AMAZONE

Operator´s manual
Bulk material spreader

ZG-B 7001 preciS,
ZG-B 10001 preciS

MG 955
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Printed in Germany

GB IRL

CE

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

AMAZONE

Preface

Dear Customer,

The bulk precision fertiliser spreader **ZG-B preciS** is a machine from the comprehensive range of agricultural machinery of **AMAZONEN-WERKE** H. Dreyer GmbH & Co. KG.

To make full use of your newly purchased bulk precision broadcaster, please carefully read and adhere to this operation manual before starting to operate with your machine.

Please ensure that all operators read this operation manual before they start to operate with the machine.

This operation manual is valid for all bulk precision fertiliser spreader of the type

ZG-B 7001 preciS und ZG-B 10001 preciS.

AMAZONEN-WERKE
H.DREYER GmbH & Co. KG

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1. Details about the machine

1.1 Range of application

The **AMAZONE**-bulk material spreader **ZG-B** has been designed for the application of dry, granule, prilled and crystalline fertiliser.

1.2 Manufacturer

AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

P. O. Box 51, D-49202 Hasbergen-Gaste / Germany

1.3 Conformity declaration

The fertiliser spreader fulfils the requirements of the EC-guide line Machine 98/37/EG and the corresponding additional guide lines.

1.4 Details when making enquiries and ordering

When ordering options and spare parts indicate the spreader type and the serial number.

The safety requirements are only fulfilled when in the event of repair original AMAZONE spare parts are used. Using other parts may rule out the liability for resulting.

1.5 Type plate

Type plate on the machine

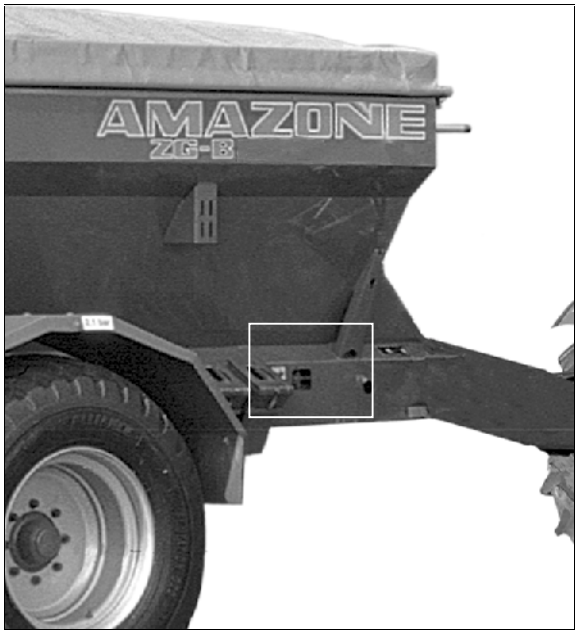

Fig. 1

The type plate is of documentary value and may not be changed!

1.6 Technical Data

Bulk material spreader:	**ZG-B 7001**	**ZG-B 10001**
Hopper capacity:	5200 L	7200 L
Permissible total weight*:	8000 bis 10000 kg	8000 bis 10000 kg
Net weight without spreader unit and without special execution:	2000 kg	2200 kg
Payload on public roads:	5900 – 7700 kg	5800 – 7600 kg
Total length:	6,00 m	6,50 m
Width / height (mm) with tyres:		
480/70 R34 AS ET+30	2300 / 2590	
550/60-22,5 12PR ET-0	2400 / 2420	2400 / 2550
600/55-26,5 12PR ET-0	2450 / 2480	2450 / 2610
700/50-26,5 12PR ET-0		
20,8 R38 ASProfil ET-0		2370 / 2850
23,1-26 12PR ET-0	2440 / 2590	2440 / 2720
28L-26 12PR ET-50		2620** / 2730
28L-26 16PR ET-0		
Permissible travelling speed, depending on execution *****:	25 km/h, 40 km/h	
Brake ZG-B	Run-on brake with automatic back-up lock or air brake	Air brake
	Hydraulic brake (only for exports)	
* please adher to the advice of your national traffic law		

**** for vehicles wider than 2.55 m the inner tyre pressure should not exceed 1.5 bar – please follow the traffic law regulations of your country.**

1.6.1 Operation data

The maximum permissible pressure on the tractor hydraulic's is: **230 bar**.

The hydraulic system of the tractor must be equipped with an oil filter.

