

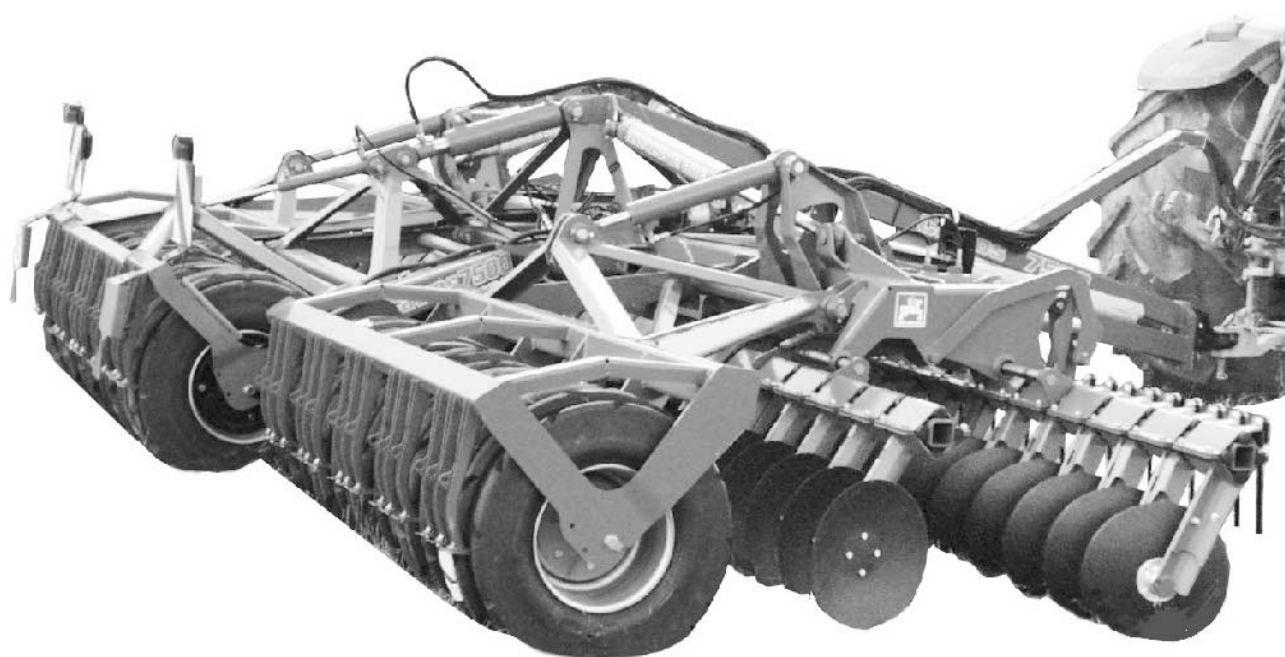
AMAZONE

Operator's manual

Trailed Disc Cultivator

CATROS 5500

CATROS 7500



MG 1095

KGB 328.1 (GB) 10.05

Printed in Germany



Before starting work, please
carefully read and adhere to
this operation manual and
safety advice!



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 operator's manual.

Leipzig-Plagwitz 1872. Rud. Sark.

Identification data

Manufacturer	AMAZONEN-WERKE H. DREYER GmbH & Co. KG BBG Bodenbearbeitungsgeräte Leipzig GmbH & Co KG An enterprise of the AMAZONEN- Group
Machine serial No.:	
Type:	CATROS 5500 CATROS 7500
Permissible system pressure [bar]:	Max. 200 bar
Year of construction:	

Address of manufacturer

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Spare parts ordering

Spare parts online catalogue: www.amazone.de

Formal remarks to this operator's manual

Document-Number: MG 1095

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

Preface

Dear Customer,

You decided to purchase one of our high quality machines from the comprehensive range of farm machinery produced by AMAZONEN-WERKE, H. DREYER GmbH & Co. KG. Thank you for your confidence.

When receiving the machine, please check immediately that no damage has been caused in transit and that all parts are present. Please check whether all parts mentioned in the delivery note including the ordered optional equipment are present. Only the immediate reportage of damage will be considered for compensation.

Before the first operation, please read and adhere to this operator's manual and the safety advice. After having thoroughly read the operator's manual you can make fullest use of the advantages of your recently purchased machine.

Please ensure that this operator's manual is made available to any operator before he or she starts to operate the machine.

In case of any questions or problems, please refer to this operator's manual or just call us.

Maintenance and in regular intervals and the exchange of worn or damaged parts in time increases the life expectancy of your machine.

User's review

Dear reader,

Our operator's manuals are regularly updated. With your suggestions for improvement you will help to create an always user friendly operator's manual. Please send your suggestions by fax.

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1. User advice

The chapter "User advice" provides information for dealing with the operator's manual

1.1 Purpose of the document

The present operator's manual

- describes the operation and the maintenance for the machine.
- gives important hints for a safety conscious and efficient operation with the machine.
- is part of the implement and should be kept so that it is always to hand on the machine or in the towing vehicle.
- should be kept for future use.

1.2 Information about directions in this operator's manual

All information about direction in this operator's manual are to be understood in direction of travel.

1.3 Illustrations used

Operational action step and reaction

The steps of operation to be carried out by the operational staff are described in a numbered list. Adhere to the sequence of the steps.

Example:

- Operational action step 1
- Operational action step 2.

Enumerations

Enumerations without indispensable sequence are described as a list with enumeration items. Example:

- Item 1
- Item 2

1.3.1 Position figures in illustrations

The first figure refers to the illustration, the second figure refers to the item number in the illustration.

Example (Fig. 3/6)

- Figure 3
 - Item 6
-

2. General safety advice

This chapter contains important hints for the safety conscious operation of the machine.

2.1 Obligations and liability

Observe the advice given in this operator's manual

The knowledge of the basic safety advice and safety regulations are the precondition for the safety conscious dealing with the machine and its trouble free operation.

Obligation of the user

The user commits himself to have the machine only operated by persons who

- are acquainted with the basic prescriptions regarding the operational safety and accident prevention.
- have been introduced to the machine.
- have read and understood this operator's manual..

Adhere to the requirements of the EU guide line for the use of working devices 89/655/EEG and to the national, local and generally valid advice for operational safety and accident prevention. In Germany this is, in particular, the accident prevention advice VSG 1.1, VSG 3.1 of the trade association in charge.

Obligation of the operator

Before commencing any operation all persons who are instructed to operate the machine commit themselves to

- observe the basic regulations regarding the operational safety and accident prevention.
- to read and to adhere to the chapter "Safety" and the warning signs in of this operation manual.

In case of queries, please contact the manufacturer.

Danger when dealing with the machine

The machine has been manufactured according to the state of the art and the certified safety regulations. Nevertheless, the operation of the machine could cause danger and adverse effects on

- body and life of the operator or third parties,
- the machine itself,
- other tangible assets.

Only use the machine

- for the purpose it has been designed for.
- in a perfect safety engineering condition.

Immediately remedy all failures affecting the safety.

Warranty and liability

As a matter of principle our "General terms of sale and delivery" prevail. These will be made available to the user on the date of conclusion of contract at the latest. Warranty and liability claims for injury to life or property are rejected when they have been put down to one or several of the following causes:

- not designed use of the machine.
- improper fitting, taking into operation, operating and maintenance of the machine.
- operating the machine with defect safety facilities or not properly fitted or not functioning safety devices and guards.
- not adhering to the operator's manual regarding putting into operation, operation and maintenance.
- arbitrary changes on the machine.
- poor monitoring of the wearing parts of the machine.
- improper repair work.
- in an emergency due to alien elements and force majeure.

2.2 Illustration of safety advice

The safety advice is identified by a symbol and a warning. The warning describes the seriousness of the threatened danger. The individual symbols have the following meaning:



General danger symbol

The safety advice in this operators manual, which may lead to a danger to persons if not being observed, are identified with the general danger symbol (Danger symbol according to DIN 4844-W9).



Attention Symbol

The safety advice in this operation manual which may cause danger for the machine and it's function when not being adhere to, are identified with the attention symbol.



Hint-Symbol

This symbol marks machine's specific points that should be observed to ensure the correct function of the machine.

2.3 Designated use of the machine

The machine

- has exclusively been designed for usual soil cultivation in agriculturally utilised tilled areas.
- Is coupled via the pulling eye to the tractor swinging draw bar and actuated by one operator.

Operating on slopes is possible under following conditions

- When operating across slopes
 - maximum angle of machine in the direction of travel to the left 15 %
 - maximum angle of machine in the direction of travel to the right 15 %
- When operating up and down hill
 - uphill 15 %
 - downhill 15 %

The declined use also includes

- observing all hints in this operator's manual
- adhering the service and maintenance work
- the exclusive use of original -**AMAZONE**- spare parts.

Other use than that stipulated is prohibited and is no longer considered as designed use.

For damage resulting from not designed use

- the operator himself will carry the full risk
- the manufacturer **AMAZONEN-WERKE** will not accept any responsibility.

2.4 Organising measures

The operator must ensure the availability of the personal protective equipment, e.g.:

- safety glasses,
 - safety shoes,
 - protective clothing,
 - skin protecting agent, etc..
-

2.5 Safety device and guards

Only operate the machine with all safety devices and guards fitted and properly functioning. Regularly check all safety devices and guards.

2.5.1 Defective safety devices



Defective or missing safety device and guards will cause dangerous situations.

2.6 Informal safety measures

Besides the safety advice in this operator's manual observe and adhere to the national, local and generally valid advice for operational safety, accident prevention and environmental care.

Please particularly observe the accident prevention prescriptions of your national authorised trade association.

2.7 Training of the staff

Only people who are trained and familiarised may operate with/on the machine. The responsibility of persons for operation and maintenance should clearly be prescribed.

A trainee may only operate the machine under the supervision of a skilled person.

Action	Particularly trained persons	Instructed operator	Persons with specialist training (authorised workshop)
Transport	X	X	X
Putting into operation	--	X	--
Installation, setting up	--	--	X
Operation	--	X	--
Maintenance	--	--	X
Searching for faults and remedy	X	--	X
Disposal	X	--	--

Legend: X (allowed) -- (not allowed)

*) All maintenance and repair work which has been marked with the addendum "authorised workshop" must be carried out in an authorised specialist workshop. Only the personnel of a specialist authorised workshop has the necessary knowledge and is provided with the appropriated aids (tools, lifting and supporting devices) for the proper and safety relevant execution of these maintenance and repair work.

2.8 Safety measures and normal operation

Operate the machine only with all safety devices and guards properly functioning.

Check the machine at least once a day for externally recognisable damage and for function of the safety devices and guards.

2.9 Danger from residual power

Observe the incidence of mechanic, hydraulic, pneumatic, and electric/electronic residual power on the machine.

Undertake appropriate measures when instructing the operating staff. Detailed hints are again given in the relevant chapters of this operator's manual

2.10 Particularly dangerous points

Particularly dangerous points prevail

- In the coupling area between tractor and machine
- under lifted machines
- within the operational range of moving components.

2.11 Maintenance and repair, remedy of faults

Carry out all prescribed setting-, maintenance and servicing work in due time.

Secure all operating systems like compressed air and hydraulics against unintended starting.

When exchanging larger components carefully affix them to the hoisting implement.

Check slackened screw joints for firm seating. After having finished maintenance work, carefully check all safety devices for proper function.

2.12 Constructional changes

Vehicles with an official licence or implements and equipment connected with a vehicle with an official licence or permit for road traffic should be maintained in the appropriate condition. (BGV D 29 § 4).

2.12.1 Alterations or changes

Never carry out any alterations or fittings or changes on the machine without approval of the **AMAZONEN-WERKE**. This also applies for welding work on bearing parts.

All fitting or alteration measures require the written approval of **AMAZONEN-WERKE**. Only use the conversion and optional parts approved by Messrs **AMAZONEN-WERKEN** so that the operating permit remains valid according to national and international regulations.

Prohibited on principle is



- boring on the frame or the chassis
- re-boring existing holes on the frame or the chassis
- welding on bearing parts.

2.13 Spare parts and wearing parts and auxiliary parts

Immediately exchange defective machine parts.

Only use original -**AMAZONE**- spare- and wearing parts or the parts approved by Messrs **AMAZONEN-WERKEN** so that the operating permit remains valid according to the national and international regulations. When using spare and wearing parts from other manufacturers it is not ensured that they have been designed and manufactured to fulfil the operational stress and safety demands.

The **AMAZONEN-WERKE** do not accept any liability for damage by using not approved spare or wearing parts or auxiliary parts.

2.14 Cleaning and disposal

Utilise agents and materials and dispose them in the appropriate manner particularly

- when working with greasing systems and devices and
- when cleaning with solvent agents.

2.15 Workplace of the operator

The machine may only be operated by one single person from the seat in the tractor cab.

2.16 Safety symbols and other identifications on the machine

Safety symbols

The following safety symbol warn about residual danger which cannot be remedied by the design. Explanations and relevant safety hints regarding these safety symbols provides the column Picture-No. and explanation. .

Keep all safety symbols on the machine clean and legible. Replace unreadable safety symbols. Ask your dealer for replacement. The picture No. on the safety symbol is the order number.

Strictly adhere to all warning pictographs and hint symbols!

Please pass on all safety advice also to other users!

The figure illustrates the machine's fixing points for the warning pictographs and hint signs. Please refer to the following pages for relevant explanations.



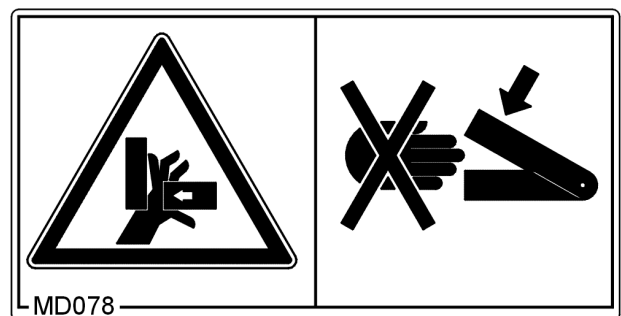
Picture No. and explanation

MD 078

Never reach into the zone. There is danger of bruising as long as parts are still moving

Advise people to leave the danger zone.!

Sicherheits-Symbol



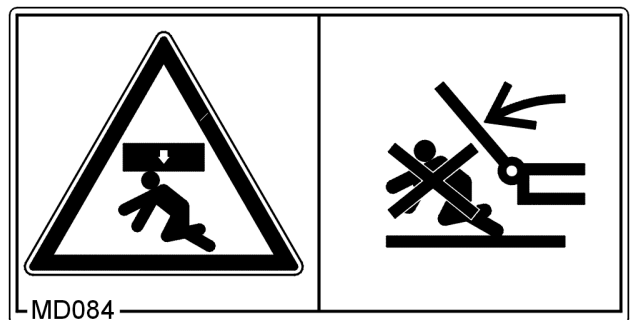
MD082

Riding on the machine during operation and during transport is prohibited.



