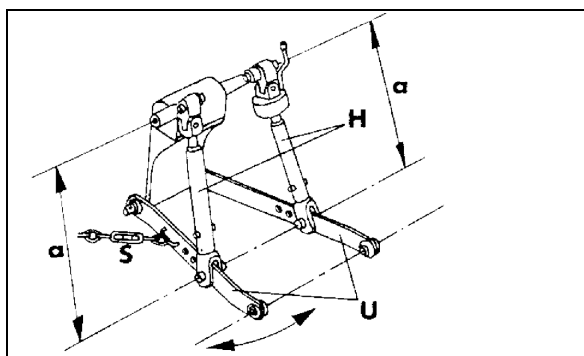
Moreover, the pulling force transfer (slippage) is improved with four-wheel drive tractors.

Lifting rods:

The lifting rods **H** must be set to the same length left and right. If the lifting rods **H** can be set on the lower links **U**, then they should be set as far back as possible. This relieves the load on the tractor's hydraulic system.

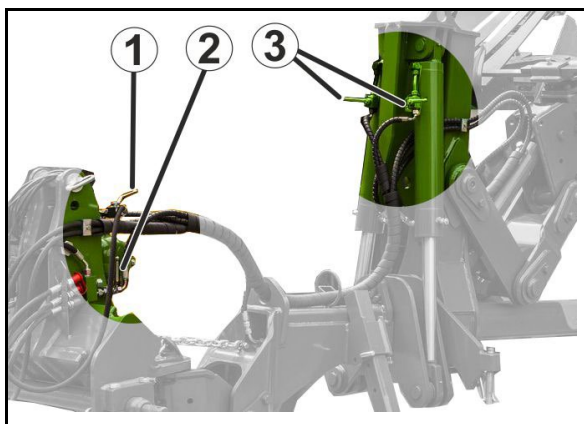
Lateral stabilisation of the lower links:

Completely lock the lower link **U** in its lateral movement.



This setting also applies for ploughing and transport.

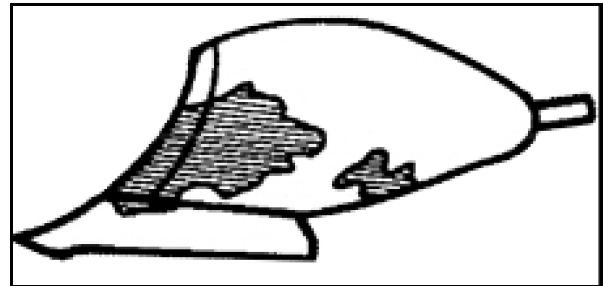
- (1) Running gear stop tap
- (2) Stop tap for track adjustment
- (3) Stop tap for turning



4.3 Preparation on the plough

Before initial operation

Strip the protective varnish from the shares and mouldboards.



After the first 2 operating hours

Retighten all of the bolts.



After a short period of operation, the bolted connections lose preload force and can become loose. This is why it is particularly important to retighten the bolts after 2 hours of operation!

Every 50 operational hours

Retighten all of the bolts.

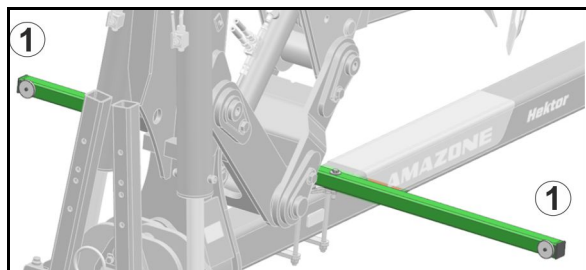


All lubrication points (see lubrication schedule) are to be lubricated regularly every 10 operating hours.

4.4 Traffic safety equipment

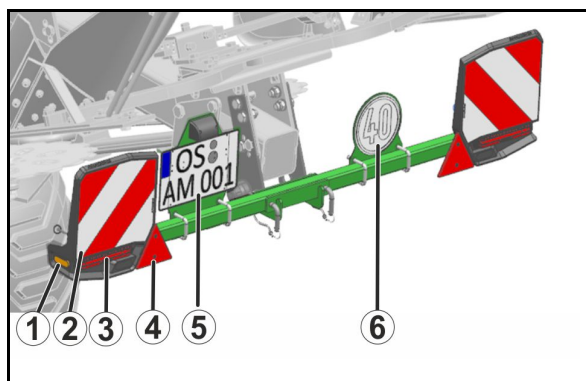
Front lighting:

- (1) Reflector, white



Rear lighting:

- (1) Reflector, yellow
- (2) Warning signs
- (3) Brake light and direction indicator
- (4) Reflector (triangular)
- (5) Number plate holder with lighting
- (6) Maximum permitted transport speed (km/h)



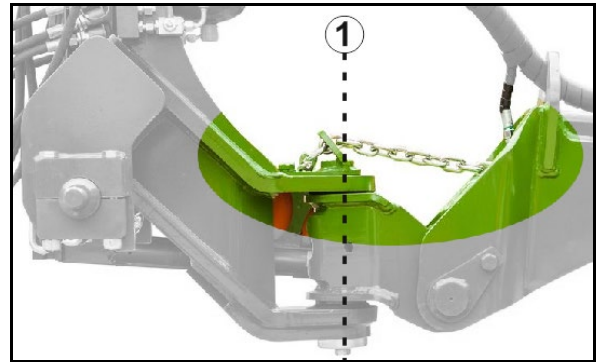
5 Coupling and uncoupling the implement



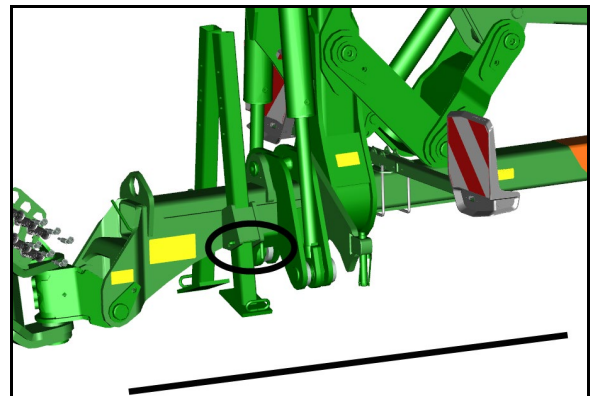
- When mounting or dismounting the plough on the tractor and when operating the lifting gear, ensure that there is nobody standing between plough and tractor
- There must be nobody standing between the tractor and implement unless the tractor is secured by the parking brake and/or wheel chocks to prevent it from rolling away. Switch off engine, remove ignition key.
- There is a risk of tipping when the plough is being dismantled. It is therefore essential that the implement be secured with stand supports.
- The plough must only be mounted and dismantled on firm, level ground

5.1 Uncoupling the implement

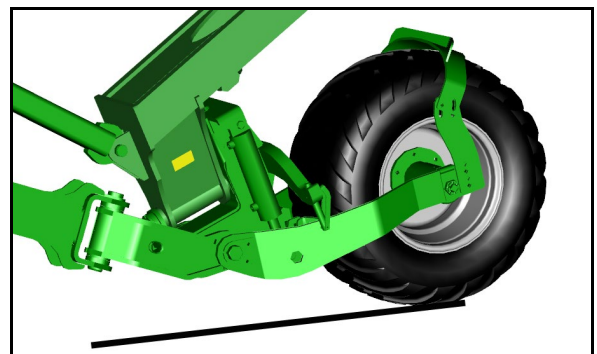
1. Couple the lower link and slightly lift the 3-point frame.
2. Release the chain from the 3-point frame
3. Lower the 3-point frame until the top link is flush with the upper coupling point.
4. Couple and lock the top link.
5. Adjust the length of the top link so that the axle (1) is positioned vertically.
6. Couple the supply lines.



7. Raise both jacks and lock them.



8. Raise the implement using the running gear.



5.2 Uncoupling the implement

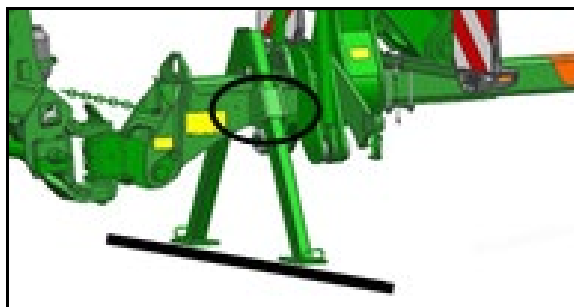


Put down the plough on solid level ground.