Ensure that the oil filter is properly maintained and observe the prescribed filter change intervals

Requirements for connecting the spreader:

- 1 single acting spool valve
- 1 pressure free oil return flow
- 1 control cable (only on tractors with a load-sensing hydraulic system and direct pump connection).

The pressure free return flow must go through the provided female coupling sleeve.

The back pressure inside the pressure free oil return flow must not exceed 8 bar.

Do not allow the hydraulic oil to heat up excessively during operation

1.6.2 Details about noise level

The tractor operator seat related emission value is 74 dB (A), measured when operating with shut tractor cab at the ear of the tractor operator.

Measuring implement: OPTAC SLM 5.

The noise level depends on the type of tractor used.

1.7 Designated use of the machine

The **AMAZONE-bulk material spreader ZG-B precis** has exclusively been designed for the usual operation in agriculture for spreading dry, granular, prilled and crystalline fertiliser.

The machine is designed to spread on slopes of up to 20 % inclination. Steeper slopes will cause an uneven spread pattern.

Any use beyond the one stipulated above is no longer considered as designated use. The manufacturer does not accept any responsibility for damage resulting from this; therefore the operator himself carries the full risk.

Under designated use also the adhering to the manufacturer's prescribed operation-, maintenance- and repair conditions as well as the exclusive use of **original-AMAZONE-spare parts** is to be understood.

Any damage resulting from arbitrary change on the machine will rule out the responsibility of the manufacturer.

Though our machines having been manufactured with great care deviations when spreading cannot totally be excluded even at a designated use. These deviations may be caused, e.g. by:

- Varying composition of fertiliser and seed (e.g. granule size distribution, specific density, granule shape, dressing, sealing).
- Drifting,
- Blocking up or bridging (e.g. by foreign particles, bag residue, damp fertiliser etc.),
- Undulated terrain
- Wear of wearing parts (e.g. spreading vanes, V-belts, etc.),
- Damage by external influence,
- Wrong drive-R.P.M. and travelling speeds,
- Fitting wrong spreading discs (e.g. mixing them up),
- Wrong setting of the machine (incorrect mounting, not adhering to the spreading chart).

Claims regarding damage not having occurred on the **AMAZONE** fertiliser spreader itself will be rejected. This also applies to damage due to spreading errors.

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2. Safety

This instruction manual contains basic advice which must be adhered to when mounting, operating and maintaining the machine. Ensure that this instruction manual has been read by the user/operator before starting to operate the implement and that it is made readily available at all times to the user.

Please strictly observe and adhere to all safety advice given in this instruction manual.

2.1 Dangers when not adhering to the safety advice

Not adhering to the safety advice given

- may result in endangering the user or other persons, the environment and/or the machine itself.
- may result in the loss of any claim for damages.

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

- Danger for persons by not secured operational range.
- Failure of important functions of the machine.
- Failure of prescribed measures for maintenance and repair.
- Danger for persons by mechanical or chemical affects.
- Dangers to persons or to the environment by leaking hydraulic oil.

2.2 Qualification of operator

The implement may only be operated, maintained and repaired by persons, who are acquainted with it and have been informed of the relevant dangers.

2.3 Symbols in this instruction manual

2.3.1 General danger symbol

Not adhering to the safety advice in this instruction manual may cause danger to health and life of persons. They are identified by the general danger symbol (safety symbol according to DIN 4844-W9):

2.3.2 Attention symbol

Attention symbols which may cause dangers for the machine and it's function when not being adhered to are identified with the attention symbol:

2.3.3 Hint symbol

This symbol marks machine's specific points which should be observed to ensure the correct operation.

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2.4 Safety-/warning and hint symbols

The safety/warning symbols in this instruction manual are for all users working with this machine.