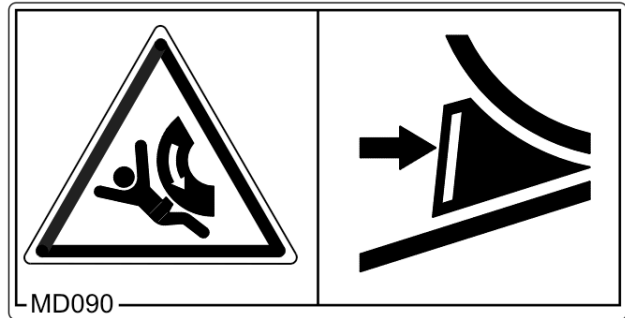
MD084

Do not stand near swivelling parts of the machine!

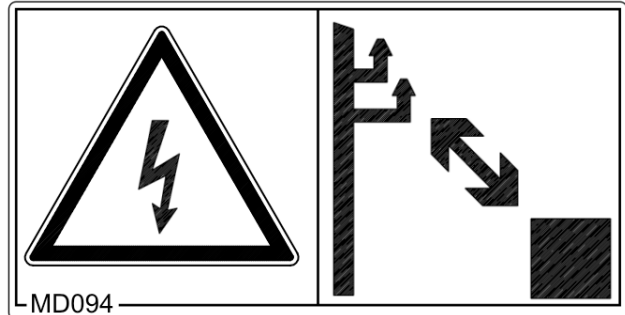


MD090

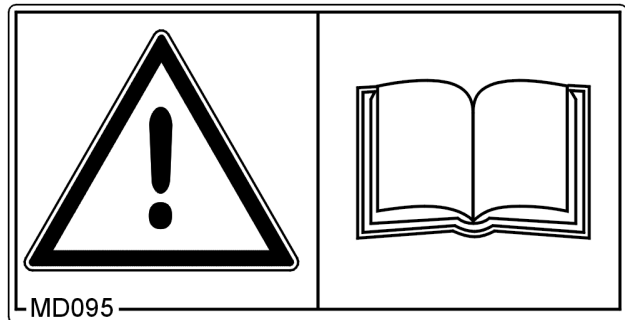
Secure the machine against unintended moving before you couple the machine off the tractor. Make use of the parking brake and/or chock(s).

**MD094**

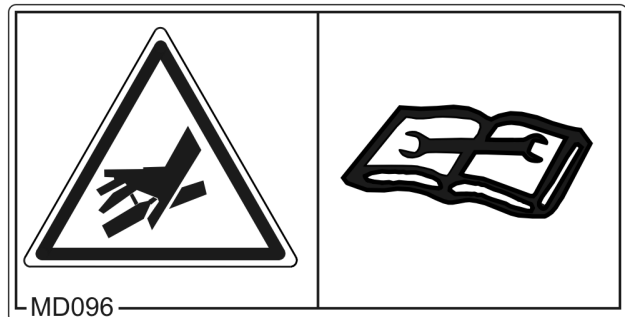
Ensure sufficient clearance to power lines.

**MD095**

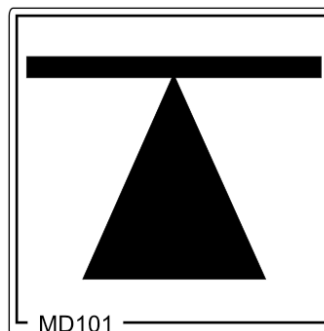
Before commencing operation read thoroughly operators manual and safety advice!

**MD096**

Caution in case of leaking high pressure liquid. Observe advice in the technical manual!

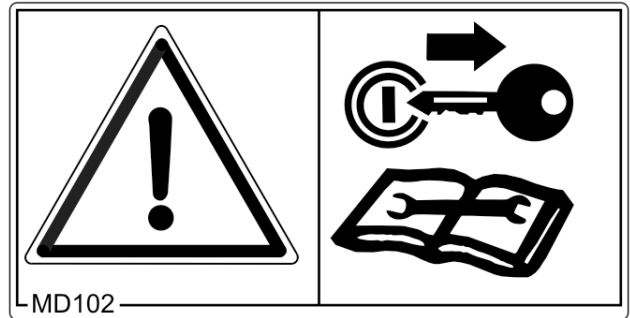
**MD101**

Positioning of jack in case of repair.



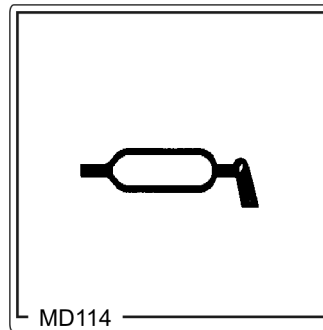
MD102

Before carrying out any maintenance and repair work, apply the parking brake, stop the tractor engine and remove the ignition key.



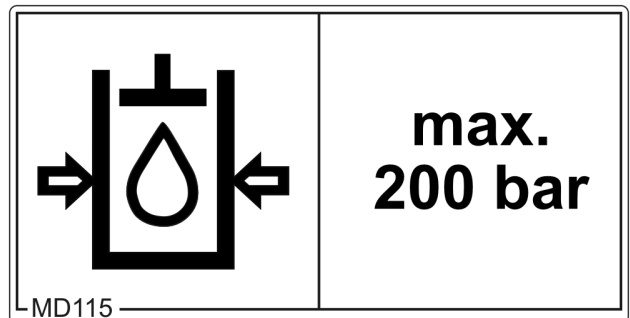
MD114

Greasing point!



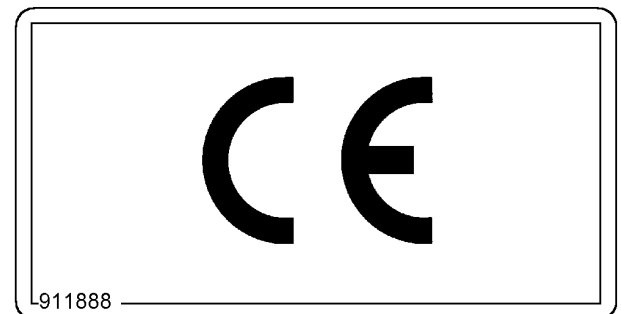
MD115

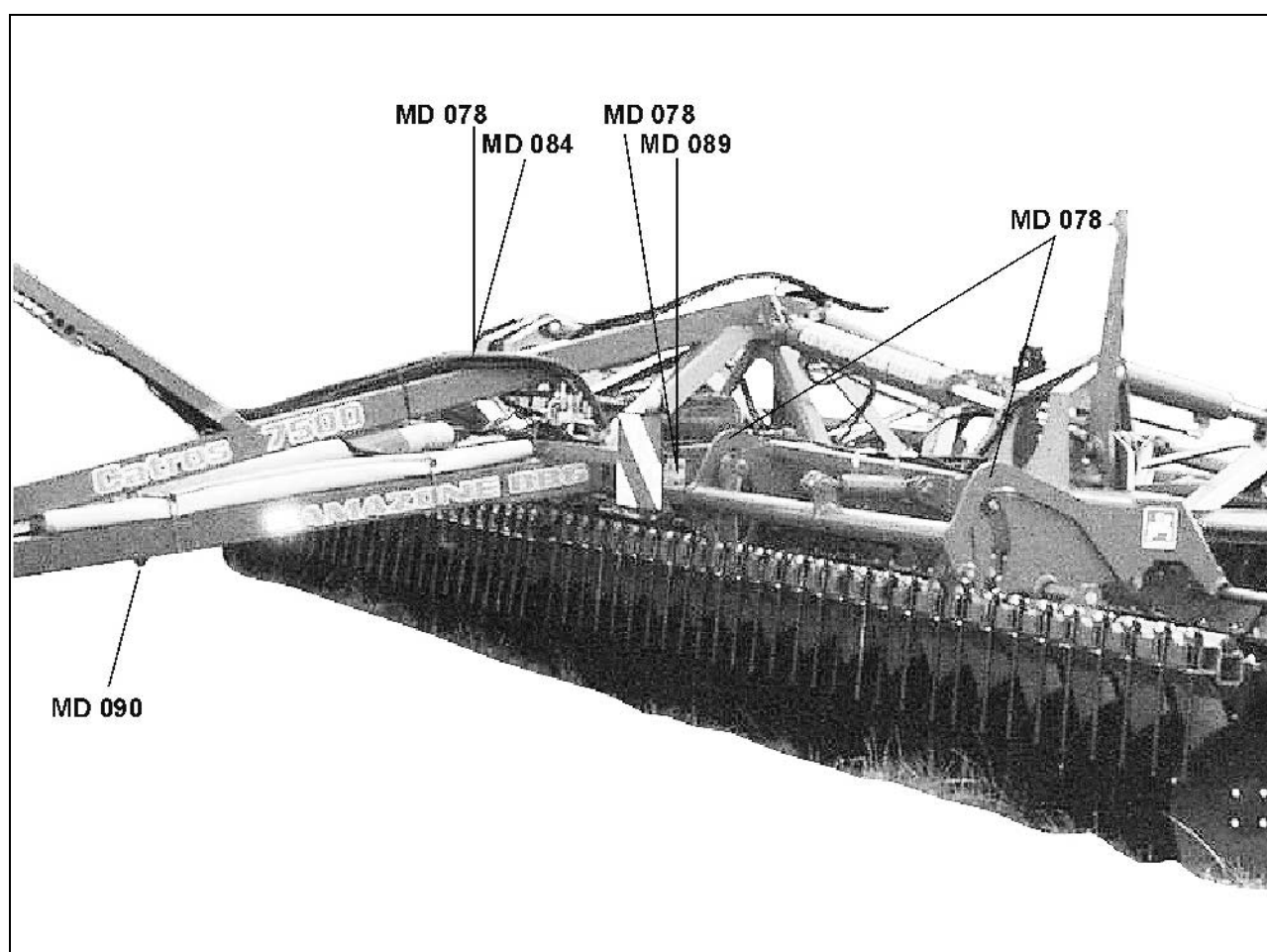
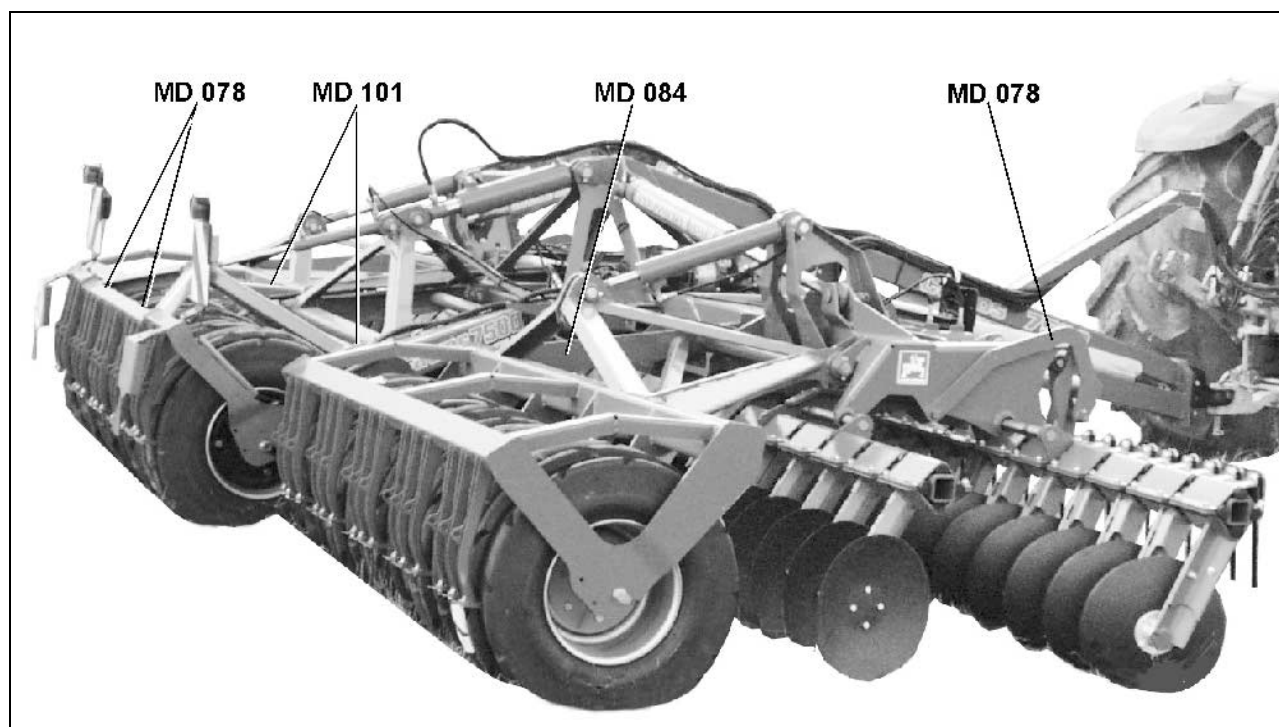
The permissible max. hydraulic pressure is 200 bar!

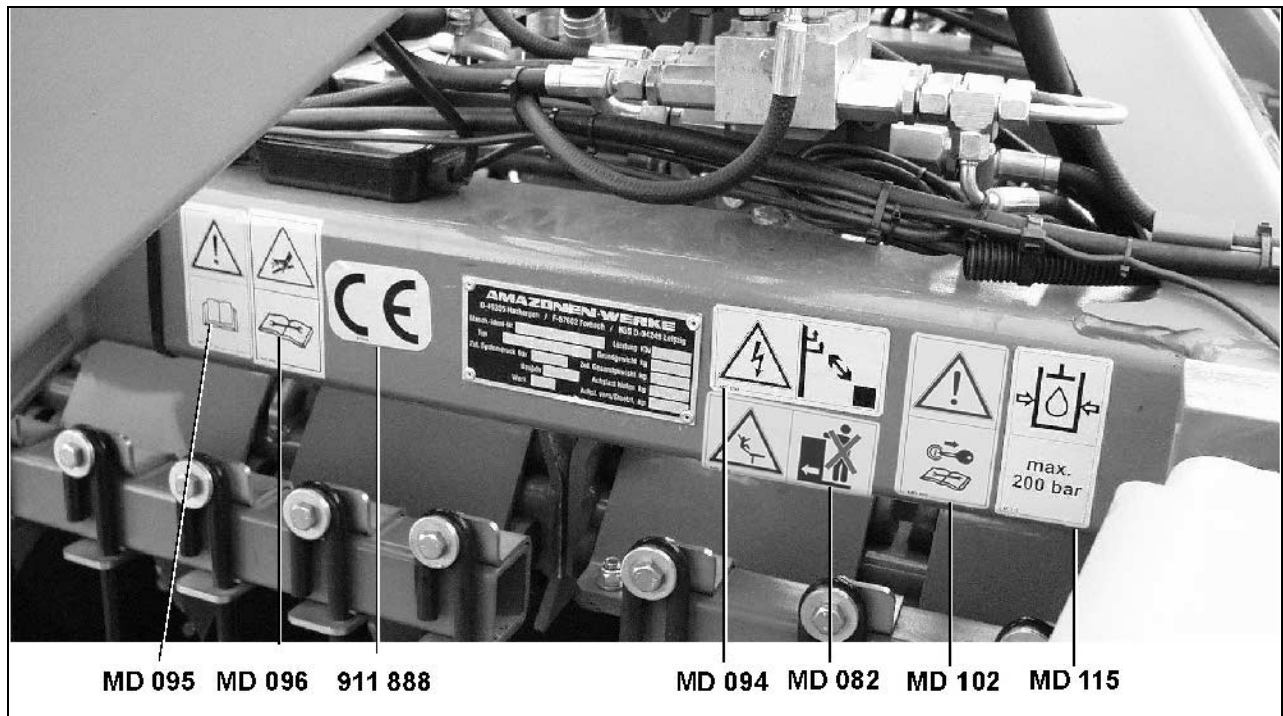


911888

The CE-sign on the machine indicates the compliance with the valid EC guide lines!