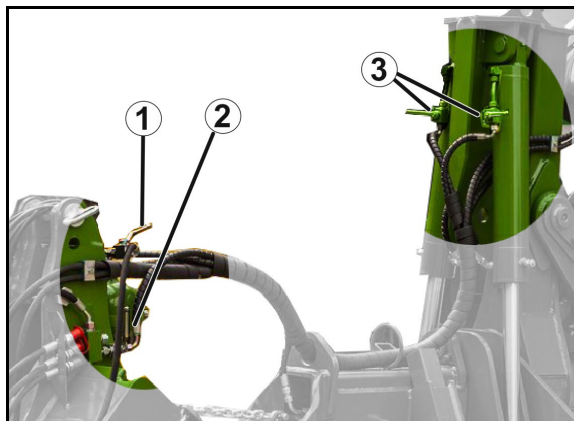
1. Block the ball valves on the turning cylinder.
2. Close the stop taps for the track adjustment.
3. Move both jacks into parking position, peg with pins and secure with spring cotter pins.
4. Lower the implement and thus relieve the running gear wheel.



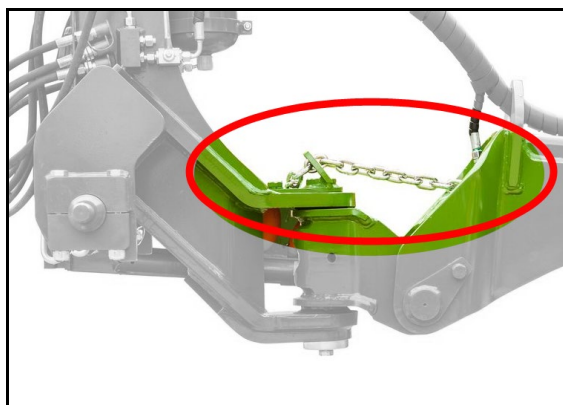
5. Put down the implement from transport position onto the two jacks.

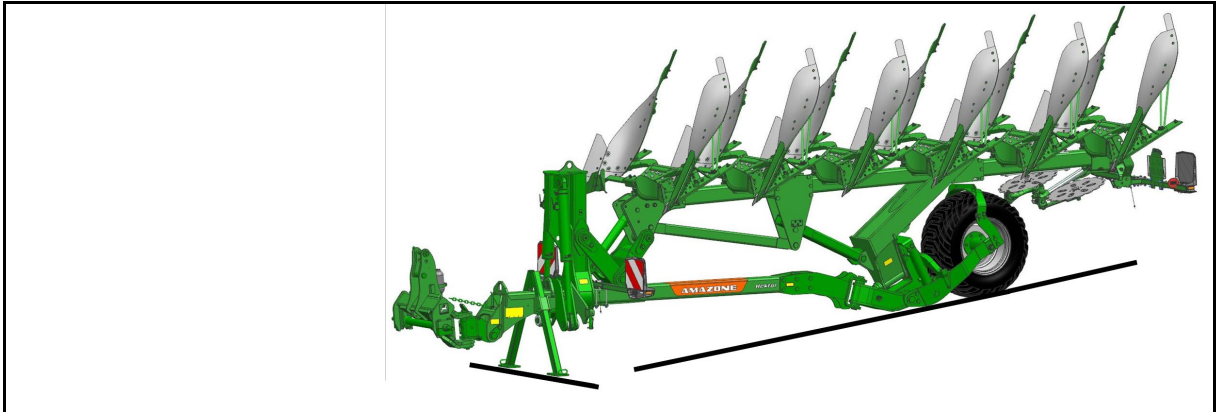


6. Close the stop tap for the lifting hydraulic system (1)
7. Lower the 3-point frame until the top link is relieved.
8. Uncouple the top link.
9. Slightly raise the 3-point frame with the tractor lower link.



10. Secure the 3-point frame with the chain.
11. Uncouple the supply lines.
12. Uncouple the lower link.

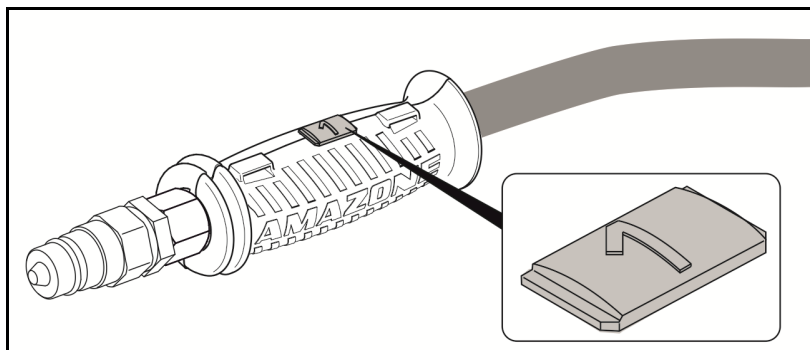




5.3 Hydraulic connections




- 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	

Labelling		Function			Tractor control unit	
Yellow		 (optional)	Front furrow width	bigger	Double acting	
				smaller		
Green			Working direction	Right and left	Double acting	
						
Blue			Running gear		Single-acting	
Beige		 (Option)	Pre-tensioning of the stone release		Single-acting	

**WARNING****Danger of infection from escaping hydraulic fluid at high pressure!**

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

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

5.3.1 Coupling the hydraulic hose lines**WARNING****Danger from incorrect hydraulic functions if the hydraulic hose lines are connected incorrectly!**

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



- Observe the maximum admissible working pressure of 210 bar.
- Check the compatibility of the hydraulic fluids before connecting the implement to the hydraulic system of your tractor.
- Do not mix mineral oils with bio-oils..
- Push the hydraulic connector(s) into the hydraulic sockets until you feel them lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.
- Coupled hydraulic hose lines
 - must give without tension, bending or rubbing on all movements when travelling round corners.
 - must not chafe against other parts.

1. Swivel the actuation lever on the control unit on the tractor to float position (neutral position).
2. Clean the hydraulic connector of the hydraulic hose lines before you connect them to the tractor.
3. Connect the hydraulic hoses to the tractor control units.

5.3.2 Uncoupling the hydraulic hose lines

1. Swivel the actuation lever on the control unit on the tractor to float position (neutral position).
2. Release the hydraulic connectors from the hydraulic sockets.
3. Protect the hydraulic sockets from soiling by fitting the dust caps.
4. Hook the hydraulic connectors into the connector holders.

6 Road transport

Before each transport journey, check the implement for:

- Damage
- Material fatigue
- Functional reliability of safety-related components for road transport
- Traffic and operational safety



WARNING

When actuating the external controls for 3-point frame, do not step between tractor and implement!

There is a high risk of injury!



DANGER

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



A speed of 25 km/h may not be exceeded!

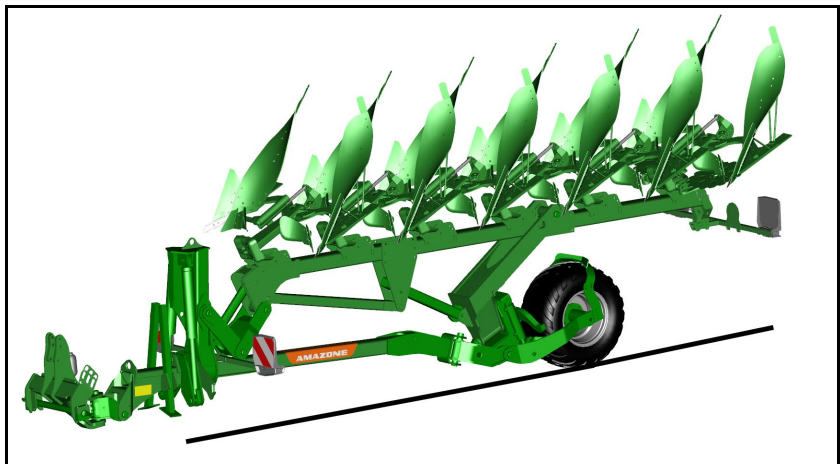


Driving in curves forbidden!

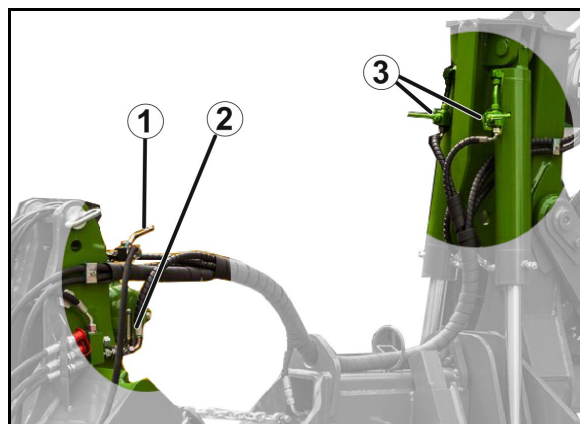
It is forbidden to drive in curves during field operation due to overstraining of the implement!