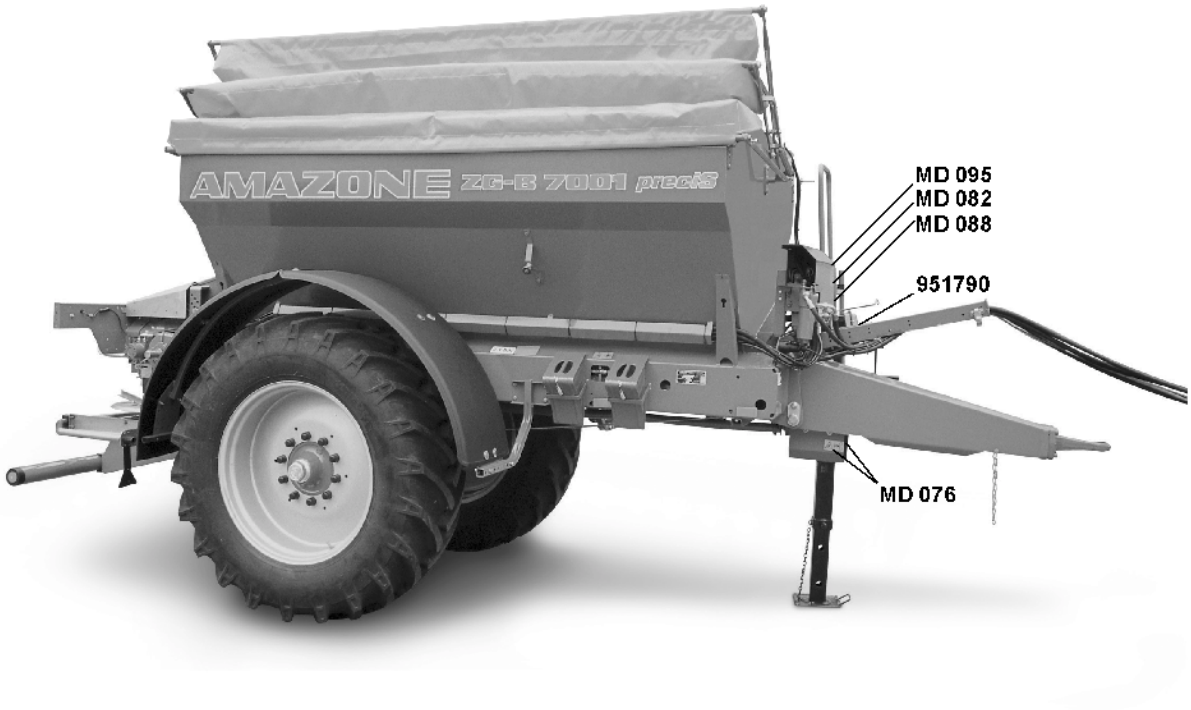
The following warning signs warn about remaining danger which cannot be remedied by design..

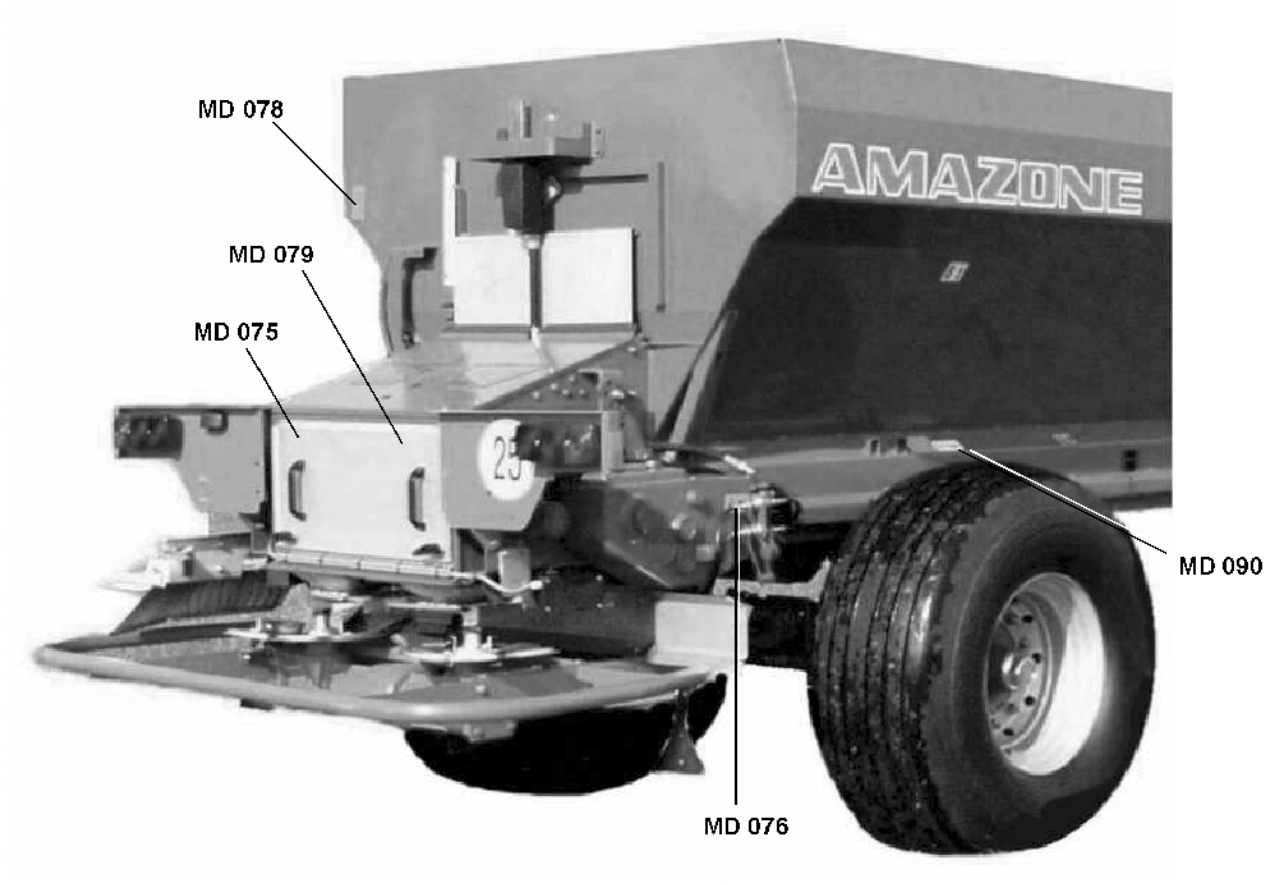
The danger and the fixing points for the safety-/warning and hint symbols are set off. Please find the explanations for the pictographs on the following pages.