2.17 Danger when not adhering to the safety advice

Not adhering to the safety advice

- may result in endangering persons, also the environment and also the machine itself.
- may result in the rejection of any claim for damage.

Not paying attention to the safety advice may cause the following risks:

- Danger to persons not excluded from operational areas.
- Failure of important functions within the machine.
- Failure of carrying out prescribed measures of maintenance and repair.
- Danger to persons through physical or chemical contact.
- Danger to persons, or the environment by leaking hydraulic oil

2.18 Safety conscious operation

Besides the safety advice in this operator's manual additionally, the national, and generally valid operation safety and accident prevention advice of the authorised trade association are binding, especially VSG 3.1.

Adhere to the safety advice on the decals on the machine.

When travelling on public roads observe the traffic regulations in force in your country.

2.19 Safety advice for the user

**Basic principle:**

Always check traffic and operational safety before putting the machine to operation!

2.19.1 General safety and accident prevention advice

- Adhere to the general rules of health- and safety precautions besides the advice in this operator's manual!
 - The fitted warning- and advising decals give important hints for a safe operation. Adhering to them protects your own safety!
 - When making use of public roads adhere to applicable traffic rules!
 - Become acquainted with the machines controls and functions before beginning the operation. Doing this during operation would be too late.!
 - The operator should wear close-fitting clothes. Avoid wearing loose-fitting clothes!
 - Avoid danger of fire by keeping the machine clean!
 - Before beginning to move, check surrounding area (children etc.). Ensure sufficient visibility!
 - Carrying passengers whilst driving or operating the machine is not permitted!
 - Attach implements as advised and only to the attachment points provided!
 - Special care should be taken when the implement is coupled to or off the tractor!
 - When attaching or removing the machine bring the supporting devices into the corresponding position (standing safety)!
 - Always attach weights correctly to the mounting points provided!
 - Observe the permissible axle loads, total weights and transport dimensions!
 - Ensure that the outer transport dimensions correspond to your national traffic law!
 - Check and install any transport equipment such as lighting, warning devices and any safety advice.!
 - Release cables for quick hitches should hang freely and must not work loose from their housings!
 - Do not leave the driving position at any time whilst driving!
 - Driving, steering and braking abilities are influenced by mounted or suspended equipment and ballast weights. Therefore, check sufficient steering and braking!
 - When lifting a three point implement the front axle load of the tractor is reduced depending on its size. The sufficient front axle load (20 % of the tractor net weight) has to be maintained!
-



- When driving around bends note the width of the machine and/or the changing centre of gravity of the implement!
- Start operating implements only when all guards have been fitted in guarding position!
- Before leaving the tractor seat lower the machine to the ground. Actuate the parking brake, stop the engine and remove ignition key!
- Do not stand near rotating and swivelling parts of the machine!
- Hydraulic folding frames must only be activated after making sure no-one is standing near the machine!
- Squeeze and shear points are found on externally activated components (e.g. hydraulics)!
- Before leaving the tractor seat lower the machine to the ground. Actuate the parking brake, stop the engine and remove ignition key!
- Allow nobody to stand between tractor and implement if the tractor is not secured against rolling away by the parking brake and/or by the chocks!
- Lock the track marker (according to type of machine) in the transport position.

2.19.2 Operational devices

- Before starting to travel check the braking action.
 - Before driving downhill change to a lower gear.
 - In case a function fault on the brake system is noticed, stop the tractor immediately and have the fault remedied.
-

2.19.3 Trailed machines

- When fitting to the three point linkage the mounting categories at the tractor and the implement must implicitly coincide!
 - Observe the manufacturer's advice.
 - Within the range of the tractor lower links danger of injury by squeezing or shearing.
 - External actuation of the tractor lower links is prohibited. Actuation of the tractor lower links only from the tractor cab.
 - Couple the machine in the appropriate manner. Check function of the brake system. Observe the manufacturer's advice.
 - The machine should only be transported and driven by a tractor which fulfils the power requirements.
 - Danger of injury when coupling implements on and off the tractor.
 - Allow nobody to stand between tractor and implement if the tractor is not secured against rolling away by the parking brake and/or by the chocks!
 - Danger of squeezing and shearing when actuating the supporting device.
 - By mounting implements at the front or in the rear of a tractor, do not exceed
 - the permissible tractor total weight
 - the permissible tractor axle loads
 - the permissible tyre carrying capacity of the tractor tyres.
 - Observe the maximum payload of the attached implement and the permissible axle load of the tractor.
 - Before starting transport always ensure sufficient lateral locking of the tractor lower links.
 - For road transport lock the actuation lever of the tractor lower links against unintended lowering.
 - Before any road transport bring all devices into the transport position.
 - Steering and braking of the tractor are influenced by mounted or trailed machines and front or rear ballast weights.
 - The tractor front axle load must be at least 20 % of the tractor's net weight in order to ensure a sufficient steering. If necessary, attach front weights.
 - Before carrying out any repair-, maintenance and cleaning work or the remedy of functional faults, always remove the ignition key.
 - All guards must be attached and always be in safety position.
 - Machines without brake system:
 - The max. speed is restricted to 25 km/h.
 - The basic weight of the tractor (not the permitted total weight) plus the support load of the machine must be bigger than the max. axle load of the machine.
-



2.19.4 Hydraulic system

- The hydraulic system is under high pressure!
- Connect hydraulic hoses to the hydraulic rams and motors according to the advice in the instructions!
- When fitting the hydraulic hoses to the tractor hydraulic sockets always ensure that the hydraulic system on the tractor as well as on the implement is without pressure!
- On hydraulic connections between tractor and machine mark the coupling sockets and plugs in order to avoid operational errors.
- The mix-up of connection will result in reverse function, e.g. lowering/lifting.
- All hydraulic hoses must be checked for their operational safety by a skilled person at least once a year. In case of damage or ageing replace the hydraulic hoses. Only use original **AMAZONE** hydraulic hoses!
- When searching for leaks appropriate aids should be used because of the danger of injury!
- Liquids leaking under high pressure (hydraulic oil) can penetrate the skin and cause severe injury. When injured see a doctor immediately. Danger of infection!
- In case of injury immediately go to see a doctor. Danger of infection!
- Before starting repair work to the hydraulic system relieve it from pressure, lower the machine to the ground and stop tractor engine!
- Prior to any operation all hydraulic hoses must be checked for their operational safety by a skilled person and then at least once a year. In case of damage or ageing replace the hydraulic hoses. Replacement hoses must correspond to the technical demands of the implement manufacturer.
- The period of use of any hose circuit should not exceed six years including a possible storing period of two years maximum. Also when stored and used properly hoses and hose circuits do age. Therefore, their longevity and period of use is limited. Deviations from the above may be accepted depending on the experience they have had and the danger potential. For hoses and hose circuits made of thermoplasts other guide lines may prevail.

2.19.5 Electric outfit

- The function of the implements' electronic components and parts may be affected by the electro magnetic transmittance of other devices. Such affects may endanger third parties when the following safety advice has not been adhered to.
- When retrofitting electric and electronic devices and/or components to the implement with a connection to the tractor's on-board electric circuit, the onus is on the user to ensure that the installation will not cause any disturbance to either the tractor's electronics or other components.
- Special attention must be paid that the retrofitted electric and electronic parts correspond to the EMV-guideline 89/336/EC in the relevant valid edition and that they bear the CE-mark.

2.19.6 Maintenance, repair- and care-work

- Repair-, maintenance- and cleaning operations as well as the remedy of function faults should principally be conducted with drive stopped, engine stopped, and uncoupled hydraulic-, air pressure and electric connections. Remove ignition key.
 - Check nuts and bolts for tightness and retighten if necessary!
 - Before carrying out any maintenance-, repair- and cleaning work ensure the lifted implement or lifted implement parts against unintended lowering!
 - When exchanging operational tools with cutting edges use appropriate tools and wear gloves!
 - Dispose of oil, grease and filters in the appropriate manner!
 - When carrying out any work on the electric system disconnect the power supply.
 - Before conducting any electric welding on the tractor and the mounted implements remove the cable from generator and tractor battery!
 - Any spare parts fitted must, as a minimum meet with the implement manufacturers' fixed technical standards! Using original **-AMAZONE-** spare parts for example ensures this!
-



2.19.7 Brake system and tyres

- Before starting to travel check brakes for proper function.
 - The brake system must be carefully checked in regular intervals!
 - Only authorised workshops or brake services are allowed to carry out adjustment or repair work on the brake system! Only use the prescribed brake liquid and replace according to prescription.
 - Before carrying out any work on the tyres, safely park the machine and secure against unintended rolling away (use chocks).
 - Fitting tyres requires sufficient knowledge and appropriate fitting tools.
 - Repair work on tyres and wheels must only be carried out by skilled persons with appropriate tools.
 - Check air pressure in regular intervals. Observe the prescribed air pressure.
-

3. Product description

This chapter provides you with a comprehensive survey about the design of the machine and Read this chapter when standing at the machine. In this way you will get optimally acquainted to the machine.

3.1 Overview – components

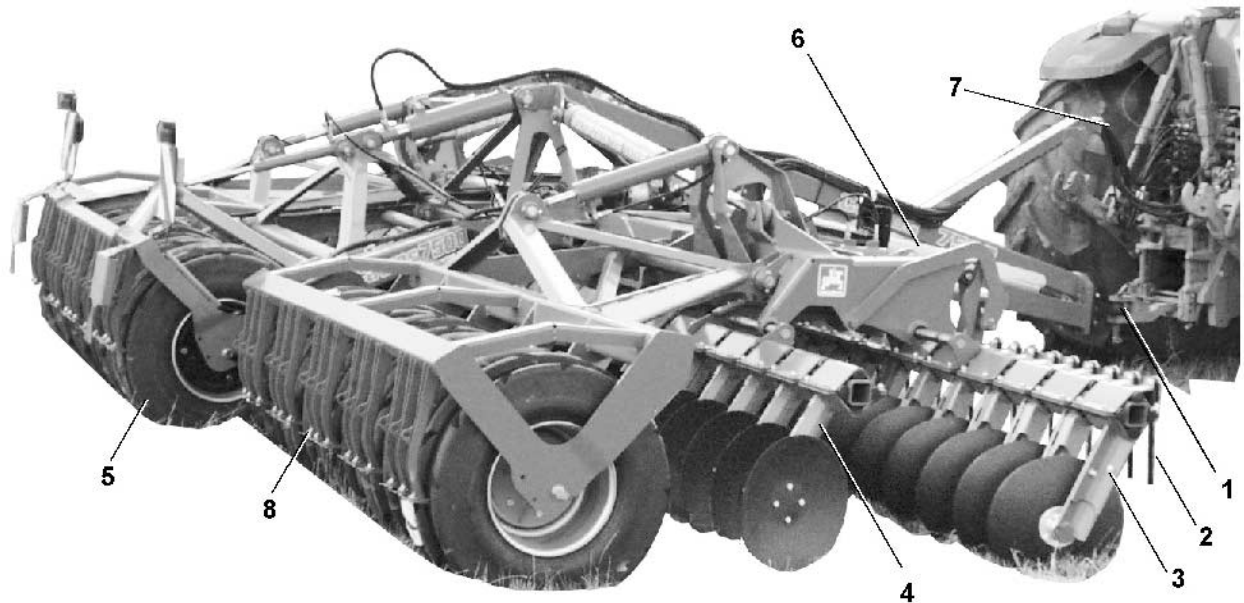


Fig. 1

- 1 - Swinging draw bar
- 2 - Straw following harrow-Planator (Option)
- 3 - 1st Disc gang
- 4 - 2nd disc gang
- 5 - Wedge ring tyre roller (in the centre with integrated running gear)
- 6 - Protective canvas for road transport
- 7 - Hydraulic hoses for connection with the tractor
- 8 - Scraper for wedge ring tyre roller

Fig. 2:

- 1 - Locking hooks against unintended folding down

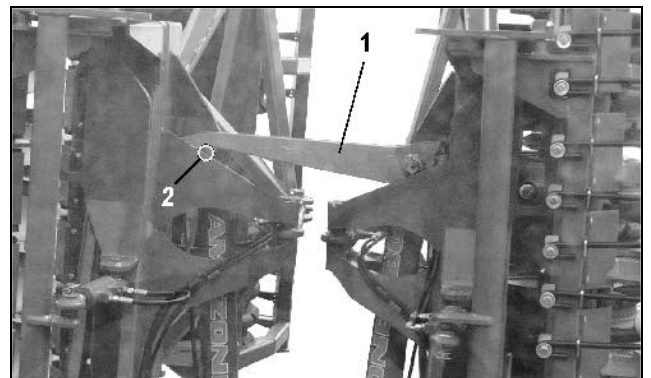


Fig. 2

Fig. 3:

Air pressure valve of brake system

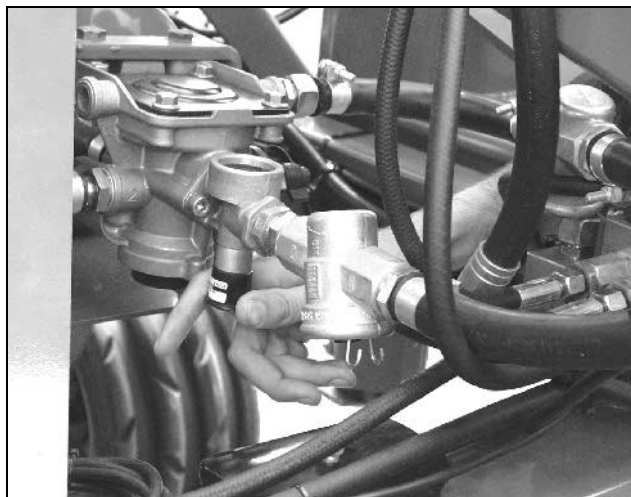


Fig. 3

Fig. 4:

- 1 - Brake cylinder
- 2 - Equalizing reservoir for brake liquid

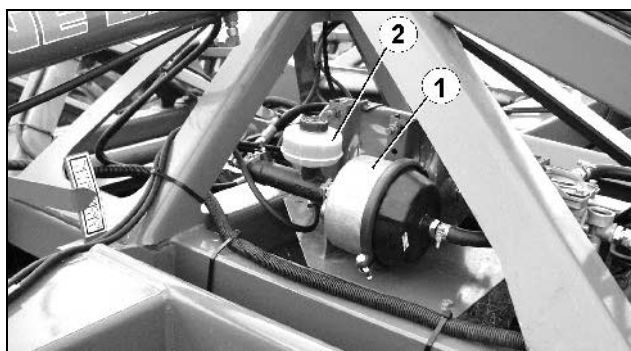


Fig. 4

Fig. 5:

Adjustment of disc staggering



Fig. 5

Fig. 6:

Scale for disc working depth



Fig. 6

Fig. 7:

1 - Swivelable support jack with crank



Fig. 7

Fig. 8:

1 - Air reservoir of brake system
2 - Hydraulic control block

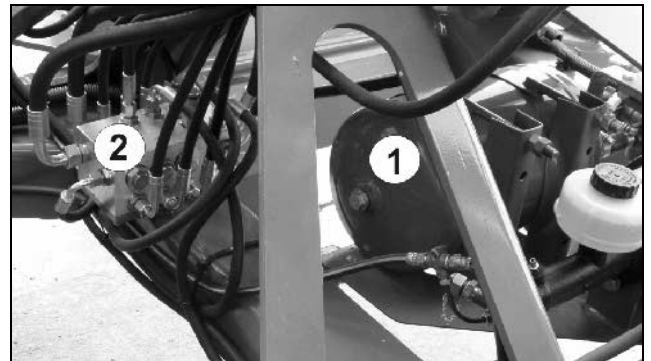


Fig. 8

Fig. 9:

1 - Wedge ring tyre roller with integrated running gear
2 - Protective canvas fitted for road transport
3 - Traffic lights with warning plates

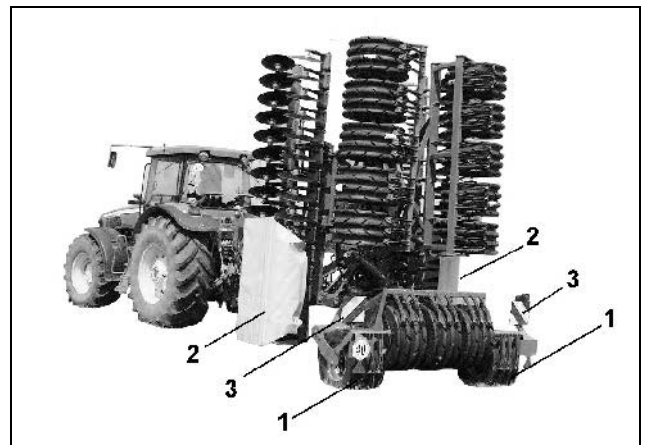


Fig. 9

3.2 Supply lines between tractor and machine



- Hydraulic hose lines

Hint!

All hydraulic hoses should be equipped with coloured marks to assign the relevant hydraulic function to the tractor control valve.

- Electric cable for traffic light
- Air brake system
Brake hose with coupling claw yellow
Supply line with coupling claw red

3.3 Type plate and CE declaration

The type plate is located on the frame:

- Machine serial No.:
- Type:
- Permissible system pressure bar
- Year of construction
- Factory
- Power KW
- Basic weight: kg
- Allowable total weight kg
- Axle load rear: kg
- Axle load front, support load: kg



Fig. 10

3.4 Conformity

Catros 5500/7500 fulfils the:EG- guide line 98/37/EG und den entsprechenden Ergänzungsrichtlinien.

3.5 Technical data

Disc harrow		Catros 5500	Catros 7500
Working width	[mm]	5500	7500
Execution		foldable	foldable
Tractor power requirement	[kW]	120	160
Brake system-interface <ul style="list-style-type: none"> Tractor connection Effective brake with integrated running gear 		Two circuit air brake system	
		Hydraulic brake system	
Transport running gear		2X400/50-15,5	
Electr. tractor connection		12 Volt/7plug	
Permissible max. speed	[km/h]	40	
basis weight	[kg]	4400	5800
Rear axle load	[kg]	3200	4300
Support load	[kg]	1200	1500
Total length	[mm]	5500	5500
Transport width	[mm]	2950	2950
Transport height	[mm]	3000	4000
Disc spacing	[mm]	250	250
Disc diameter -	[mm]	460	460
Number of discs		44	60
Setting the disc staggering		mechanical	mechanical
Setting the Working depth		hydraulic	hydraulic
Working depth	[mm]	30 - 120	30 - 120

3.6 Function

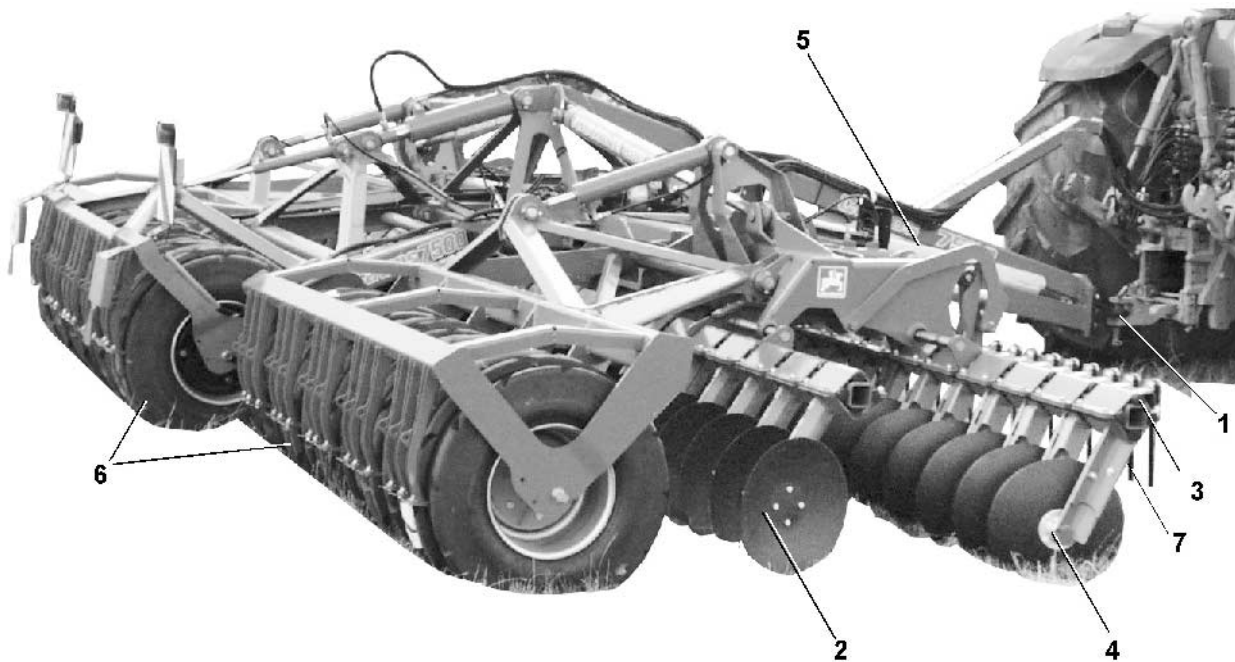


Fig. 11

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

- Shallow stubble work immediately after combining
- Seed bed preparation in spring for maize or sugar beet
- Incorporation of cover crops as, for example, mustard
- Slurry incorporation.

Catros 5500 or **7500** with working widths of 5,50 m or 7.50 m are equipped with a foldable frame..

The **Catros** is attached to the tractor by means of a swinging drawbar (Fig. 11/1).

Two row disc cultivator

Staggered arrangement of the blockage free concave discs (Fig. 11/2) with a cutting angle of 17° front and 14° rear seen in driving direction.

The bearing of the concave discs (Fig. 11/4) consists of a 2 row angular contact ball bearing with face seal and oil filling and is free of maintenance..

The following settings are possible:

- The slide unit (Fig. 11/5) adjusts the stagger of the two disc gangs for working depth and speed. Adjustment via the AMAZONE square eccentric pins.
- Work intensity of the discs via the working depth of the disc cultivator. Hydraulic depth setting..
- Both side discs in the vertical direction. The working depth of the outer discs can be reduced to prevent the forming of ridges or furrows.

The rubber block mountings for each disc allows

- Following the ground contour
- The discs to clear firm obstacles, for example stones. In this way the individual disc is protected from damage.

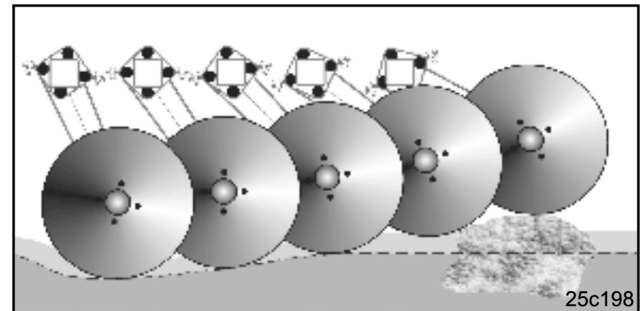


Fig. 12

The wedge ring roller

The wedge ring tyre roller (Fig. 13) with a diameter of 800 mm

- Consists of individual wedge ring tyres arranged next to each other.
- Stripwise reconsolidates the worked soil
- Provides the depth control of the concave discs
- Acts as running gear for transport travel.

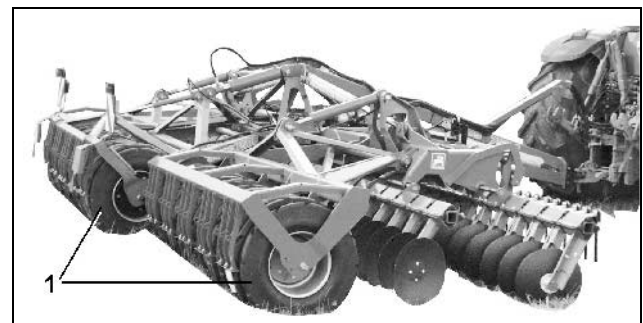


Fig. 13

Straw following harrow Planator (special option):

The straw following harrow Planator (Fig. 14) scatters the chaff residues in the field.

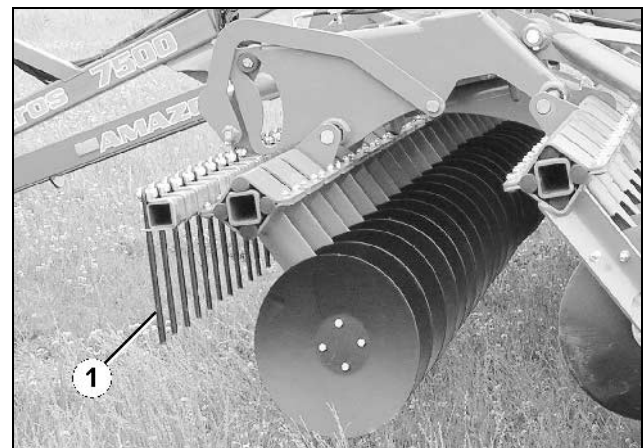


Fig. 14



Service brake system

The machine is equipped with a two circuit air brake system with hydraulically actuated brake cylinder for the brake shoes inside the brake drums.



The machine has not got a parking brake!

Before uncoupling the machine from the tractor always secure the machine by using chocks.

3.7 Area of danger

Areas of danger exist

- Between tractor and machine, especially when coupling on and off and when filling the hopper
- within the operational range of moving parts
- when climbing on to the machine
- in the swivel range of the sprayer booms
- Under the lifted, not secured machine or parts of the machine
- When folding out and in the machine wings within the vicinity of power lines.

In these areas permanent danger exists or unexpected danger could arise. Safety symbols identify these danger areas (see para. 2.16).

3.8 Hydraulic plan

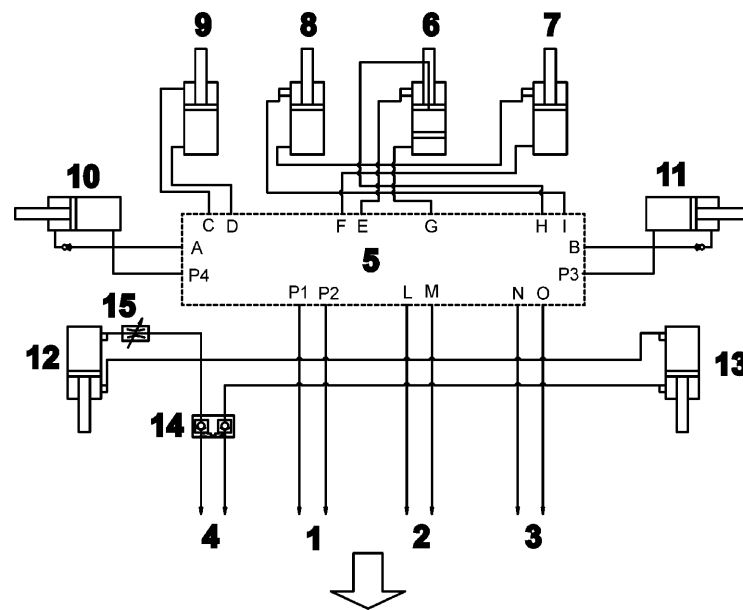


Fig. 15

Fig. 15/...

- 1 Connection **double acting control valve 1**

- folding down the machine
- lower the centre 3 rows.

Hose marking: 1 x blue

- folding in the machine
- lift the centre 3 rows.

Hose marking: 2 x blue

- 2 Connection **double acting control valve 2**

- to increase the working width.

Hose marking: 1 x green

- to reduce the working width.

Hose marking: 2 x green

- 3 Connection **double acting control valve 3**

- Lower the implement.

Hose marking: 1 x yellow

- Lifting the implement

Hose marking: 2 x yellow

- 4 Connection **double acting control valve 4**

- Lowering the straw following harrow

Hose marking: 1 x nature

- Lifting the straw following harrow (throttled).

Hose marking: 2 x nature

- 5 Control block
- 6 Hydraulic ram running gear
- 7 Hydraulic ram roller left hand side
- 8 Hydraulic ram roller right hand side
- 9 Hydraulic ram roller centre
- 10 Hydraulic ram side frame right hand side
- 11 Hydraulic ram side frame left hand side
- 12 Hydraulic ram Planator right hand side
- 13 Hydraulic ram Planator left hand side
- 14 locking block
- 15 adjustable throttle valve



The hydraulic connections for the relevant rams on the left hand machine side are also identified by coloured cable ties.