- With 3-point mounting, matching of the pin diameters on the tractor and the plough is essential.
- Prior to connecting and disconnecting the implement to the three-point suspension, place operating equipment in such a position as to prevent unintentional lifting or lowering!
- Attach the plough only with the original attachment parts.
- When implement is in transport position, always ensure that there is sufficient lateral locking of the tractor's three-point linkage!
- There must be nobody standing between the tractor and implement unless both are secured by the parking brake and/or wheel chocks to prevent them from rolling away!
- Handling, steering, and braking capacity are affected by the implement and ballast weights. Always ensure sufficient steering and braking capacity!
- When driving in curves, ensure that there is enough space between the tractor and the implement!
- Observe the permitted transport dimensions according to traffic regulations!

- Observe the permitted axle and drawbar loads as well as the total weights!
- When driving in curves, take account of the wide sweep and the centrifugal mass as well as the high centre of gravity of the implement!
- Never leave the driver's platform while the tractor is in motion!
- Riding on the implement during work or road transport is not permitted.
- The road traffic regulations must be observed at all times when using public roads!



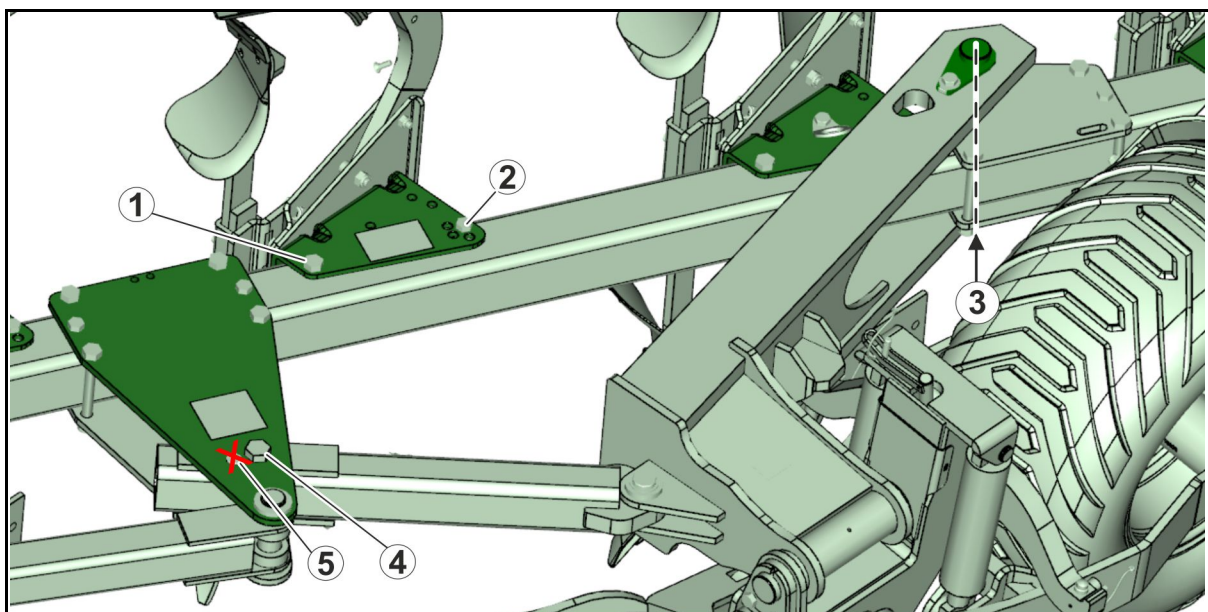
1. Lift the implement completely using the running gear and then lower again a bit. Pay attention to sufficient ground clearance.
- This activates the shock absorber.
2. Close the stop taps.
- (1) Running gear hydraulic system
 - (2) Hydraulic front furrow adjustment
 - (3) Hydraulic turnover system



i Raise the implement to mid-height using the running gear.

7 Adjusting the plough

7.1 Adjusting the cutting width



Each element must be manually adjusted to the new cutting width.

1. Move the plough into working position. The shares should not be resting on the ground.
2. Loosen the bolt (1).
3. Take out the adjusting screw and turn the element to the desired position (cutting width).
4. Put the bolt back in and tighten it.
5. Retighten the large bolt (see top image)
6. Repeat the procedure for all of the elements.
7. Loosen the bolt (3).
8. Remove the bolt (4) and set the plough beam carrier to the desired cutting width.
9. Retighten the bolts (3) and (4).



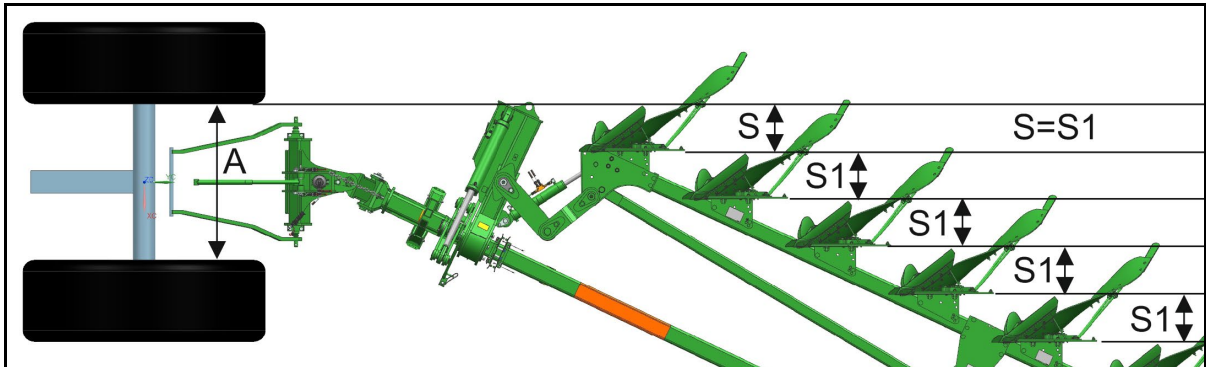
Do not use screw hole (5)!

Any adjustments to cutting width is automatically passed on to leading tools such as the fertiliser skimmers, disc coulter, and support wheels (if present) and fit exactly to the new cutting width.

No further adjustments whatsoever are required.

7.2 Front furrow width - rough adjustment to the tractor track width

Depending on the different clear spans of the tractor wheels **A** and the set cutting width **S**, the plough is first roughly adjusted using the rocker arm guide.



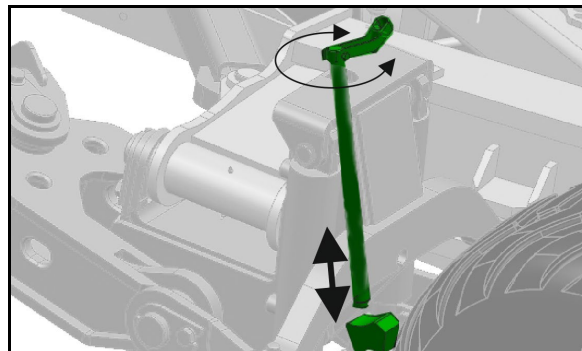
1. Lower the plough so that it is standing straight.
2. Adjust the front furrow width hydraulically according to the cutting width.
3. Plough the first furrow.
4. Turn at the end of the field and rotate the plough.
5. Drive with the tractor wheels in the furrow. The tractor is now standing on a slant and you must check the working depth and the pitch.
6. If the adjustments are correct, adjust the front furrow width if necessary.

7.3 Adjusting the working depth

Adjust the working depth using

- the tractor's lower link hydraulic system
- the stop spindle on the running gear

Secure the position of the stop spindle using a spring cotter pin.



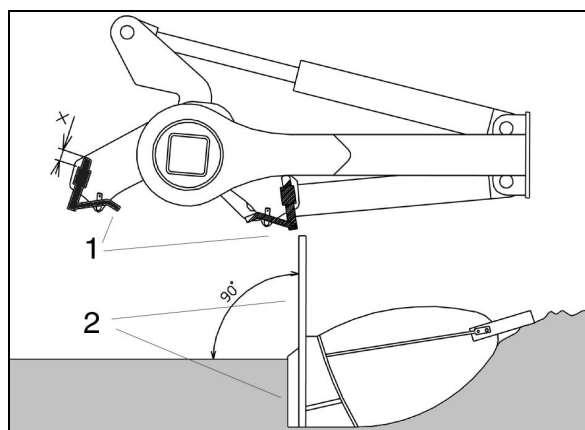
Adjust the depth so that the plough is horizontal during operation.

7.4 Adjusting the pitch

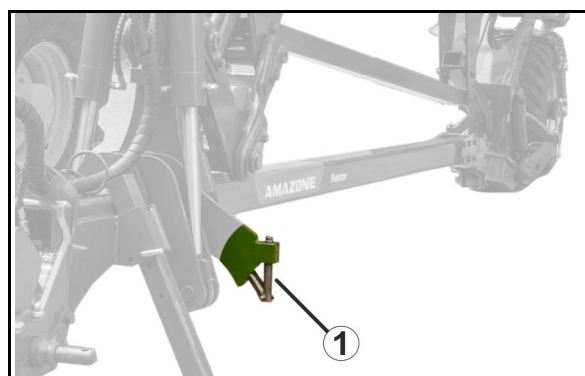
The plough must be horizontal during operation.