1. **Strictly observe all warning pictographs and hint symbols.**

2. **Please pass on all safety advice also to other users**

3. **Please always keep all warning pictographs and hint signs clean and in well readable condition. Please ask for replacement of damaged or missing signs from your dealer and attach to relevant place (picture-No.: =order-No.).**

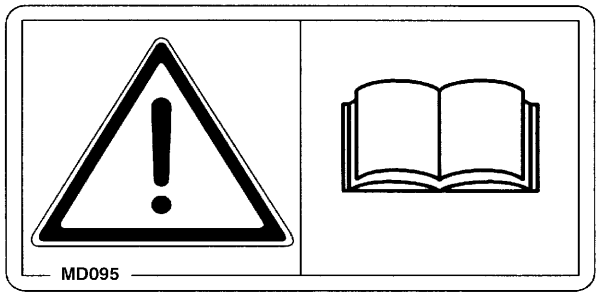




Picture No.: MD 095

Explanation:

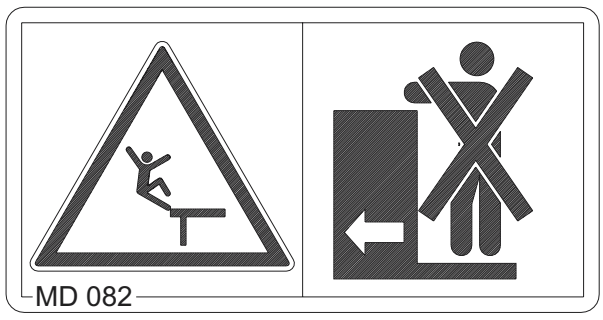
Before commencing operation read thoroughly this operation manual an all safety advice!



Picture No.: MD 082

Explanation:

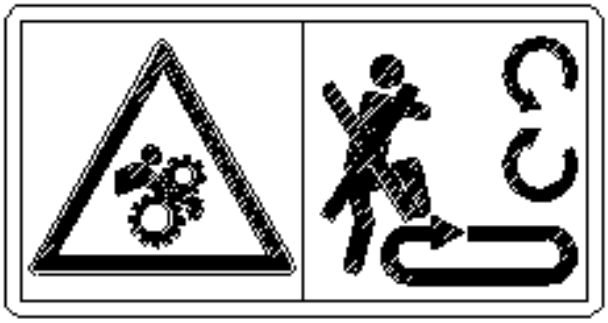
No persons must stand or sit on the machine while it is in use or being transported!



Picture No.: MD 088

Explanation:

Do not climb into the hopper while the PTO. shaft is connected and the motor is running!