4. Mounting and dismounting



When mounting and dismounting the implement adhere to the safety advice!

Mount the implement in the appropriate manner to the prescribed fixing points!

Special care should be taken when coupling the implement to or off the tractor!

Observe the max. axle load of your tractor!

4.1 Mounting

4.1.1 Mounting and dismounting to the tractor



The machine is not provided with a parking brake.



Before uncoupling the machine apply 4 chocks: each 2 chocks on both sides of the machine underneath the outer wheels of the wedge ring tyre roller.

The machine can be folded in or folded out or coupled and uncoupled. In both cases the machine rests on all tyres of the centre wedge ring tyre roller..

- Couple the machine by using the pulling eye (Fig. 16/1) on to the swinging drawbar (Fig. 16/2) of the tractor;
- Lock by using the pin (Fig. 16/3) and
- Secure using lynch pin (Fig. 16/4).

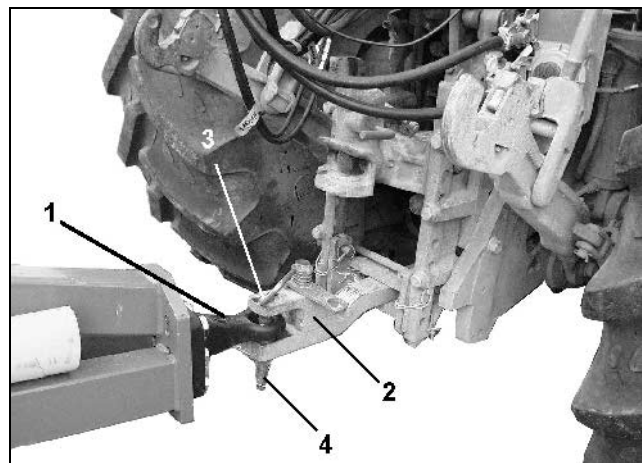


Fig. 16



For coupling vehicles use the provided devices in the appropriate manner.



Allow nobody to stand between tractor and implement if the tractor is not secured against rolling away by the parking brake and/or by the chocks!

Any assistants may only stay at the side of the tractor and machine and help to direct it.

Carry out any machine connections only when tractor and machine are coupled, with the tractor engine stopped, the parking brake applied and the ignition key removed.

Connect the supply line (rot) of the service brake with the tractor only with the tractor motor stopped, the parking brake applied and the ignition key removed.

Check the routing of the supply lines.

Ensure that the supply lines

- have sufficient length to follow all movements when driving in curves without tensioning, kinking or rubbing.
- never rub against foreign parts.

4.1.2 Hydraulic connections



The permissible max. hydr. service pressure is 200 bar!



The hydraulic system is under high pressure!



When connecting the hydraulic hoses to the tractor hydraulic system take care that both the tractor and broadcaster hydraulic system are pressure free!

Hydraulic connections (Fig. 17/1):

Plug the hydraulic hoses into the required sockets.

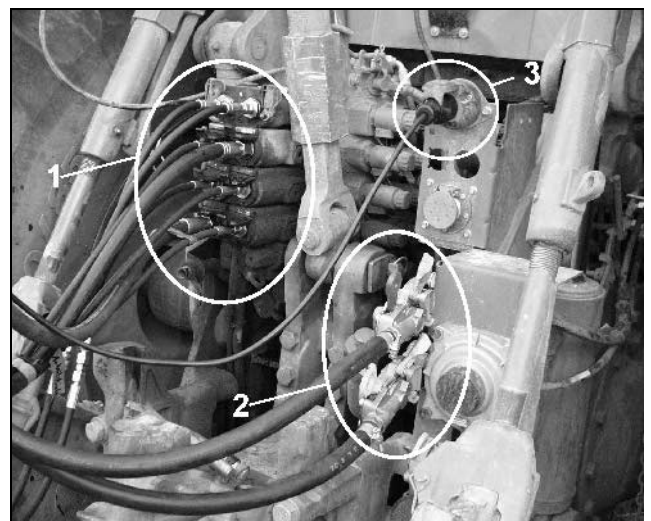


Fig. 17



Control unit	Function	Hose mark
1 - double acting	- Machine folding out	1 x blue
	- Machine folding in	2 x blue
2 - double acting	- Working depth increase	1 x green
	- Working depth reduction	2 x green
3 - double acting	- Machine lowering	1 x yellow
	- Machine lifting	2 x yellow
4 - double acting	- Planator lowering	1 x nature
	- Planator lifting	2 x nature

4.1.3 Air brake system

The machine is equipped with a two circuit air brake system with hydraulically actuated brake cylinder.

The two circuit air brake does not – as usual – actuates the brake shoes via a brake linkage or a brake cable. The two circuit brake system acts upon a hydraulic ram which operates the hydraulic brake cylinders of the brake shoes in the brake drum.

Required connections for the air brake system (Fig. 17/2):

- 1 coupling claw (red) for the supply line.
- 1 coupling claw (yellow) for the brake line.

When the air reservoir is filled the brake is applied. The brake releases immediately from the braking position when the red coupling claw is coupled.

Before coupling the brake and supply line, ensure that

- the coupling claws are clean,
- the seal rings of the coupling claws are in a perfect condition,
- the seals are clean and undamaged.



First couple the yellow coupling claw (brake line) and then the red coupling claw (supply line) on to the tractor. Ensure the correct catching.

4.1.4 Electrical connections

Electrical connections: Insert the power supply cable plug for the traffic light kit into the 12 V-tractor socket (Fig. 17/3) on the tractor and check function of the traffic lights before every use.

Battery voltage:	12 Volt
Socket for lights:	7-pole

4.1.5 Jack

Putting the jack (Fig. 18/1) into transport position:

- Use the crank (Fig. 18/2) to crank the jack upwards.
- Pull out the pin (Fig. 18/3) .
- Swivel jack upwards and secure using the pin.

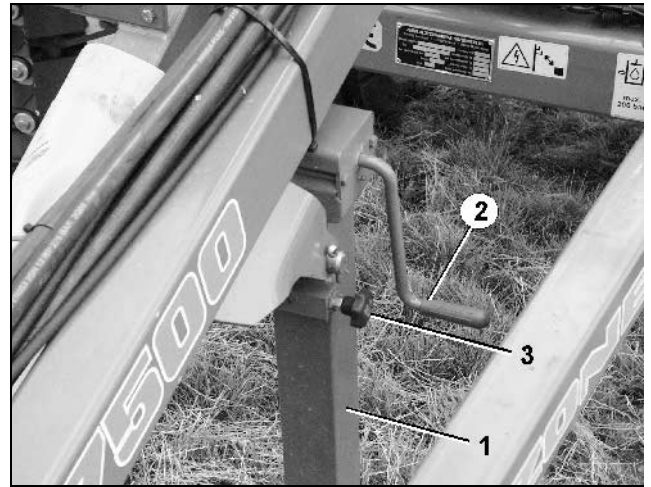


Fig. 18

4.2 Dismounting

4.2.1 Unhitching

- Align tractor and machine on level ground and get them to full standstill..
- Retract the integrated running gear. Now the machine rests on the four wheels of the integrated wedge ring tyre roller.
- Stop tractor engine, apply parking brake and remove ignition key.
- Slacken the spring pins and take the 4 chocks out of their retainers at the rear of the machine.
- Secure the machine on both sides with each 2 chocks underneath the outer tyres of the wedge ring tyre roller.



Secure the machine always by using 4 chocks, before unhitching the implement! The chocks replace the parking brake of the machine.

- Uncoupling all secondary hose of the machine.
- Close the hydraulic plug and the coupling claws of the supply and brake line with the aid of protective caps.
- Attach all supply lines in the retainer according to their labelling.



At first release the coupling claw of the secondary hose (red). (supply hose) and then release the coupling claw of the brake hose (yellow)!

- Pull the pin and Lower the support leg
- Crank down the support leg until the draw bar releases in the tractor coupling and ensure with the pin.
- Park the machine on the jack.



Only park the machine on level, firm ground.

Ensure that the jack does not sink into the ground as otherwise the coupling of the machine would become impossible.



Before dismounting the machine ensure that the coupling point is relieved.

- Uncouple the swinging drawbar.
- Pull the tractor forward.



Ensure that no person is standing between tractor and machine whilst the tractor is pulled forward.

5. On the route to the field – Transport on public roads and ways



When travelling on public roads and ways tractor and implement have to correspond to the national road transport and traffic rules and the applicable national accident prevention advice (in Germany the advice of the trade association).

The vehicle owner and operator are responsible for adhering to the legal traffic rules!.

In addition adhere to the advice in this chapter before and during any travelling.

Adhere to the prescription for accident prevention in public road traffic.

Observe the permissible axle loads, total weights and transport dimensions (see para. 3.2).

For transporting the machine the tractor front axle load must be at least 20 % of the tractor's net weight in order to ensure a sufficient steering.

The max. speed of the machine is 40 km/h. On bad roads or ways this speed must be considerably reduced.

Driving, steering and braking abilities are influenced by mounted or suspended equipment and ballast weights. Therefore, check sufficient steerage and braking.

When driving round bends note the wide protrusion and the gyrating mass of the machine.

Riding and transport on the machine is not allowed.

When the machine is in the transport position check all traffic safety devices for proper function and attach the relevant options (e.g. protective canvas).

The transport width of 3 m should not be exceeded!

Before starting to travel with the lifted implement secure the actuation levers on the tractor against unintended lifting or lowering.

Ensure engagement of the transport locking.



Prior to travel: Check the tyre air pressure of the running gear wheels.

Required air pressure: 3,5 bar.

The machine being a trailed implement should be equipped with:

- 2 rear lights (Fig. 19/1)
- 2 stop lights (Fig. 19/2)
- 12 indicators (Fig. 19/3, required when the tractor indicator is hidden by the machine)
- 2 red reflectors (Fig. 19/4, round, square or triangle)
- one licence plate carrier with lights (Fig. 19/5, required when the tractor indicator is hidden by the machine)
- two warning lights facing to the rear (Fig. 19/6)
- two limiting lights facing to the front (Fig. 20/1)
- two warning plates facing to the front (Fig. 20/2)
- lateral reflectors, yellow (Fig. 20/3)

Check traffic lights for proper function.

Ensure that the warning plates are clean and undamaged.

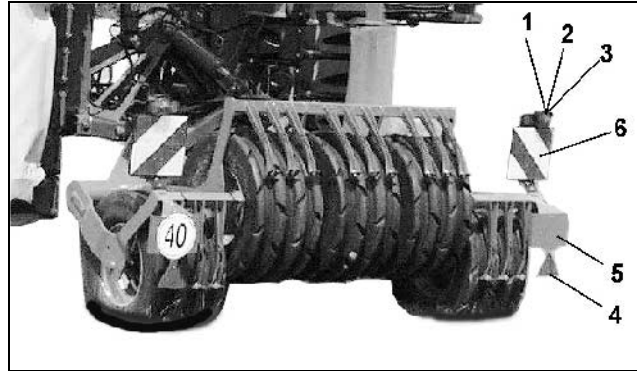


Fig. 19

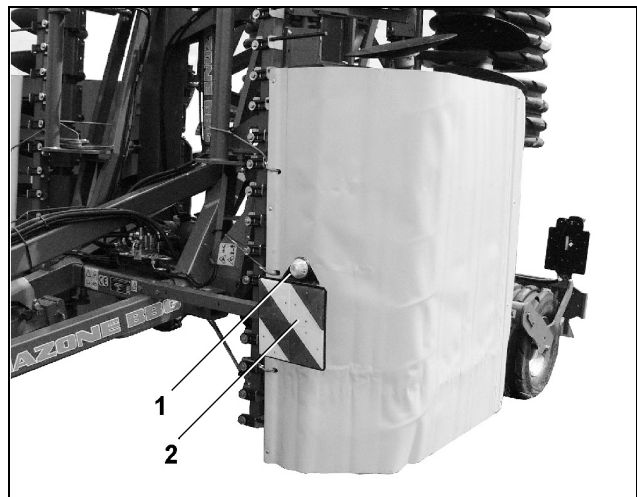


Fig. 20

5.1 Conversion from operating to transport position

- Fold in the implement. (Fig. 22)

1. Actuate control valve 3 (hose mark 2 x yellow):

- Lift the implement, headland position! (Fig. 21)

2. Actuate control valve 1 (hose mark 2 x blue):

- Fold in the machine completely and retract the lateral rollers completely (combined function, keep valve pressed for some time!)
→ Safety hook locks.

3. Actuate control valve 3 (hose mark 1 x yellow):

- Lower the machine to max 4 m transport height.



Ensure that the side frames lock in transport position (Fig. 23)
Secure the locking hooks (Fig. 23/1) and locking pins (Fig. 23/2) in transport position.



Advise persons to leave the danger area of the machine.



Do not exceed the max. transport height of 4 m. This will result when a ground clearance of 25 cm is maintained.

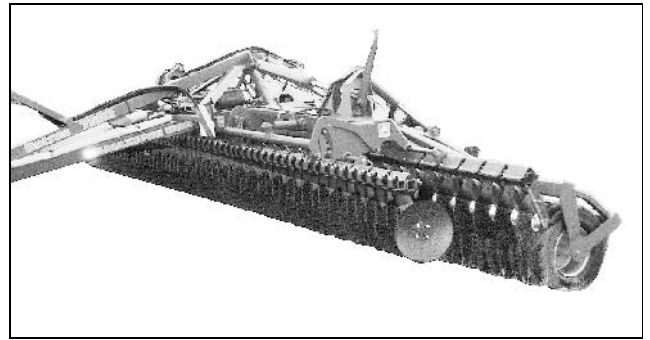


Fig. 21

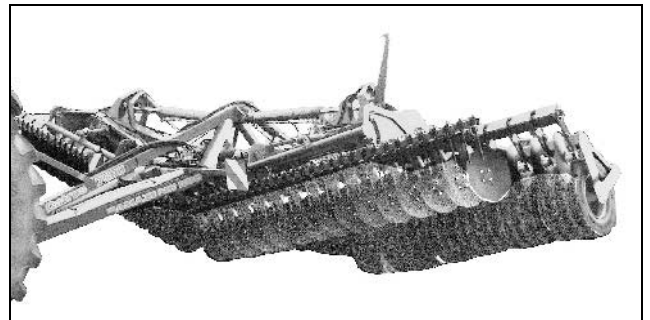


Fig. 22

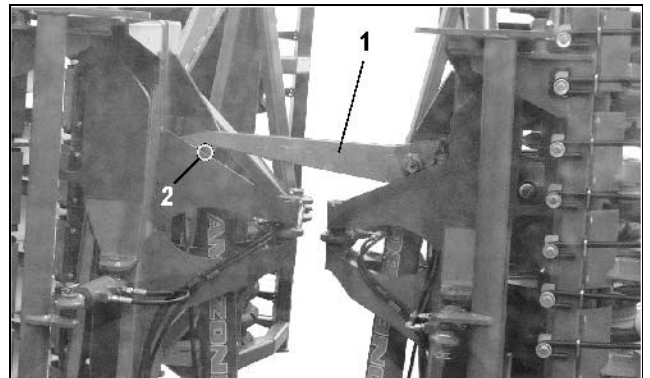


Fig. 23

- **Attachment of protective canvas:**

- Take the protective canvass off the draw bar.
- Place the protective canvas round the disc rows and affix by using belts (3 belts in the front (Fig. 24) 2 belts in the rear (Fig. 25).