Adjust the pitch symmetrically on the left and right using the setting spindles (1).

The landsides and plough beams (2) must be perpendicular to the ground.



(1) Front pitch stop



! To be able to turn the setting spindles, briefly apply pressure to the turning cylinder.

This relieves the spindles.

(1) Rear pitch stops



7.5 Adjusting the track width

Depending on the field depth and the pitch setting, correct the dimension (L) such that the cutting width (S) corresponds to the respective cutting widths of the rear bodies S.



Each setting correction affects the other setting parameters, which then also required corrections.

7.6 Adjusting the disc coulters

(1) Adjusting the depth of the disc coulters

After loosening the bolt, set the depth of the disc coulters by altering the position of the rocker bar according to desired work depth. Make sure that the hub does not touch the ground.

When adjusting the rocker bar, make sure that the teeth engage and that the bolt is securely tightened again.

(2) Adjusting the lateral distance to the plough body landside.

The distance between the side of the disc and the plough body landside should be between 1 and 3 cm, and at least protrude over the fertiliser skimmer coulters. This distance is achieved by rotating the coulters shaft.

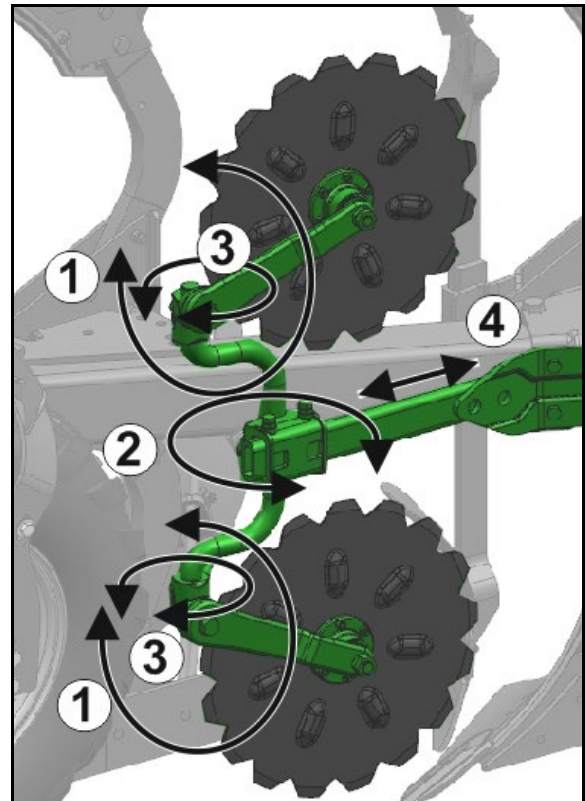
Rotation is enabled by loosening the clamping bar. To do so, use the bolt that is further away from the coulters shaft (better clamping effect).

(3) Adjusting the stop for lateral oscillation.

Adjust the lateral swaying of coulters is to be set using stop. When there are large quantities of crop residues, set the disc coulters further to the front on the holder.

(4) Adjusting the distance from the share.

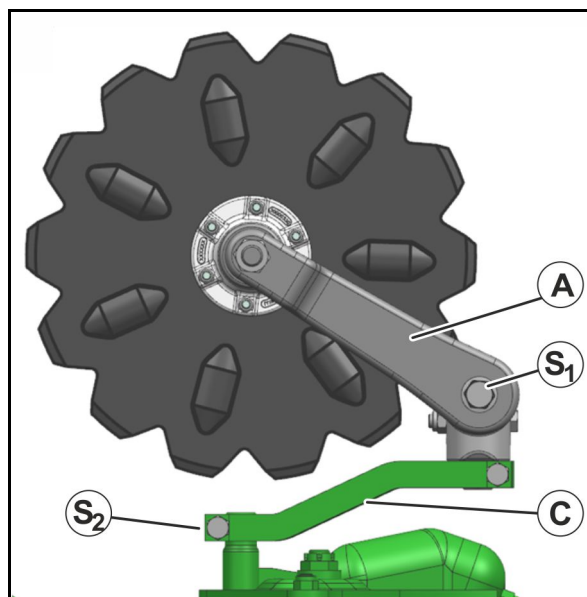
Adjust the distance from the share by moving both disc coulters together on the holding bar.



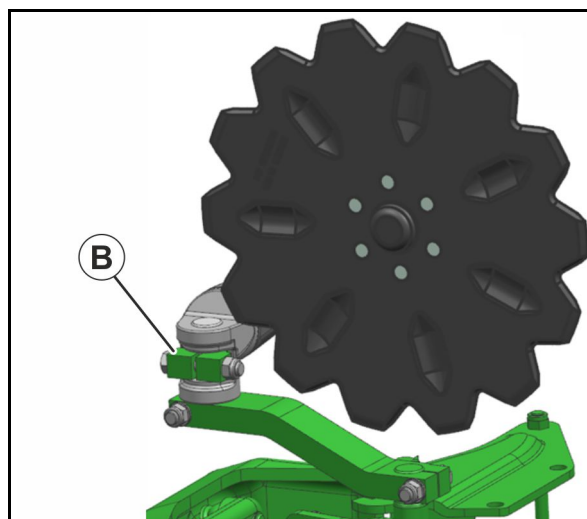
7.6.1 Disc couler adjustment for automatic stone release

After loosening bolt **S1** and adjusting the rocker bar **A**, the depth of the disc couler can be adjusted for the desired work depth so that the hub does not touch the ground. When adjusting rocker bar **A**, make sure that the cogs engage smoothly and that bolt **S1** is securely tightened.

The distance between the side of the disc and the ploughing tackle should be between 1 and 4 cm, and at least protrude over fertiliser skimmer couler. This distance is achieved by rotating the couler shaft **C**. Rotation is enabled by loosening the bolt **S2**.



Lateral swing of couler is to be set using stop **(B)**.



7.7 Fertiliser skimmer

Adjust the fertiliser skimmers such that the working depth is approx. $\frac{1}{3}$ of the field depth, slightly deeper if there are large amounts of crop residues.

If the fertiliser skimmers interfere due to large amounts of crop residues, you can take them off by removing the 2 bolts.



Use on stony soils is not advised (no stone release).



Driving in curves forbidden!

It is forbidden to drive in curves during operation due to overstraining of the implement!

8 Overload safety

8.1 Shear bolt

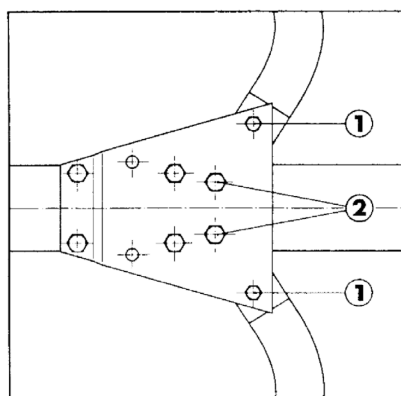
The shear bolts (Pos. 1) serve to protect against damage in event of overloading.

After a shear bolt breaks, the swivelled-out plough body can be pivoted back into working position after releasing the pivot point bolts (item 2) and removing the remains of the shear bolt. After replacement, securely tighten new shear bolt and pivot point bolt.



Use only original shear bolts of the appropriate size and quality!

Only these bolts guarantee proper protection. Never use bolts with higher or lower strength or bolts with shorter shafts!



8.2 Fully automatic stone release

In principle, the fully automatic hydraulic NON-STOP stone release (compact accumulator or central adjustment) works in the same way as the mechanical stone release, the only difference being that instead of the leaf springs, a hydraulic cylinder with a connected hydraulic accumulator is used.

Differences between compact accumulator and central adjustment

Compact accumulator

- Tripping forces can be set independently for the individual elements by means of a pressure control hose! The accumulator is integrated on the cylinder.

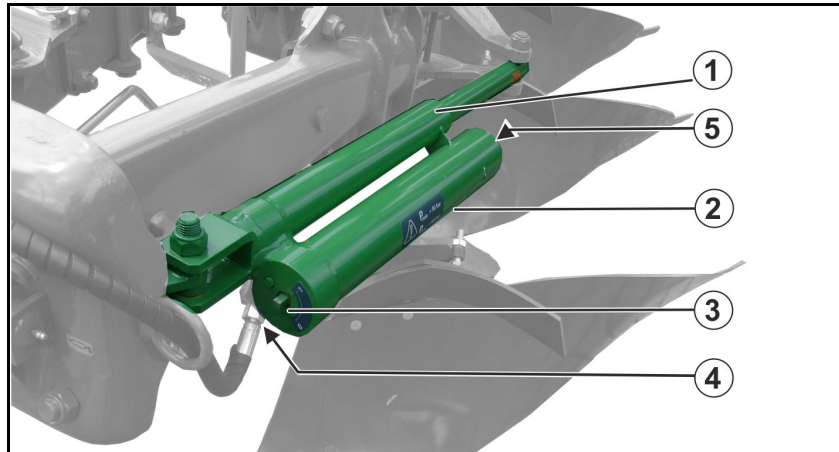
Central adjustment

- With central adjustment, the individual compact accumulator cylinders are connected on the oil side with tubing

→ all elements have the same tripping force.