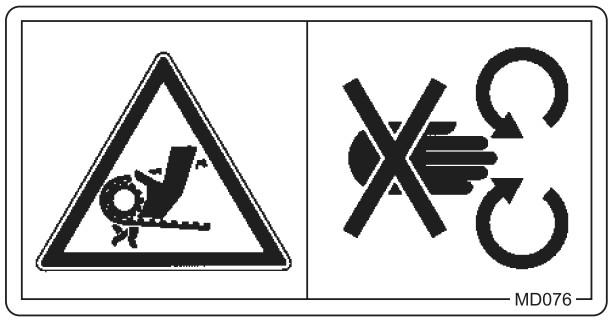
Picture No.: MD 076

Explanation:

Only use the machine if the guards are in place!

Do not open or remove theguards if the motor is runing!

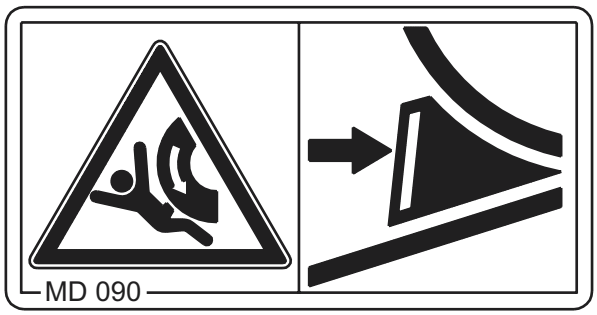
Before removing the fuards, disengage the PTO. shaft, swith off the motor, and remove the ignition key!



Picture No.: MD 090

Explanation:

Position the chocks before uncoupling the machine or leaving the machine unattended!



Picture No.: MD 075

Explanation:

Do not stay within the zone of spinning spreading discs!

Do not touch moving implement parts. Await their absolute standstill.

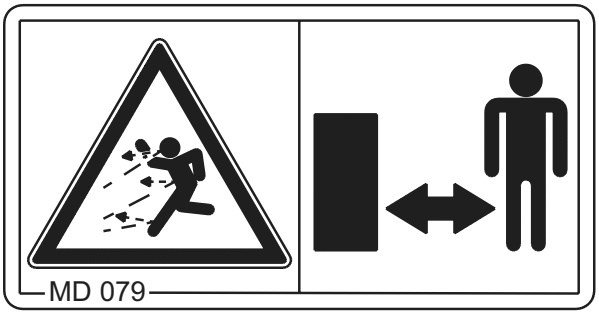
Disengage PTO shaft, stop the engine, and remove the ignition key before exchanging the spreading discs!

Picture No.: MD 079

Explanation:

Danger because of flinging fertiliser particles.

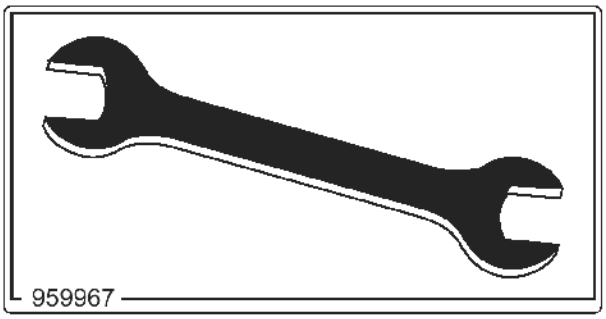
Advise people to leave the danger area!



Picture No.: 959 967

Explanation:

Regularly check nuts and bolts for tightness. Re-tighten if necessary!



2.5 Safety conscious operation

Besides the safety advice in this operation manual the national, and generally valid operation safety and accident preventive descriptions of the authorised trade association are binding, especially VSG 1.1 and VSG 3.1

The safety advice indicated on the machine stickers must be observed.

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

2.6 General safety and accident preventive advice

Basic principle:

Always check traffic and operational safety before putting the machine into any operation.