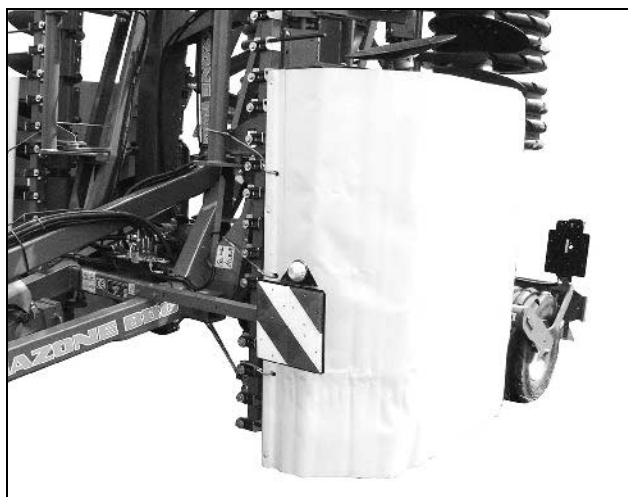


Fig. 24

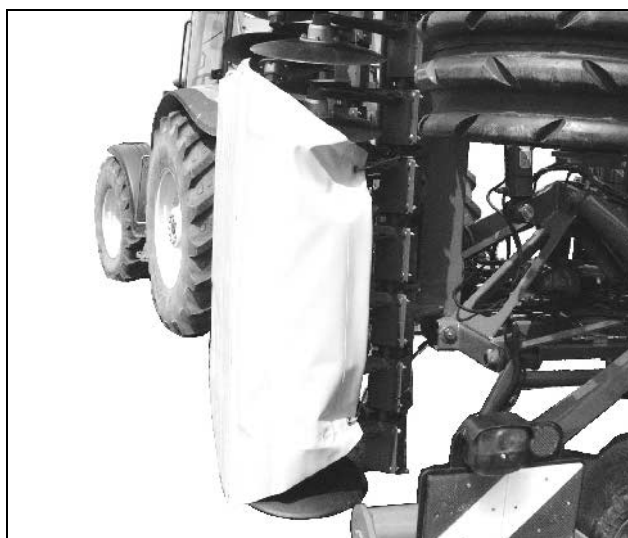


Fig. 25

- **Machine in road transport position (Fig. 26)**

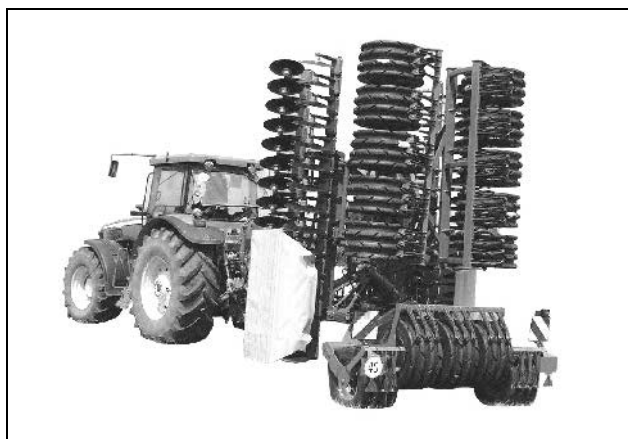


Fig. 26

6. Putting into operation

In this chapter you will find information for putting your machine into operation.



Danger!

- Before putting the machine into operation ensure that the operator has read and understood the instruction manual.
- Before hitching the machine on or off read the chapter "Safety advice for the operator", on page 9
 - Coupling and uncoupling the machine
 - Transport of the machine
 - Operation of the machine
- Take account to these effects and allow sufficient steering and braking of your tractor!
- If necessary use ballast weights!
- When mounting of machines at the front and/or in the rear do not exceed
 - the permissible tractor total weight
 - the permissible tractor axle loads
 - the permissible tyre carrying capacity of the tractor tyres
- Before starting to operate the combination tractor/mounted implement, carefully determine the actual values for:
 - the tractor total weight
 - the tractor axle loads
 - the tyre carrying capacity
 - the minimum ballast

(by calculating or weighing the tractor-implement combination)

For this please refer to chapter "Calculation of the actual values for the tractor total weight, tractor axle loads and tyre carrying capacity as well as the necessary minimum ballast", on page 46.
- The tractor must provide the prescribed brake lag for the laden combination according to the national legal traffic regulations.
- Tractor and machine must correspond to the local and national legal traffic regulations.
- Both, the vehicle owner and operator are responsible for adhering to the legal traffic rules.
- Observe the max. payload of the mounted or trailed machine and the axle loads of the tractor. If necessary travel with only partly filled hopper.
- Before any transport travel secure the control lever of the three point hydraulics against unintended lifting or lowering of the mounted or trailed machine.

6.1 First operation

6.1.1 Determining the actual values for the tractor total weight, tractor axle loads, tyre carrying capacity as well as the required minimum ballast weights

6.1.1.1 Required data for the calculation

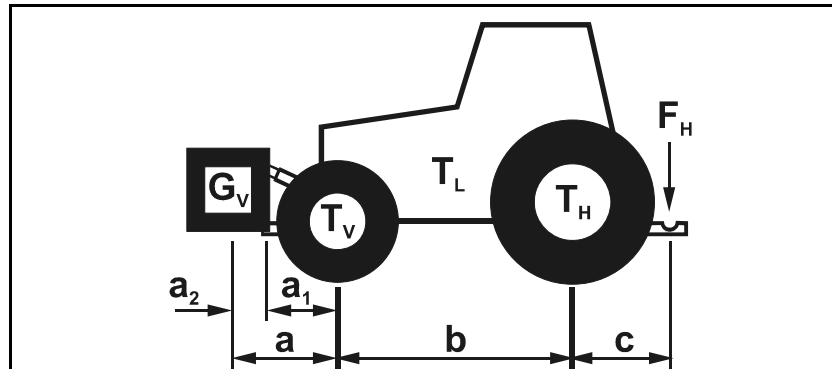


Fig. 27

T_L	[kg]	Tractor net weight	please see tractor Instruction manual / registration papers
T_V	[kg]	Front axle load of the empty tractor	
T_H	[kg]	Rear axle load of empty tractor	
G_V	[kg]	Front weight (if existing)	see technical data front weight or weigh.
F_H	[kg]	Support load with full hopper	please see technical data of the machine
a	[m]	Distance between the centre of gravity of the front mounted machine or front weight and centre of the front axle (sum $a_1 + a_2$)	please see technical data or measure
a_1	[m]	Distance between centre of the front axle and the lower link joint	please see tractor Instruction manual or measure
a_2	[m]	Spacing between centre lower link ball and centre of gravity of the front mounted machine or front weight (point of gravity spacing)	please see technical data or measure
b	[m]	Wheel base of tractor	please see tractor Instruction manual or measure
c	[m]	Spacing between centre rear axle and centre lower link ball	please see tractor Instruction manual, registration papers or measure

6.1.1.2 Calculation of the minimum ballast front $G_{V \min}$ to ensure the steer ability

$$G_{V \min} = \frac{F_H \cdot c - T_V \cdot b + 0,2 \cdot T_L \cdot b}{a + b}$$

Enter into the table the figure for the determined minimum ballast weight $G_{V \min}$, which is required in the front of the tractor (on page 48).

6.1.1.3 Calculation of the actual front axle load $T_{V \text{ tat}}$

$$T_{V \text{ tat}} = \frac{G_V \cdot (a + b) + T_V \cdot b - F_H \cdot c}{b}$$

Enter the figure for the calculated actual total front axle load and the permissible front axle load indicated in the instruction manual for the tractor into the table (on page 48).

6.1.1.4 Calculation of the actual total weight of the combination tractor/mounted implement

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

Enter the figure for the calculated actual total weight and the permissible tractor total weight as indicated in the tractor-instruction manual into the table (on page 48).

6.1.1.5 Calculation of the actual rear axle load $T_{H \text{ tat}}$

$$T_{H \text{ tat}} = G_{\text{tat}} - T_{V \text{ tat}}$$

Enter the figure for the actual rear axle load and the permissible tractor rear axle load indicated in the tractor-instruction manual into the table (on page 48).

6.1.1.6 Tyre carrying capacity

Enter double the value (two tyres) of the tyre carrying capacity (please refer e.g. to the documentation of the tyre manufacturer) into the table (on page 48).



6.1.1.7 Table

	Actual value according to the calculation	Permissible value according to the tractor-instruction manual	Double the permissible tyre carrying capacity (two tyres)
Minimum ballast Front / rear	<div>/</div> kg	--	--
Total weight	<div></div> kg	<div></div> kg	--
Front axle load	<div></div> kg	<div></div> kg	<div></div> kg
Rear axle load	<div></div> kg	<div></div> kg	<div></div> kg



Please take the permissible values for the tractor total weight, axle loads and tyre carrying capacity from the registration papers of your tractor.

- The actual calculated values must be smaller than /equal to (\leq) the permissible values!
- Coupling the machine on to the tractor on which the calculation is based is prohibited, if
 - just one of the actual calculated values is bigger than the permissible value.
 - the tractor is not provided with a front weight (if necessary) for the required minimum front ballasting ($G_{V \min}$).
- Use a front weight which at least corresponds to the required minimum front ballasting ($G_{V \min}$).

7. Settings

7.1 Working depth

Actuate control valve 2 (hose mark green):

The working width is hydraulically adjusted with the aid of the scale.

- Reduction of working width: Direction 0 adjust.
- Increase of working width: Direction 12 adjust.



The ram is provided with a hydraulically adjustable lock. After turning at the headlands, this facilitates to return to the pre-set working depth without visual inspection (adjustment via the control valve with green marking).



Fig. 28

7.2 Staggering of the disc gangs

The staggering of the disc gangs is adjusted with the **AMAZONE**-eccentric pin, as required.

For this 6 setting holes are available.

- Slacken clip pin (Fig. 29/1)
- Insert the eccentric pin (Fig. 29/2) in desired position.
- Fix clip pin..



Danger of squeezing between eccentric pin and the stop of the disc row!



A priority setting hole is marked with an arrow.



Fig. 29



The setting holes on the left hand and right hand side must coincide!

The fine tuning of the working depth is achieved by turning the eccentric pin (Fig. 30) of position 1 up to position 4.

- Slacken clip pin.
- Turn the eccentric .
- Fix clip pin.



Before setting the disc stagger it may be necessary to back up with the lowered machine in the field for a short distance to free the inserting holes.



Carry out any settings only with stopped tractor engine, applied parking brake and removed ignition key.

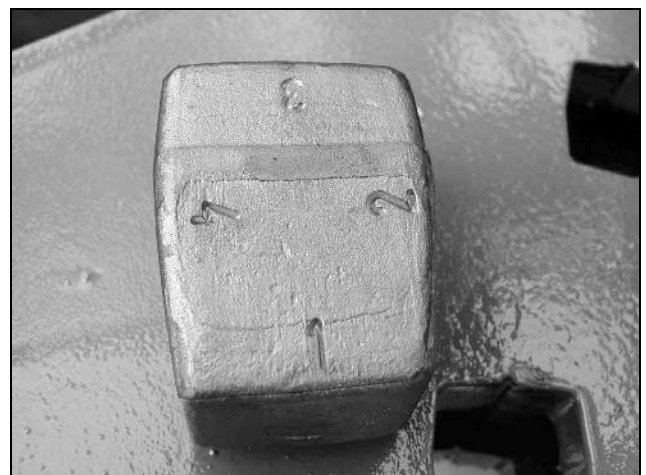


Fig. 30

Check the operational situation by uncovering the working horizon behind the machine:

Fig. 31/1, Fig. 32 /1, Fig. 33/1:
cutting edge of the 1st disc row

Fig. 31/2, Fig. 32/2,:

cutting edge of the 2nd disc row:

- Correct setting of disc rows (Fig. 31).
- Adjust the 1st disc row to the right hand side and check again (Fig. 32):
- The cutting edge of the 2nd disc row is not visible and follows the 1st disc row (Fig. 33):
Adjust 1st disc row to the left hand side.

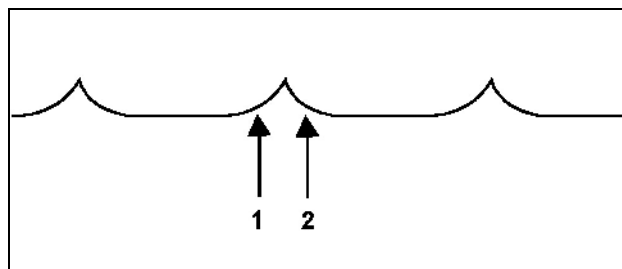


Fig. 31

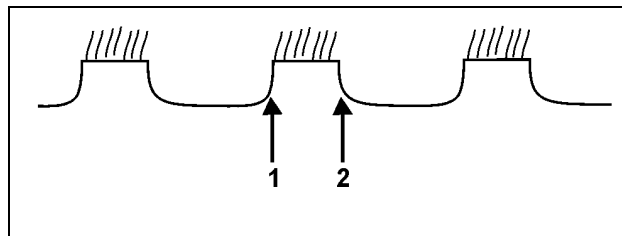


Fig. 32

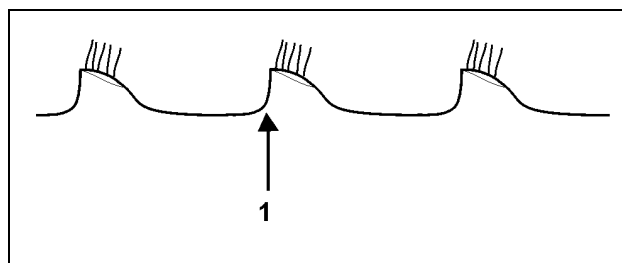


Fig. 33

7.3 Scraper

Adjustment of scraper:

- Slacken the bolt underneath the scraper.
- Adjust the scraper .
- Retighten the bolt.



Ensure a min. distance of 25 mm between scraper and wedge ring tyre.

Not maintaining the min. distance would result in tyre damage and accidents.