(Using check valve: on each compact accumulator, each cylinder can be individually disconnected from the central tubing).

The tripping force can be adjusted during operation directly from the tractor using the control hydraulic system.



- (1) Hydraulic cylinder
- (2) Pressure accumulator
- (3) Stop tap
- (4) Hydraulic connection
- (5) Pressure accumulator valve


DANGER

During operation, it is forbidden to stand close to the plough beam element and the hydraulic accumulator!

The system is under high pressure!


Danger of accident!

Prior to assembling or disassembling the hydraulic stone release (cylinder, accumulator, hose lines, tubes, etc.), reduce the system pressure completely using the pressure control tube. The system is under high pressure!


Risk of overturning!

Before reducing the system pressure, the plough must be coupled or suitably supported.

Mode of operation:

When triggered, the plough body presses a piston into the reservoir via the hydraulic cylinder. The gas is compressed, and after passing the obstacle, it automatically moves the body back to its initial position.

Where required, the tripping force can be set via the tractor hydraulics and read from the pressure gauge.

To protect against damage, the stone release must be fitted with a shear bolt.

Overload safety

Pressure on the hydraulic accumulator:

The gas pressure side may only be set by the dealer and must be checked **once annually!**



The maximum pressure set must not exceed 140 bar, otherwise component parts on the plough will be subject to overload and damage.



Pre-tensioning pressure (nitrogen)	90 bar
Min. working pressure (hydr. oil)	90 bar
Max. working pressure (hydr. oil)	140 bar

8.2.1 Hydraulic stone release with central pressure setting

The tripping pressure can be adjusted for all shares together while driving, via the *grey* tractor control unit.

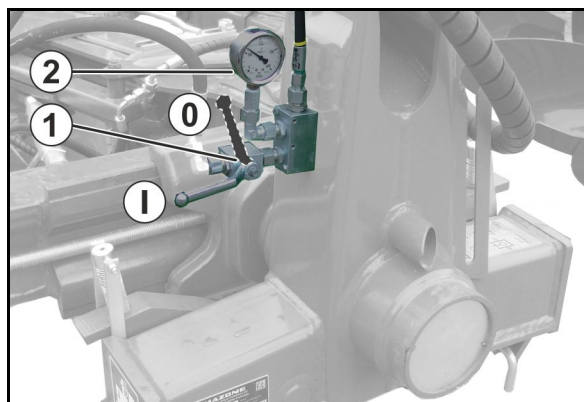


Before coupling and uncoupling the hydraulic hose, close the stop tap.

To set the tripping pressure while driving, the stop tap must be opened.

The pressure gauge shows the tripping pressure for all shares.

- (1) Stop tap
- (2) Pressure gauge



Using the stop tap on the hydraulic cylinder, different tripping pressures can be applied to the shares also with central pressure setting.

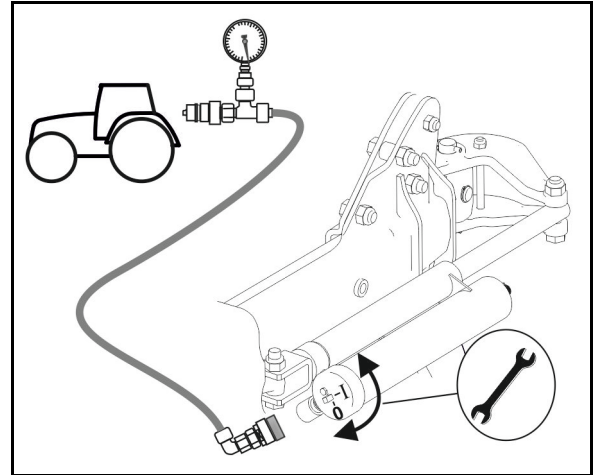
8.2.2 Hydraulic stone release with decentralised pressure setting

Before operation, the tripping pressure can be set independently for each share.

For setting the pressure, use the intended pressure control hose with pressure gauge.

Setting the tripping pressure

1. Couple the intended pressure control hose to the tripping unit and tractor.
2. Open the stop tap on the hydraulic cylinder (position I).
3. Actuate the tractor control unit.
Set the desired tripping pressure.
4. Close the stop tap on the drawbar hydraulic cylinder (position 0).
5. Depressurise the pressure control hose.
6. Set all other shares in the same manner.



9 Use



For plough work, set the hydraulic system to pulling force or combined control.

It is forbidden to drive in curves during operation due to overstraining of the implement!



WARNING

Overstraining can cause components to break and be flung away at high speed.

- Ensure that nobody is standing on the spring side (furrow side).
- Keep clear of the plough beam element during operation!

9.1 Rotating the plough



DANGER

The plough sweeps out when it is rotated. Direct people out of the danger area!

→ Check the immediate area before rotating!

On the headlands:

1. When reaching the headland, lift the implement using the tractor lower links.
2. When the last share has reached the headland, lift the implement completely using the running gear.
3. Activate tractor control unit *green*.

→ Rotate the plough using the hydraulic turnover system.



Ensure that the hydraulic hoses do not bend while rotating.



Operate the hydraulic turnover system only from the tractor seat!

10 Cleaning, maintenance and repair



WARNING

Danger of crushing, shearing, cutting, detaching, being caught or drawn in, winding and knocks through

- **unintentional lowering of raised, unsecured implement parts.**
- **unintentional start-up and rolling of the tractor-implement 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.



DANGER

- **When performing maintenance, service and repair work, observe the safety instructions!**
- **You may only carry out maintenance or repair work under moving machine parts that are in a raised position if such parts are secured with suitable, positive-fit locking devices against accidental lowering.**



- Regular and proper maintenance will keep your implement in good condition for a long time, and will prevent early signs of wear. Regular and proper maintenance is a requirement of our warranty conditions.
- Only use AMAZONE original spare parts.
- Use only genuine AMAZONE replacement hoses, and hose clamps made of V2A for assembly.
- Specialist knowledge is the requirement for carrying out testing and maintenance operations. This specialist knowledge is not given here in this operating manual.
- Observe environmental protection measures when carrying out cleaning and maintenance work.



- Observe legal requirements when disposing of lubricants, e.g. oils and grease. Also affected by these legal requirements are parts that come into contact with these lubricants.
- Do not exceed a greasing pressure of 400 bar when greasing with high pressure grease guns.
- The following are prohibited
 - drilling the running gear.
 - drilling through pre-existing holes on the transport frame.
 - welding on load-bearing components.
- Protective measures are necessary, such as covering lines or removing lines in particularly critical locations
 - during welding, drilling and grinding work.
 - when working with cut-off wheels near plastic wires and electric wires.
- Clean the implement thoroughly with water before carrying out repair work.
- Always disconnect the implement cable as well as the power supply from the on-board computer when performing any care and maintenance work. This applies particularly to welding work on the implement.



The implement may only be operated with the protective devices equipped ex factory.

Hydraulic cylinders may only be opened by authorised persons.

- The mounting category (pin diameter) for the three-point linkage must be compatible for tractor and plough.
- Special care must be taken when mounting or dismounting the implement onto or from the tractor.
- Prior to connecting and disconnecting the implement to the three-point suspension, place operating equipment in such a position as to prevent unintentional lifting or lowering.
- Check the hydraulic hoses and connections regularly and keep them in good condition.
- Maintenance, repair, and adjustment work may only be carried out when the implement has been lowered to the ground in working position and the hydraulic system is depressurised.



Read the operating manual of the tractor manufacturer to find out how to depressurise the system.



The stored energy in the hydraulic accumulator can lead to serious injuries when working on the hydraulic system. Hydraulic pressures up to 400 bar!

Only perform work on a depressurised system.

10.1 Lubrication schedule

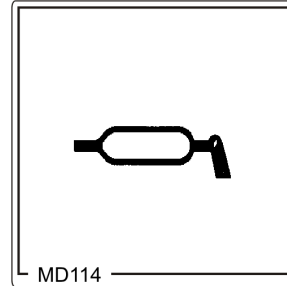


All lubrication points (see lubrication schedule) are to be lubricated regularly every 10 operating hours.

Lubricate / grease the implement at the specified intervals (operating hours h).