1. In conjunction with the recommendations in the operator's manual, observe any general safety and accident preventive laws in force.
2. The hazard and warning signs provide important information to ensure safe operation. They are intended for your safety.
3. Follow traffic regulations when using public roads.
4. Before starting work familiarise yourself with all the operating elements and their uses. It will be too late to do this whilst you are operating the machine.
5. The operator should wear close-fitting clothes. Avoid wearing loose-fitting clothes.
6. To avoid the risk of fire, keep the machine clean.
7. Before starting up and handling the machine check the immediate vicinity for clearance (children)! Make sure you have a clear view.
8. Carrying passengers whilst driving or operating the machine is not permitted.
9. Connect the units correctly and secure them only to the proper mounting devices
10. Exercise special care when coupling and uncoupling units to or from the tractor!
11. Ensure that the landing gear is in the correct position when mounting and dismounting (stability).
12. Always attach weights correctly to the mounting points provided.
13. Check maximum permissible axle loads of the tractor (see vehicle documents).
14. Do not exceed maximum transport measurements of the traffic department.
15. Check and fit equipment for road transport, e.g. traffic lights, warning plates and guards.
16. The release ropes for quick coupler should hang freely and in the low position must not release the quick coupling by themselves.!
17. Never leave the tractor seat during driving.
18. Moving characteristics, steering and braking ability are affected by mounted implements, trailers and ballast weights. Therefore, take account to these affects and allow sufficient steering and braking.
19. When lifting the fertiliser spreader the front axle load of the tractor is relieved by different amounts depending on the size of the tractor. Always check that the necessary front axle load of the tractor (20 % of the tractor's net weight) is maintained.
20. When driving around corners take into account the clear radius and/or the rotating mass of the machine.
    To avoid sideways swing of the spreader during operation stabilise the lower link arms of the three-point-hydraulic.
21. Take implement only into operation when all guards are fixed in position.
22. **Never stay or let anyone stay within the operation area. Danger by fertiliser particles being thrown around. Before starting to operate the spreading discs make sure that nobody is staying in the spreading zone. Do not approach rotating spreading discs.**
23. Filling the fertiliser spreader may only be done with a stopped tractor engine, removed ignition key and closed shutters.
24. Do not stay in the rotating- and swivelling range of the implement.
25. Hydraulic folding frames must only be activated after making sure no one is standing near the machine.
26. Squeeze and shear points are found on externally activated components (e.g. hydraulics).
27. Before leaving the tractor lower the implement to the ground. Actuate the parking brakes, stop the engine and remove ignition key
28. Nobody should stay between tractor and implement if the tractor is not secured against rolling away by the parking brake and/or by chocks
29. Note the maximum permissible filling loads. Bear in mind the fertiliser bulk density [kg/l]. The fertiliser bulk densities can be read off the spreading table or have to be determined. Please refer to para. 1.2
30. Do not place any foreign objects inside the hopper
31. During the calibration test watch out for danger zones due to rotating parts of the machine.
32. Never park or move the fertiliser broadcaster with filled hopper (danger of tipping over)
33. If the implement is transported over longer distances with filled hopper, closed shutters and out of function (en route to the field), open the shutter slides entirely before starting the spreading operation, e.g. before engaging the PTO shaft. Then **slowly engage the PTO shaft** and carry out a short stationary spreading. Only now, after having set the shutters on to the desired spreading rate start spreading.

34. If spreading on field borders, waters or roads use the border spreading device.
35. **Before any operation check perfect seat of fixing parts, especially for spreading disc and spreading vane fixing**.

2.7 General safety and accident preventive laws for mounted implements

1. Before mounting- and dismounting implements to the three-point-linkage bring all control levers in such a position that an unintended lifting or lowering is impossible.
2. When fitting to the three-point-linkage the mounting categories on the tractor and the implement must coincide.
3. Within the range of the three-point-linkage danger of bruising and shearing.
4. When actuating the control levers for the three-point linkage never step between tractor and implement.
5. In transport position always take care for a sufficient lateral locking of the tractor's three point.
6. When driving on public roads with lifted implement the control lever has to be locked against unintended lowering.
7. Mount and dismount implements as prescribed. Check braking systems for function. Mind manufacturer advice
8. Working implements should only be transported and driven on tractors which are designed to do this.

2.7.1 Safety advice for the hydraulic system

1. The hydraulic system is under high pressure.
2. When connecting hydraulic cylinders and motors make sure hydraulics hoses are connected as prescribed.
3. When connecting the hydraulic hoses to the tractor hydraulic system ensure that the hydraulics and the tractor is at zero pressure.
4. When carrying out hydraulic operations between the tractor and the unit coupling sleeves and connectors should be identified to prevent any operating errors. If connections are mixed up reversed operations, e.g. lifting instead of lowering, may cause accidents.
5. Check hydraulic hoses in regular intervals and exchange in case of wearing or ageing. The exchange hoses must correspond to the technical requirements of the manufacturer.
6. When searching for leaks appropriate aids should be used due to danger of injury!
7. Under high pressure any fluids (such as hydraulic oil) may penetrate the skin and cause serious injury!

In the event of injury call for a doctor immediately. There is a danger of infection!