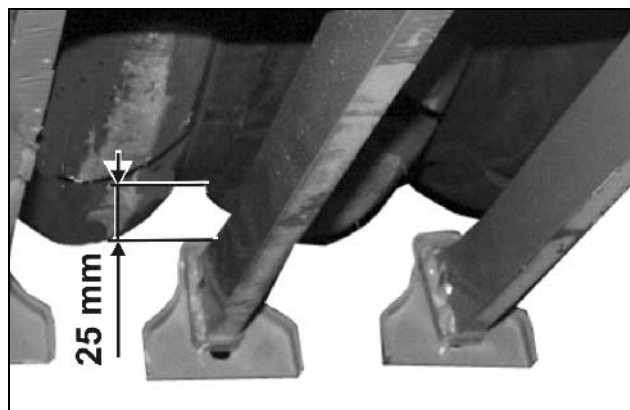


Fig. 34

7.4 Working depth of the side discs

Adjust the side disc at the front right hand side and the rear left hand side.

- Actuate control valve 3 (Hose mark 2 x yellow):
 - Completely lift both disc rows of the machine folded out.
- Slacken the screw joints (Fig. 35/1).
- Readjust the side discs in the slotted hose in such a way that no ridges will be formed during operation..
- Retighten screwed joints.



Carry out any settings only with stopped tractor engine, applied parking brake and removed ignition key.



Fig. 35

7.5 Height of the pulling eye

The height of the pulling eye (Fig. 36/1) can be matched to the tractor when the machine is uncoupled.

Slacken 8 bolts (Fig. 36/2) and bolt on the pulling eye in the desired height.

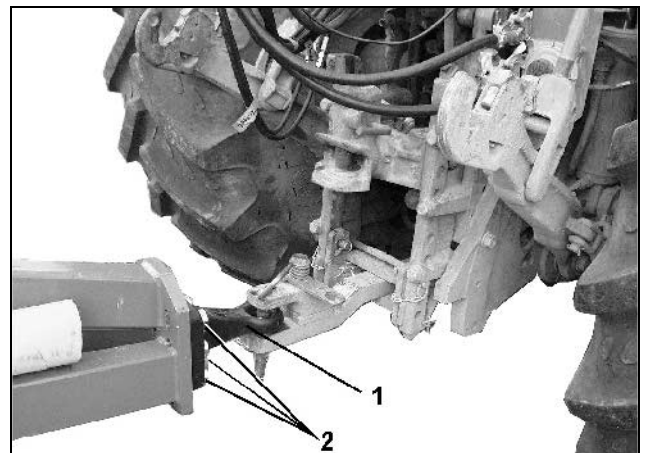


Fig. 36

8. Operation



Varying working depth across the working width?

- Synchronise the roller cylinders (page 58)!

8.1 Conversion from transport to operating position



Before folding in or out the machine wings advise people to leave the swivel area of the machine wings.!



Align tractor and machine on level ground before folding out or in the machine wings.

Completely lift the machine before folding out or in the machine wings. Sufficient ground clearance to protect the soil operating tools from damage is only ensured when the machine is completely lifted. (Fig. 37).

1. Remove the protection canvas.

- Roll up all canvas.
- Use the belts to affix the protective canvas on the draw bar.

2. Actuate control valve 3 (hose mark 2 x yellow):

- Lift the machine completely until the lateral rollers are completely swivelled out and all securing hooks are unlocked.

Combined function, actuate control unit for quite some time!

3. Actuate control valve 1 (hose mark 1 x blue):

- Fold down the side frame.
- Lower the centre roller.

Combined function, actuate control unit for quite some time!

4. Actuate control valve 1 (hose mark blue) hold in float position.

5. Actuate control valve 3 (hose mark 1 x yellow):

- Lower the machine into operating position.

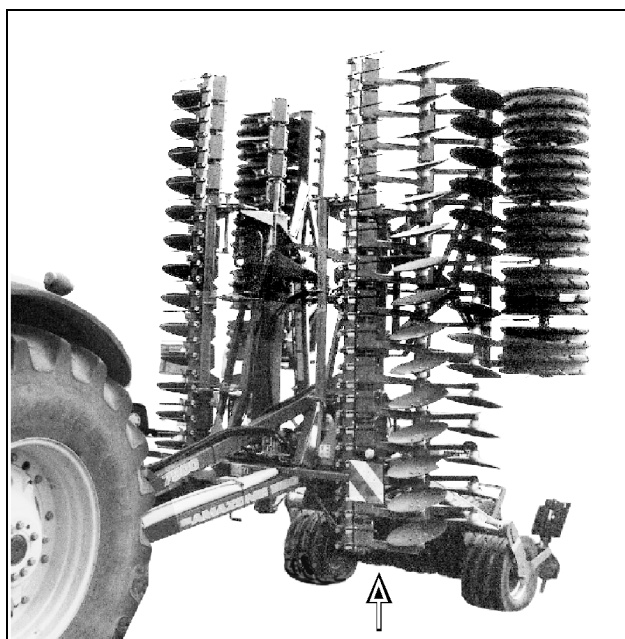


Fig. 37



The locking hook (Fig. 38/1) will open automatically before the machine wing is folded down..

In case the locking hook (Fig. 38/1) will not get open: briefly set the control valve 1 to "folding in" (Einklappen) and then again to "folding out" (Ausklappen).

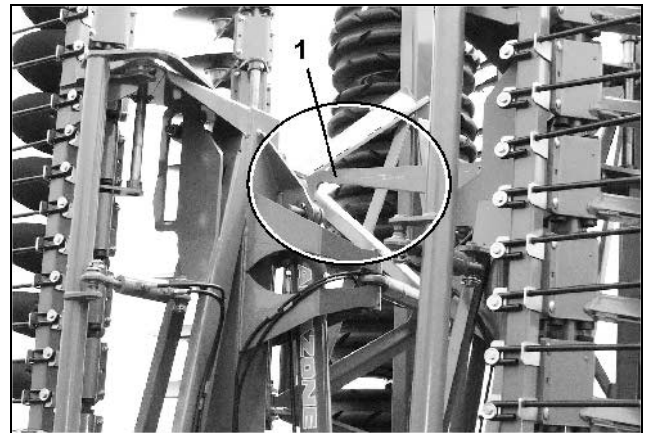


Fig. 38

8.2 Operation with straw following harrow

The straw following harrow Planator scatters the remaining chaff in the field.

- Actuate control valve 4 (hose mark natural):

- Lower the straw following harrow (Fig. 39). The straw in front of the straw following harrow will be caught.
- Slowly lift the straw following harrow: The straw is evenly scattered over the entire working width.

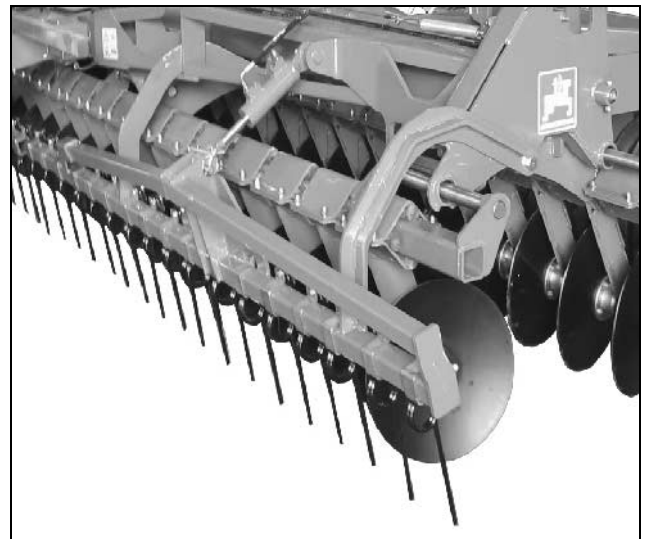


Fig. 39

8.3 Driving at the headlands

When driving curves at the headlands raise the implement to avoid a transverse load of the tools.

- Actuate control valve 3 (hose mark yellow):

- Completely lift both disc rows (Fig. 40).



At the headlands only lower the implement into operational position when the implement and operational direction coincide.

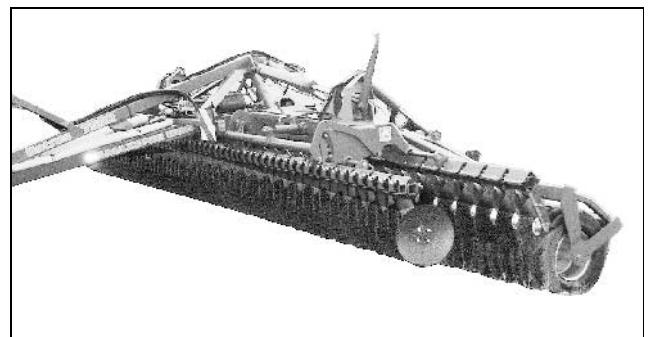


Fig. 40

9. Cleaning, maintenance and repair



Before commencing any maintenance and care work, read and adhere to chapter.2.19.6!



Repair-, maintenance- and cleaning operations as well as the remedy of function faults should principally be conducted with drive and engine stopped. Remove ignition key

When carrying out maintenance work on the lifted implement use appropriate supports!

Before conducting electric welding operations on tractor or mounted implement remove cable from tractor and battery!!

Check traffic lights for proper function!

Regularly check the proper hose and cable routing and check the hydraulic hose couplings and tube bolted joints for leakage. !

In case of repair work with painting replace the safety symbols and hint signs!

Replace worn and damaged parts. Only use original spare parts!

Grease all lubrication points according to the lubrication plan (see on page 56) and apply grease to the slide and hinge points!

Clean the tools after any operation!

Regularly check nuts and bolts for tightness. Retighten if necessary!!



When dismantling spring loaded elements (disc segments) mind the pre-tensioning. Use appropriate tools!

For mounting and dismantling use additional longer bolts as auxiliary tool!

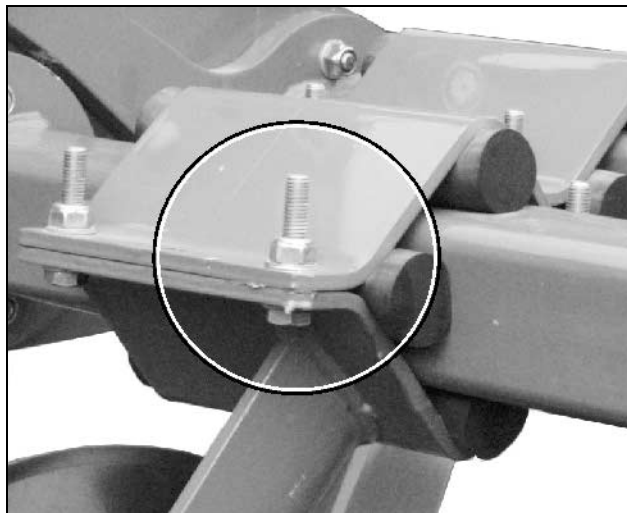


Fig. 41

9.1 Cleaning



- Monitor brake-, air and hydraulic hoses with special care.
- Never ever treat brake-, air- and hydraulic hoses with petrol, benzole, paraffin or mineral oils..
- After cleaning grease the machine, especially after cleaning with a high pressure cleaner / steam jet or fat soluble agents.
- Observe the legal prescriptions for the handling and disposal of cleaning agents.

Cleaning by using a high pressure cleaner / steam jet



Implicitly observe the following points when using a high pressure cleaner / steam jet for cleaning:

- Do not clean any electric parts.
 - Do not clean any chromium plated parts.
 - Never point with the cleaning jet of the cleaning nozzle of the high pressure cleaner / steam jet directly at grease or bearing points.
 - Always ensure a minimum distance between the cleaning jet of the high pressure cleaner or steam jet and the machine.
 - Observe the safety advice for operating with high pressure cleaners.
-

9.2 Lubrication point review

The greasing points on the machine are identified with a decal (Fig. 42). The numbers of the greasing points are

- Catros 5500: 20 greasing points
- Catros 7500: 20 greasing points

Only use lithium saponified multipurpose grease with EP additives.

Carefully clean the grease nipples and grease gun before the grease is applied, so that no dirt penetrates the bearings. Carefully remove the dirty grease from the bearings and replace by ne3w grease!

Greasing intervall: every 50 hours

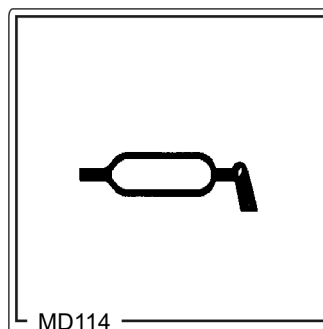


Fig. 42

Lubricants

Manufacturer	Name of lubricant
ARAL	Aralub HL2
FINA	Marson L2
ESSO	Beacon 2
SHELL	Ratinax A

Only use lithium saponified multipurpose grease with EP additives.

9.3 Maintenance table



- Carry out maintenance in the shortest mentioned intervals.
- Give priority to the intervals, running times and maintenance intervals stated in the possibly provided documentation of other manufacturers.

After the first laden journey

Component	Maintenance work	Please see	Authorised workshop
Wheels	<ul style="list-style-type: none"> • Check wheel nuts 	en page 66	X

Daily

Component	Maintenance work	Please see	Authorised workshop
Air reservoir	<ul style="list-style-type: none"> • drain 	on page 61	
Electric traffic lights	<ul style="list-style-type: none"> • exchange defective electric light bulbs 	on page 66	

Weekly / 50 operational hours

Component	Maintenance work	Please see	Authorised workshop
Wheels	<ul style="list-style-type: none"> • check air pressure • check firm seating of wheels • check scraper min. distance 	en page 66	
Brake	<ul style="list-style-type: none"> • check brake liquid 	on page 63	
Hydraulic hoses	<ul style="list-style-type: none"> • check 	on page 58	

After 200 operating hours / quarterly

Component	Maintenance work	Please see	Authorised workshop
Two circuit service brake system	<ul style="list-style-type: none"> • leak test • check pressure in the air reservoir • check brake cylinder pressure • visual brake cylinder test • joints on brake valves, brake cylinders and brake rods • brake lining check 	en page 60	X

If necessary

Component	Maintenance work	Please see	Authorised work-shop
Roller ram	<ul style="list-style-type: none"> Synchronise roller ram 	below	
Disc XL011	<ul style="list-style-type: none"> Wear test – exchange at a min. diam. of 360mm 		X
Slide bearing 78200437	<ul style="list-style-type: none"> Wear test – exchange at a play of approx. 4mm l 		X
Roller 78200356	<ul style="list-style-type: none"> Wear test – exchange if necessary 		X

9.4 Synchronising the roller rams

For the even working depth across the entire machine width all hydraulic rams of the wedge ring roller must have the same length. If this is not the case, the hydraulic synchronising of the rams is possible.

- Actuate control valve 3 (2x yellow) until the machine is completely lifted. Hold the control valve for additional 10 seconds. An overflow procedure is started which flushes all rams whereby the rams are adjusted to the same length.

9.5 Hydraulic hoses



Before carrying out any maintenance work, read and adhere to chapter 2.19.4!