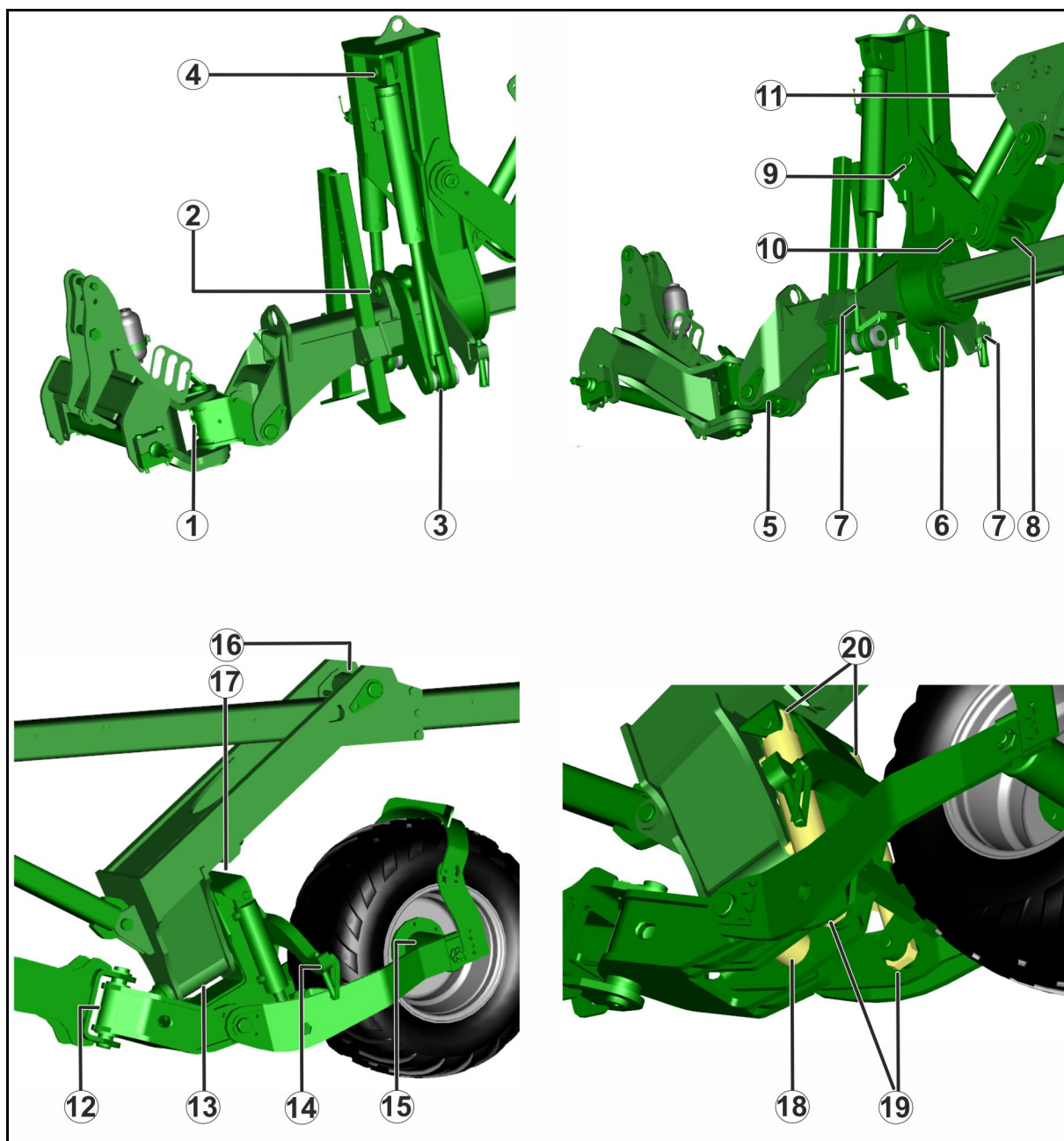
Lubrication points on the machine are indicated with a sticker.

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



Overview of lubrication points

Lubrication point	Number	Type of lubrication
(1)	1	Grease nipple
(2)	1	Grease nipple
(3)	2	Grease nipple
(4)	2	Grease nipple
(5)	1	Grease nipple
(6)	1	Grease nipple
(7)	2	Grease nipple
(8)	1	Grease nipple
(9)	1	Grease nipple
(10)	1	Grease nipple
(11)	1	Grease nipple
(12)	1	Grease nipple
(13)	2	Grease nipple
(14)	2	Grease nipple
(15)	2	Grease nipple
(16)	1	Grease nipple
(17)	1	lubricate



10.2 Cleaning



- The implement must not be cleaned with a steam jet cleaner within the first 6 weeks! After this time, only clean at a nozzle distance of at least 50 cm at max. 100 bar and 50°C!
- When the cleaning and care instructions are not observed, any resulting paint damage will not be covered by the warranty!



- Pay particular attention to the brake, air and hydraulic hose lines.
- Never treat brake, air and hydraulic hoses with petrol, benzene, petroleum or mineral oils.
- After cleaning, grease the implement, in particular after cleaning with a high pressure cleaner/steam jet or liposoluble agents.
- Observe the legal regulations for handling and disposing 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 nozzle distance of 300 mm between the high pressure or steam jet cleaning nozzle and the implement.
 - The set pressure of the high-pressure cleaner/steam jet must not exceed 80 bar.
 - Permissible water temperature max. 50°C.
 - Do not clean the implement with warm water at ambient temperatures below 10°C.
 - The nozzle spraying angle must be at least 25°.
 - Do not use a spraying jet booster.
 - Comply with safety regulations when working with pressure washers.

10.3 Maintenance schedule – overview



- Execute maintenance tasks after the first scheduled maintenance period has been reached.
- The times, running hours or maintenance intervals of any third party documentation shall have priority.

Before each start-up

1. Check the hoses/tubes and connecting pieces for visible defects/leaky connections.
2. Repair any areas of chafing on hoses and tubes.
3. Replace any worn or damaged hose and tubes immediately.
4. Fix leaky connections immediately.

After the first working run

Component	Servicing work	see page	Workshop work
Hydraulic system	<ul style="list-style-type: none"> • Check for leaks • Check for defects on the hose lines 	60	
Bolted connections	<ul style="list-style-type: none"> • Check all bolts for tightness 		

Daily

Component	Servicing work	see page	Workshop work
Whole implement	<ul style="list-style-type: none"> • Check for visible defects • Clean after operation, and protect uncoated surfaces against corrosion 		
Shares / other wear parts	<ul style="list-style-type: none"> • Condition check, replace if necessary 	57	
Shear bolts	<ul style="list-style-type: none"> • Check all bolts for tightness, replace if necessary 	57	

Weekly / 50 operating hours

Component	Servicing work	see page	Workshop work
Hydraulic system	<ul style="list-style-type: none"> • Check for leaks • Check for defects on the hose lines 	60	
Support wheel	<ul style="list-style-type: none"> • Check inflation pressure, correct if necessary 	58	
	<ul style="list-style-type: none"> • Check the bearing clearance on the wheel hubs 	59	
Bolted connections	<ul style="list-style-type: none"> • Check all bolts for tightness 		

Annually / 1000 operating hours

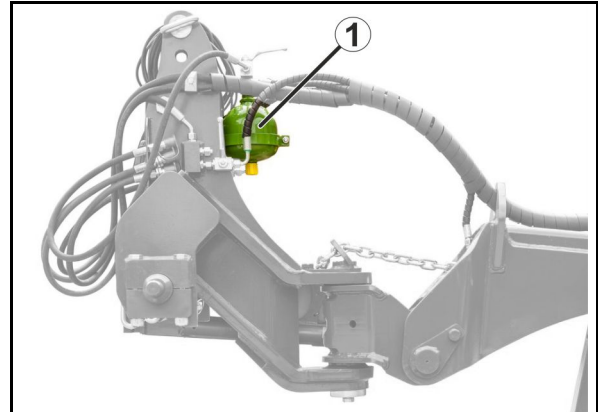
Component	Servicing work	see page	Workshop work
Hydraulic accumulator	<ul style="list-style-type: none"> Set the oil pressure 	57	

10.4 Depressurise the hydraulic system

Before any work on the hydraulic system:

 Depressurise the hydraulic system.

(1) Hydraulic pressure accumulator



WARNING

When you depressurise a plough with hydraulic stone release in working position, the implement will fall over.

Support the implement or couple it to the tractor.

The system is only depressurised when

- the implement in working position is supported on the ground.
- the implement is not carried by the running gear.
- the system including the hydraulic accumulator was depressurised using the tractor hydraulic system.

10.4.1 Setting the oil pressure on the hydraulic accumulator

The working pressure is set according to the soil properties.

The gas pressure side may only be adjusted by a trained specialist.

The oil pressure side can be adjusted using the tractor hydraulic system and the pressure control hose. See page 57.

Lock the nut so that the element cannot be loosened.