8. Before starting work on the hydraulic system, lower the units, turn the system to zero pressure and switch off the engine.
9. The service life of the hose assemblies should not exceed six years including a possible storage time of 2 years. Even during proper storage and permissible stress, hoses and hose connections are subject to natural ageing which limits their storage and service life. By way of exception, the service life may be determined according to empirical values taking into account the risk of danger. Other standard values may be applied to hoses and hose connections made of thermoplastic material.

2.7.2 Universal joint shaft (pto-shaft)

1. Use only pto shafts which are designed for the implement and which are equipped with all legally requested guards!
2. Guard tubes and cones of the PTO shaft as well as a tractor and implement PTO guard must be fitted and kept in the correct place.
3. Note the prescribed PTO-shaft tube guards in transport- and operating position (refer to operation instruction of the PTO shaft manufacturer).
4. Mounting and dismounting PTO shaft only with disengaged PTO shaft, stopped motor and removed ignition key!
5. Always care for correct fitting and securing of PTO shaft!
6. Prevent PTO guard from spinning by fixing the provided chains.
7. Before engaging the PTO shat ensure that the chosen PTO-speed of the tractor corresponds to the allowable implement input speed. Usually the PTO shaft speed is 540 R.P.M. (please refer to details in the spreading chart).
8. Slow engagement of the PTO shaft protects tractor and spreader.
9. When using the ground speed related PTO shaft note that the speed is related to the forward speed and that the sense of rotation reverses when backing up.
10. Before switching on the PTO shaft nobody is allowed to stay in the area of the spinning PTO- or universal joint shaft.!
11. Never switch on the tractor PTO while the engine is stopped!
12. When operating with the PTO shaft nobody is allowed to stay in the area of the spinning PTO- or universal joint shaft!
13. Always switch off PTO shaft when it is in an adverse position or not needed. Switch off PTO shaft as soon as the machine's outlet openings have been shut off.
14. Attention! After switching off the PTO shaft the mounted implement may still continue to run by its dynamic masses. During this period never come too close to the implement. Begin work only after the implement has come to a full standstill.
15. Clean and grease the universal joint shaft and the PTO-driven implement only after the PTO shaft and engine have been stopped and ignition key removed.
16. Deposit removed PTO shaft on the provided carrier.!
17. After removal of the PTO shaft replace protective cap over the tractor's PTO.
18. Remedy of damages is to be undertaken before starting to operate with the implement

2.7.3 Safety advice for the brakes and tyres

1. Check the brake before every journey!
2. The braking system must be checked thoroughly at regular intervals!
3. Any adjustments or repairs to the braking system should only be performed by specialist workshops or licenced brake service stations!
4. When working on the tyres, always ensure that the device is stable and cannot roll away (chocks)!
5. Tyres should only be replaced by persons familiar with the procedure and using the correct tools!
6. Repairs to the tyres and wheels should only be performed by trained persons and by using the appropriate tools!
7. Check the air pressure regularly! The air pressure must not exceed or drop below the prescribed pressure!

2.7.4 General safety and accident preventive advice for maintenance, repair and cleaning

1. Maintenance, repair and cleaning operations together with rectification of operating defects should only be carried out when the drive and the engine have been disconnected. Remove the ignition key.
2. Check nuts and bolts regularly for tightness and re-tighten if necessary.
3. When servicing a raised unit always ensure it is secured by suitable supports.
4. Remove oil, grease and filters correctly!
5. Always disconnect power before starting work on the electrical system.
6. Disconnect cable to the tractor generator and battery when carrying out electric welding work on the tractor and the mounted units.
7. Any spare parts fitted must in minimum meet with the implement manufacturer's fixed technical standards. This is, for example, ensured by using original **AMAZONE** spare parts!

2.8 Safety advice for retrofitting electric and electronic devices and/or components

The function of the implement's electronic components and parts may be affected by the electric-magnetic transmittance of other devices. Such affects may endanger people when the following safety advice will not be adhered to.

When retrofitting electric and electronic devices and/or components to the implement with connection to the on-board-electric circuit, the user must ensure by himself that the installation will not cause any disturbance to the tractor electronic or other components.

Special attention must be paid that the retrofitted electric and electronic parts correspond to the EMV-guide 89/336/EWG in the relevant valid edition and that they bear the CE-sign.

For retrofitting mobile communication systems (e.g. radio, telephone) the following requirements must be fulfilled: Only install devices which have officially been authorised in your country.

Firmly install the device.