When starting and during operation the ordinary condition of the hoses should be checked by a skilled person.

If the hoses are found to be defective in any way, change them immediately.

The maintenance of the checking intervals should be recorded by the operator.

Checking intervals:

- for the first time when putting to operation
- thereafter at least once a year

Checking points:

- Check hose casing for damage (kinks, cuts and abrasion, trapping, rubbing points)
- Check whether the hose casing is brittle
- Check hose for deformation (bubbles, buckling, squeezing, separation of layers)
- Check for leakage
- Check the appropriate fitting of the hoses
- Check the hoses for firm seating in the armature
- Check connecting armature for damage and deformation
- Check for corrosion between connecting armature and hose
- Do not exceed the permissible period of use.

9.5.1 Exchange intervals

- The period of use of any hydraulic hose circuit should not exceed 6 years (including a possible storing period of two years maximum).

9.5.2 Marking

Hydraulic hoses are marked as follows:

- Name of manufacturer
- Date of production
- Maximum dynamic operational pressure

9.5.3 Please observe when fitting and removing

Affix the hydraulic hoses on the fixing points given by the manufacturer.

- Always ensure that hydraulic parts and connections are clean.
 - The hoses have to be fitted in such a way that their natural placement and movement are not hindered.
 - During operation the hoses should not be under tension, twisted or strained by external forces.
 - The permissible bending radius must be observed.
 - The hoses should not be painted.
-

9.6 Service brake



Before commencing any maintenance work, read and adhere to chapter 2.19.7 .

The machine is equipped with a two circuit air brake system with hydraulically actuated braking cylinder.

The two circuit air brake does not – as usual – actuates the brake shoes via a brake linkage or a brake cable. The two circuit brake system acts upon a hydraulic ram which operates the hydraulic brake cylinders of the brake shoes in the brake drum.



The service brake system is not equipped with a parking brake.

Always use chocks before coupling the machine off the tractor.



Inspection of the service brake system

We recommend inspection of the brake for proper function in an authorised workshop at least once a year.

On the surface, hose lines and coupling claws must not be damaged or rusty.

When during the visual inspection, the function or braking test of the service brake faults will be noted, care for immediate inspection of the entire brake system in an authorised workshop.



Maintenance and repair work on the brake system must only be carried out in authorised workshops with skilled personnel

Only use original spare parts for maintenance and repair work.

When carrying out any maintenance work observe the legal prescriptions.

Special care should be taken when carrying out welding, solder and boring work near brake hoses.

Any welding or soldering work on fittings and tubes is prohibited. Replace damaged parts.

As a matter of principle carry out a brake test after any setting and repair work on the brake system.

Changes on the manufacturer's settings on the brake valves are prohibited.

When manoeuvring the tractor with coupled machine, e.g. in the workshop, connect the supply lines of the service brake. Otherwise the brake would block.,

When the supply lines are not connected to the tractor, blocking brakes can be released by pressing the release valve (Fig. 43/1).



The brakes release immediately when the release valve (Fig. 43/1) is pressed.

This procedure may only be carried out exceptionally, e.g. in the workshop and on perfectly even ground with coupled machine.

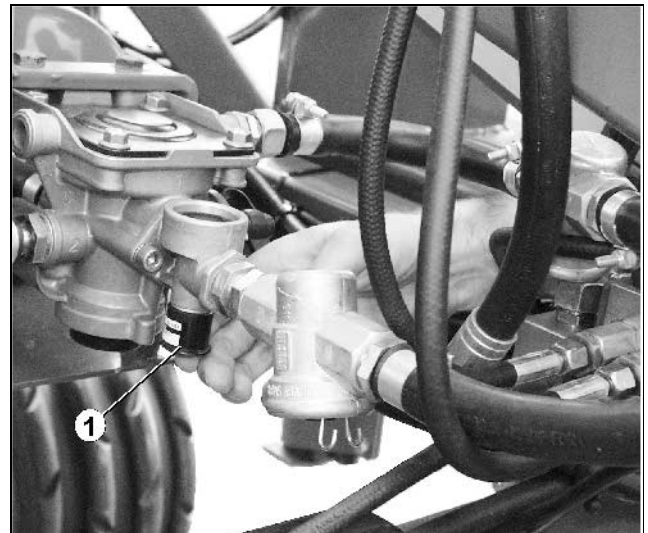


Fig. 43

9.7 Two circuit air brake system as part of the service brake system



To avoid function faults on the two circuit air brake system, a perfectly functioning air dryer on the tractor is required, especially in winter times.



The manufacturer's settings on the brake valves must never be changed.

9.7.1 Air reservoir



Daily drain the air reservoir (see below)!

Draining the air reservoir

Keep the tractor engine running (approx. 3 min.), until the air reservoir (Fig. 44/1) is filled.

Stop the tractor engine, apply parking brake and remove ignition key.

Pull the drain valve via the ring (Fig. 44/2) to the side until no water will run out of the air reservoir..

In case the water is dirty, let off air, unscrew the drainage valve from the air reservoir and clean the air reservoir.



Fig. 44

The air reservoir (Fig. 45/1) must not

- move within the tensioning belts (Fig. 45/2)
- be damaged
- show any corrosion on the surface.

The type plate (Fig. 45/3) must not

- be rusted
- be loose
- be missing.



In case one of the points above would apply, replace the air reservoir (workshop job).

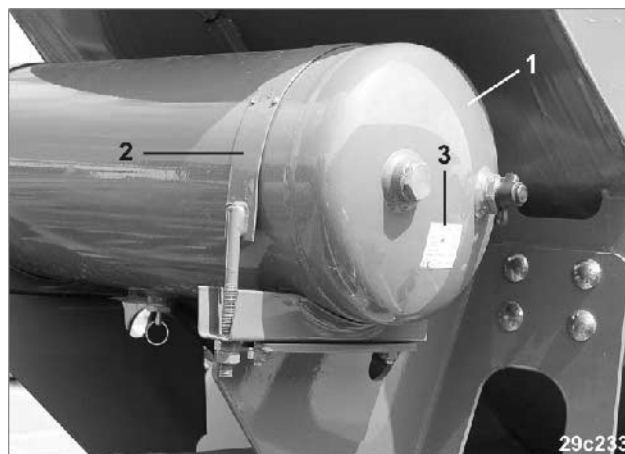


Fig. 45

9.7.2 Inspection advice for two circuit –air brake system (Workshop job)

9.7.2.1 Check for tightness

- Check all connections, tubes, hose and bolted connections for tightness
- Remedy leaks
- Remedy rubbing points on tubes and hoses
- Replace porous and defective hoses
- The two circuit service brake system is regarded as tight, when the pressure drop is not more than 0.10 bar within 10 minutes (per hour 0,6 bar).
- In case the values are not maintained have the brake system inspected in an authorised workshop.
- Tighten the leaking points or replace leaking valves.

9.7.2.2 Checking the pressure in the air reservoir

Connect a pressure gauge with the inspection port of the air reservoir.

Required value: 6,0 - 8,1 +0,2 bar.

In case the require value is not maintained, have the brake system inspected in an authorised workshop.

9.7.2.3 Cleaning the hose filters

Clean the two hose filters (Fig. 46/1) every three months (in case of operation in difficult conditions). Proceed as follows

- Press together both straps (Fig. 46/2) and remove the cap with O-ring, pressure spring and filter insert
- Clean the filter insert with petrol or dilution (wash out) and dry with air pressure.

For reassembly, proceed in the reverse order. Ensure that the O-ring does not get wedged in the guide slit.

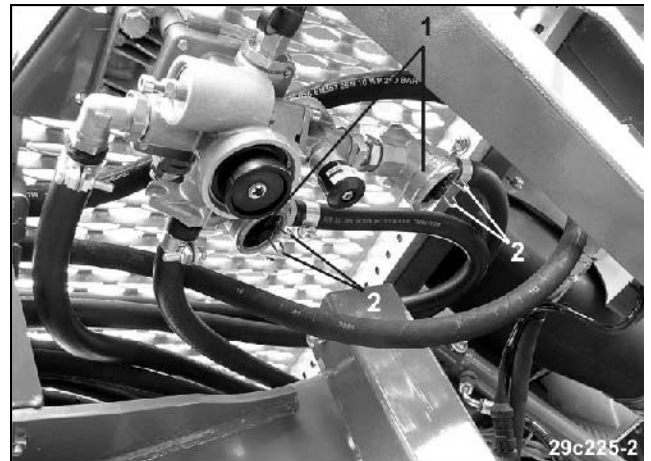


Fig. 46

9.7.3 Hydraulic part of the service brake system

9.7.3.1 Check air liquid level

Check the brake liquid level in the equalising reservoir (Fig. 47).

The equalising reservoir is filled with brake liquid according to DOT 4 up to the max. mark.

Ensure that the brake liquid does not drop below the "min." mark.



In case of brake liquid loss, go and see an authorised workshop.



Fig. 47

9.7.3.2 Maintenance of hydraulic parts of the brake system (workshop job)

- After the first 10 hours of operation or after a wheel change retighten the wheel bolts by using a torque wrench..
 - Torque of wheel bolts: 350 Nm
 - Torque of hub without brake drum: 400 Nm
 - Torque of hub with brake drum: 500 Nm
- Renew the brake liquid every 1 – 2 years.
- Annually check all flexible brake hoses for wear, all brake lines for damage and the screw joints for tightness. Replace worn or damaged parts.
- Every 500 operational ours, however at the latest before any season, check the brake lining for wear. This maintenance interval is a recommendation. Depending on the operation, e.g. when constantly driving up-hill and downhill this interval should be shorter. When the lining is thinner than 1.5 mm replace the brake shoes (only use original brake shoes with approved brake linings). If necessary, also replace the retracting springs on the brake shoe.

9.7.3.3 Bleeding the brake system (workshop job)

After any repair work on the brake and when the device has been opened, bleed the brake system as air might have penetrated the pressure hoses.

In the workshop the brake is bled with a brake fill- and bleeding device. For this proceed as follows

- Remove the equalising reservoir screw joints
- Fill the equalising reservoir up to the top
- Attach the bleeder neck to the equalising reservoir
- Connect the filling hose
- Open the lock tap of the filling screw
- Bleed the main cylinder
- Take brake liquid off the system air bleeder screws one after the other until this will run out clear and without bubbles. For this attach the transparent air bleeder hose which is guided into a collecting bottle filled up to one third with brake liquid onto the air bleeder valve to be bled.
- After the complete brake system has been bled, close the lock tap on the filling screw.
- Degrade remaining pressure coming from the filling device.
- Close the last bleeding device when the residual pressure coming from the filling device has been degraded and the brake liquid level in the equalising reservoir has reached the "MAX"-mark.
- Remove the fill screw joint.

Close the equalising reservoir.



Carefully open the bleeder valves in order to avoid twisting off. It is recommended to apply rust removing agent to the valves approx. 2 hours before starting the bleeding procedure.



Carry out a safety check:

- Are the bleeder screws firmly tightened?
- Has sufficient brake liquid been added?

Check all joints for tightness.



Afterwards carry out a brake test on a road with little traffic. During the brake test carry out at least one full braking

Attention: During this procedure, mind the following traffic.

9.7.3.4 Brake liquid

Please observe the following when handling brake liquid.

- Brake liquid is caustic and must not get into touch with the paint work. If necessary wipe off immediately and wash off with much water.
- Brake liquid is hygroscopic, that means it takes in humidity from the air. Therefore, only store brake liquid in tight containers.
- It is not allowed to re-use brake liquid which had earlier been used in the brake system. Also for bleeding the brake system only use fresh brake liquid.
- The high demands on brake liquid are subject to the standard SAE J 1703 or the American safety law DOT 3 or DOT 4. Only use brake liquid according to DOT 4 .
- Brake liquid must never get into touch with mineral oil. Even slightest trace of mineral oil will spoil the brake liquid and cause the failure of the entire brake system. Plugs and collars of the brake system will be damaged when getting into touch with agents containing mineral oil. For cleaning do not use mineral oil containing cloth.

Exchange brake liquid every 2 years, preferably during the winter season.



Never ever reuse drained off brake liquid.

By no means pour away brake liquid or dispose it with the house hold waste. Collect it separately from used oil and dispose it via authorised waste disposal companies.

9.8 Tyres and wheels



- Check the running gear tyres for damage and firm seating on the rim in regular intervals.
- Ensure the min. distance of 25 mm between scrapers and running gear tyres!
- Check the
 - firm seating of the wheel nuts (required torque of the wheel nuts 450 Nm).
 - tyre pressure in regular intervals
- Only use tyres and rims prescribed by us.
- Repair work on the tyres must only be carried out by skilled persons with appropriate fitting tools.
- Fitting tyres requires sufficient knowledge and the availability of the prescribed fitting tools.
- Only apply the jack at the places indicated!

9.8.1 Tyre air pressure



- Required air pressure for
 - Running gear tyres: 3,5 bar,
 - Roller tyres: 1,5 bar.
- The lifespan of tyres is reduced by
- overload
 - too low a tyre pressure
 - too high a tyre pressure

- Check the tyre air pressure with cold tyres, so before starting to travel, in regular intervals.
- The air pressure difference in the tyres of one axle must not exceed 0.1 bar.
- The tyre pressure may increase by 1 bar after a fast travel or warm weather. By no means reduce the tyre air pressure, as it would be too low when the tyre cools down.

9.8.2 Wheel change



- Before mounting a new / other tyre remove any corrosion on the tyre bearing surface of the rims. Corrosion may cause damage on the rims when travelling.
- When mounting new tyres always use new tubeless valves or tubes.
- Always screw valve caps with inserted sealing on to the valves.
- Required torque of the wheel nuts 450 Nm.



9.9 Electric traffic light kit

Exchange of bulbs:

1. Remove the protecting glass.
2. Remove defective bulb.
3. Insert replacement bulb (observe the correct voltage and watt number).
4. Apply protecting glass and screw on.

9.10 Bolt torques

Thread	Spanner size	Torques [Nm] depending on bolt / nut quality		
		8.8	10.9	12.9
M 8	13	25	35	41
M 8x1	13	27	38	41
M 10	17	49	69	83
M 10x1	17	52	73	88
M 12	19	86	120	145
M 12x1,5	19	90	125	50
M 14	22	135	190	230
M 14x1,5	22	150	210	250
M 16	24	210	300	355
M 16x1,5	24	225	315	380
M 18	27	290	405	485
M 18x1,5	27	325	460	550
M 20	30	410	580	690
M 20x1,5	30	460	640	770
M 22	32	550	780	930
M 22x1,5	32	610	860	1050
M 24	36	710	1000	1200
M 24x2	36	780	1100	1300
M 27	41	050	1500	1800
M 27x2	41	1150	1600	1950
M 30	46	1450	2000	2400
M 30x2	46	1600	2250	2700

Fig. 48





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