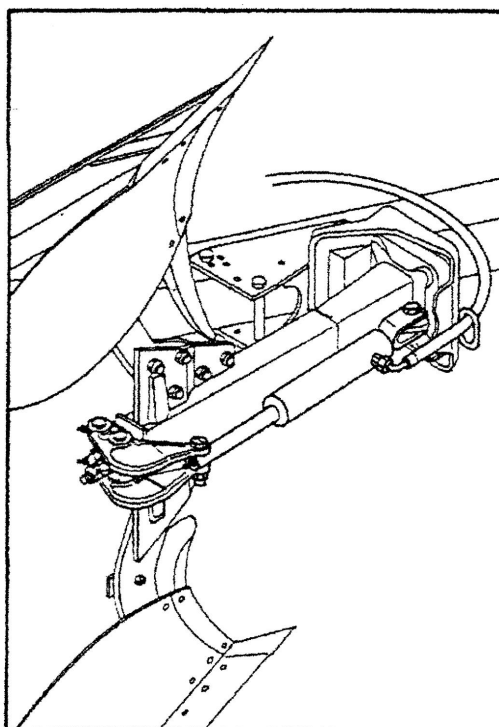


DANGER

During ploughing operation, overstraining can cause components to break and be flung away at high speed.

The piston accumulator is under high pressure!

Ensure that nobody is standing close to the accumulator and the stone release hydraulic cylinder.



Before starting work on the hydraulic stone release (cylinder, accumulator, hose lines, tubing, etc.), depressurise the system.

Before reducing the system pressure

1. Couple the plough

Or

Support the plough accordingly.



Risk of overturning!

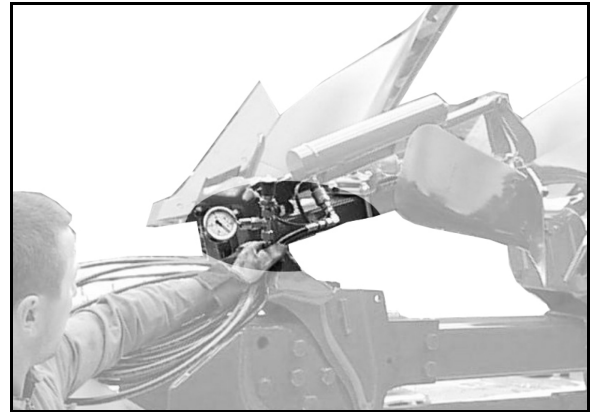


The non-stop stone releases are additionally secured by shear bolts.

See page 44.

Regulating the oil pressure for the stone release

1. Connect the long end of the pressure control hose to the hydraulic cylinder.
2. Connect the short end to the pressure gauge on the tractor hydraulic system.
3. Read the pressure on the pressure gauge and set the desired tripping pressure.
4. Close the stop tap on the plough.
5. Depressurise the hose using the tractor hydraulic system.
6. Disconnect the hose.



Pressure on the hydraulic accumulator:

The gas pressure side may only be set by the dealer and must be checked **once annually!**



The maximum pressure set must not exceed 140 bar, otherwise component parts on the plough will be subject to overload and damage.



Pre-tensioning pressure (nitrogen)	90 bar
Min. working pressure (hydr. oil)	90 bar
Max. working pressure (hydr. oil)	140 bar

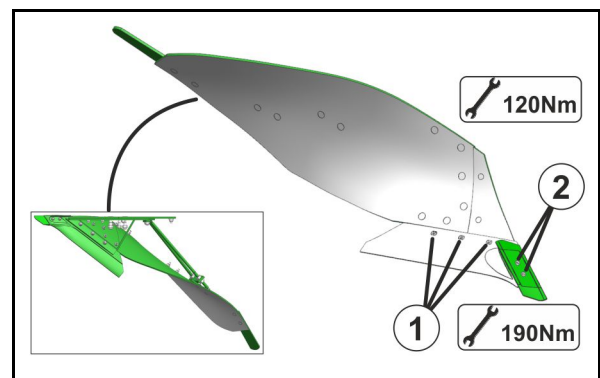
10.5 Checking the condition of the shares and wear parts

Replace worn shares and mould boards promptly to prevent damage to the frogs or supporting parts. The same applies to leading tools, if equipped

10.6 Checking the shear bolts

Check the bolts for tightness.

Required tightening torque for the bolts:



10.7 Checking the support wheel



- Regularly check
 - o that wheel nuts are firmly seated.
 - o tyre inflation pressure.

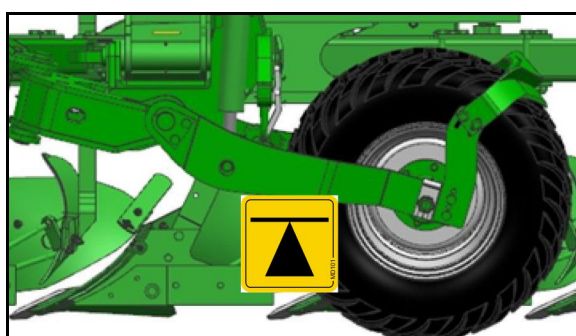


Required tyre inflation pressure: **2,5 bar**

Required tightening torque for wheel nuts / bolts: **600Nm**

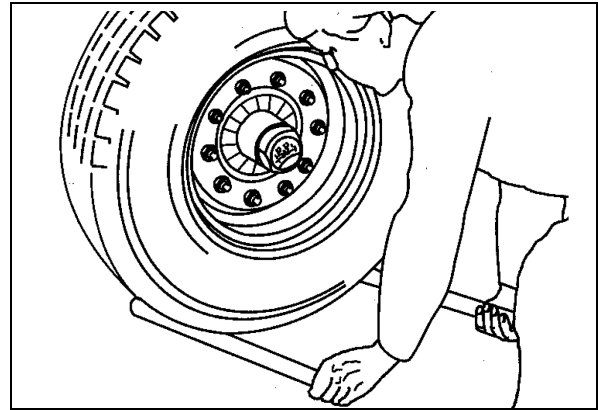
10.7.1 Changing the support wheel

1. Put down the coupled implement in working position on the shares.
1. Lift the support wheel from the ground using a lifting jack.
2. Loosen the axle attachment bolts on both sides.
3. Remove the wheel from the fork
4. Loosen the bolts that connect the rim to the running axle
5. Change the tyres
6. Install the rim and axle attachment bolts in the reverse sequence.



10.7.2 Check bearing clearance on wheel hubs

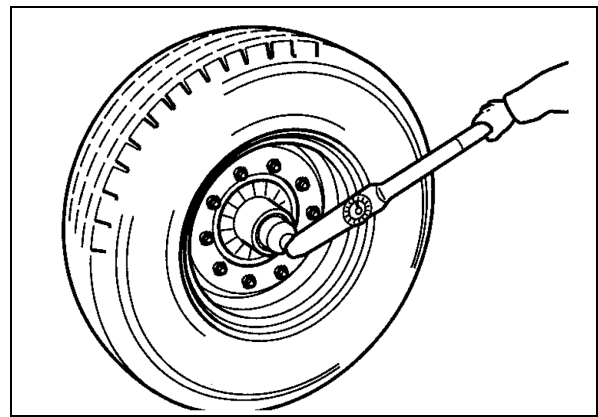
1. To check the bearing clearance on the wheel hubs, lift the axle until the wheels are free.
2. Release the brake.
3. Place a lever between the tyre and the ground and check the bearing clearance.



If there is noticeable bearing clearance:

Bearing clearance adjustment →
Workshop work

1. Remove the dust cup or hub cap.
2. Remove the cotter pin from the axle nut.
3. Tighten the wheel nut by simultaneously turning the wheel until the run of the wheel hub is lightly braked.
4. Turn the axle nut back to the next possible cotter pin hole. If there is congruence, to the next hole (max. 30°).
5. Insert the cotter pin and bend it up slightly.
6. Replenish the dust cap with some long-term grease and pound or screw it into the wheel hub.



10.8 Storage / overwintering

- After use, clean the implement with a normal water jet (oiled implements should only be cleaned on washing sites with oil separators).



Dirt attracts moisture and leads to the formation of rust.

- Protect uncoated parts (e.g. plough body, piston rod) against rust with a corrosion protection agent (use only biodegradable preservatives).
- Do not spray the implement with aggressive, oily media for preservation.
- Repair paint damage to protect from corrosion!
- Park the implement protected from the weather, but not close to mineral fertilisers / salts or in stables.
- Grease all lubrication points and wipe off emerging grease.

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

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

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



WARNING

Risk of accidental contact with hydraulic fluid!

Perform the following first aid measures:

- After inhalation:
 - no special measures required.
- After skin contact:
 - wash off with lots of water and soap.
- After eye contact:
 - flush eyes with the lids open for several minutes under flowing water.
- After swallowing:
 - seek medical treatment.

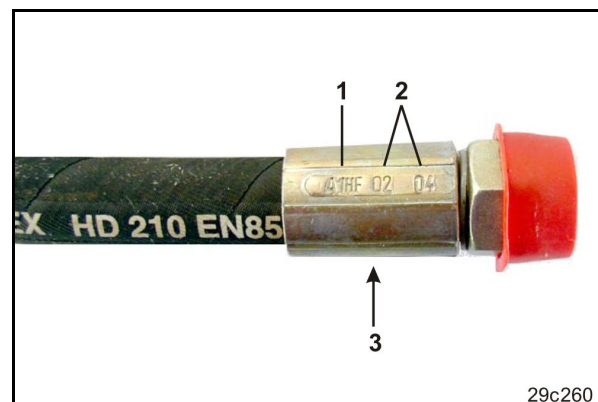


- When connecting the hydraulic hose lines to the hydraulic system of connected implements, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if they are damaged or worn. Only use genuine AMAZONE hydraulic hose lines!
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural aging, thus limiting the duration of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose lines made of thermoplastics, other guide values may be decisive.
- Dispose of old oil in compliance with regulations. If you have problems with disposal, contact your oil supplier.
- Keep hydraulic fluid out of the reach of children!
- Ensure that no hydraulic fluid enters the soil or waterways.

10.9.1 Labelling of hydraulic hose lines

The valve chest identification provides the following information:

- (1) Label of the manufacturer (A1HF)
- (2) Date of manufacture of the hydraulic hose line (02 04 = February 2004)
- (3) Maximum approved operating pressure (210 BAR).



29c260

10.9.2 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.

10.9.3 Inspection criteria for hydraulic hose lines



For your own safety and to reduce environmental pollution, comply with the following inspection criteria!

Replace hoses if the respective hose fulfils at least one of the following criteria:

- 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 that do not match the natural shape of the hose. Both in a depressurized and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
- Leak points.
- Installation requirements not complied with.
- Life span of 6 years has been exceeded.

The date of manufacture of the hydraulic hose line on the valve chest is decisive plus 6 years. If the date of manufacture on the valve chest is "2004", then the hose should not be used beyond February 2010. For more information, see "Labelling of hydraulic hose lines".



Common causes for leaking hoses / pipes and connection pieces include:

- missing O-rings or gaskets
- damaged or badly fitting O-rings
- brittle or deformed O-rings or gaskets
- foreign bodies
- badly fitting hose clamps

10.9.4 Installation and removal of hydraulic hose lines



You must

- only use genuine AMAZONE replacement hoses. These replacement hoses withstand the chemical, mechanical and thermal strains.
- always use hose clamps made from V2A for fitting hoses.



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

- Ensure cleanliness. • Always install the hydraulic hose lines to ensure the following in all operating positions
 - there is no tension, apart from the hose's own weight
 - there is no possibility of jolting on short lengths
 - Outer mechanical influences on the hydraulic hose lines are avoided.
- Use appropriate arrangements and fixing to prevent any scouring of the hoses on components or on each other. If necessary, secure hydraulic hose lines using protective covers. Cover sharp-edged components.
- The approved bending radii may not be exceeded.



- When connecting a hydraulic hose line to moving parts, the hose length must be appropriate so that the smallest approved bending radius is not undershot over the whole area of movement and/or the hydraulic hose line is not over-tensioned.
- Fasten the hydraulic hose lines at the specified fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- It is forbidden to apply paint on the hydraulic hose lines!

10.9.5 Installation of hose valve chests with O-ring and union nut

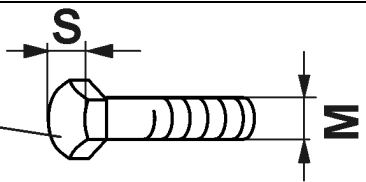
1. First tighten the union nut by hand.
2. Then tighten the union nut further with a spanner by at least $\frac{1}{4}$ to maximum $\frac{1}{2}$ a turn.

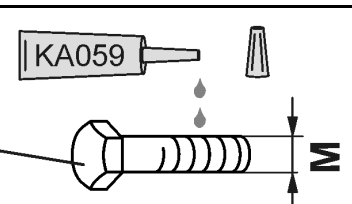


You may not tighten the bolted connection with an O-ring as tight as bolted connections with a cutting ring!

If you tighten the union nut tighter than specified, the tapered bolted connection can burst (especially on the welded journal of the hydraulic cylinder).

10.10 Bolt 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.

11 Malfunctions and their correction

Plough does not penetrate into the soil:

- Draw transverse furrows at the ends of the field
- Replace the shares or use chisel shares
- Set the disc coulter and fertiliser skimmer higher up
- Reduce the pitch a little

The plough does not reach the desired working depth:

- Set the support wheels higher up
- Lower the hydraulic system
- Replace the shares or use chisel shares

Plough bodies work at different depths:

- Correct the working depth, adjust
- Correct the pitch

Plough works unevenly:

- Shear bolt on one of the plough beams broke off (replace)

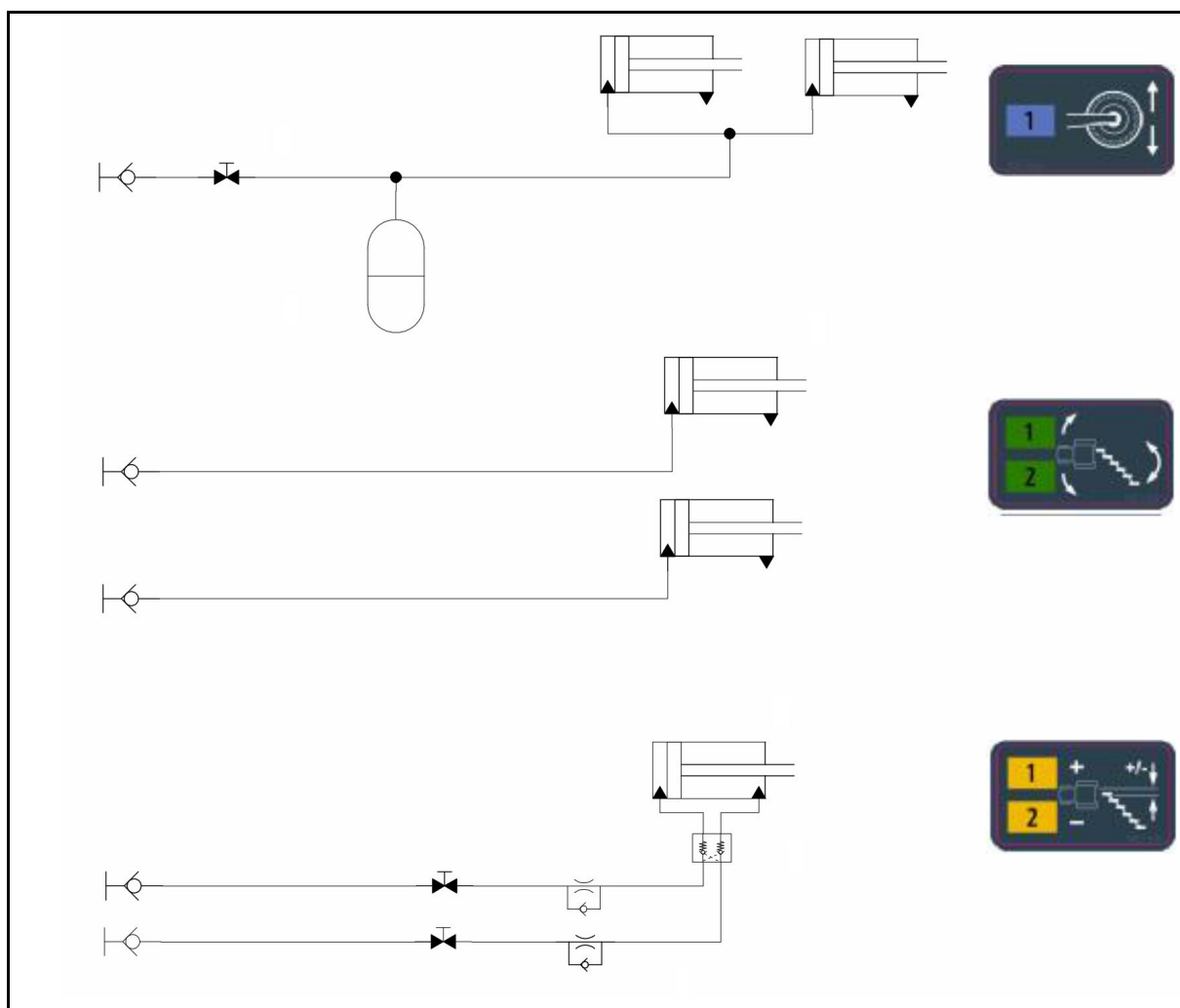
The plough swerves towards the landside:

- Increase the working depth
- Reduce the pitch
- Install additional glide plates

The plough will not turn

- Replace the implement coupling plug if it does not fit for the tractor coupling part (opening stroke of the valve body)
See page 48.
-

12 Hydraulic diagram





AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

Postfach 51
D-49202 Hasbergen-Gaste
Germany

Tel.: + 49 (0) 5405 501-0
e-mail: amazone@amazone.de
<http://www.amazone.de>