The use of portable or mobile devices inside the tractor cab is only permissible with a connection to a firmly installed external antenna.

Install the transmitter spaced apart from the tractor's electronic.

When installing the antenna ensure an appropriate installation with proper earth connection between antenna and tractor earth.

For cabling and installation as well as for the maximum permissible current supply in addition adhere to the fitting instructions of the implement manufacturer.

3. Description of product

3.1 Assembly

Spreading discs (Fig. 2/1)

Fertiliser antechamber (Fig. 2/2)

Main shutter slide (Fig. 2/3)

Limiter (Fig. 2/4)

Parking brake (Fig. 2/5)

Floor belt (Fig. 2/6)

Getriebe für Bandboden (Fig. 3/7)

Bar (Fig. 3/8)

Hydraulic bloc (**ZG-B drive**) (Fig. 3/9)

Support leg (Fig. 3/10)

Chocks (Fig. 3/11)

Hydraulic throttle valve für Limiter (Fig. 3/12)

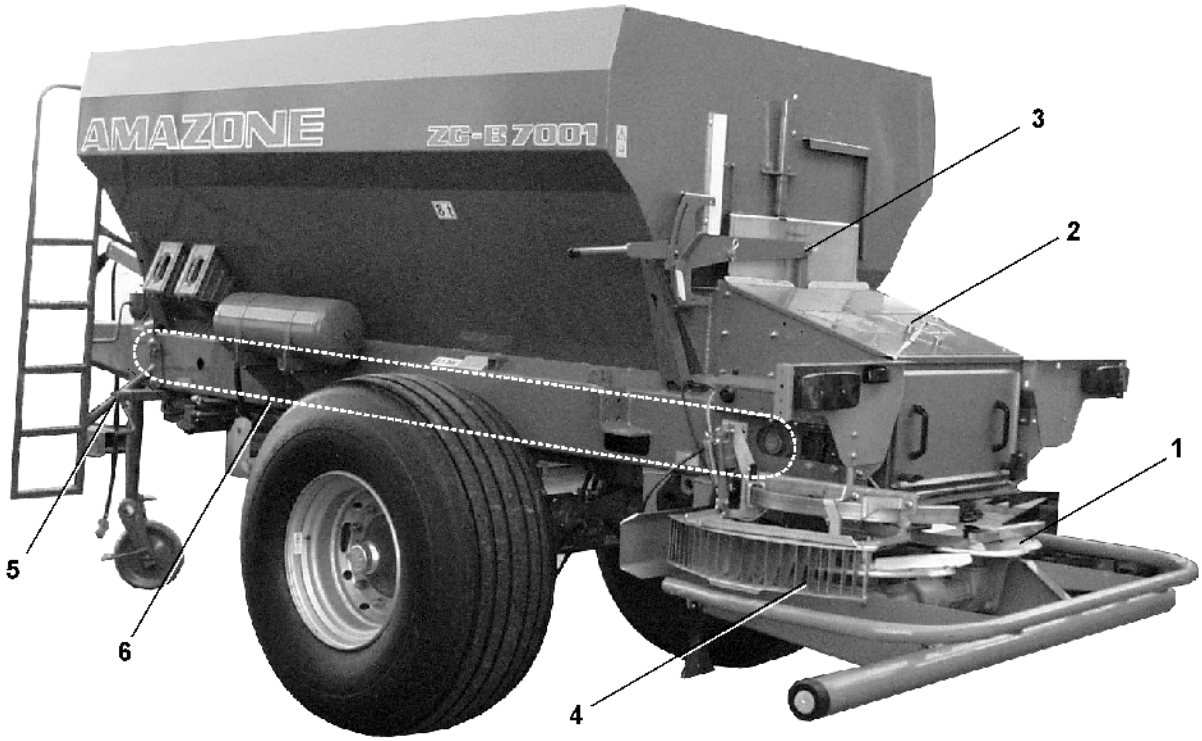


Fig. 2

Fig. 3

3.2 Safety facilities

- PTO shaft guard
- Guard tube
- Collision guard (required for road transport at 40 km/h)
- Guard for drive shaft
- Guard plate for intermediate floor belt drive
- Safety symbols (warning signs)

3.3 Function

The **AMAZONE**- bulk material spreader **ZG-B preciS** is a universal broadcaster with a hopper volume of 5200l to12000 7200 l.

The **ZG-B preciS** is used for spreading granular fertiliser.

The conveyor belt delivers the spreading material via the flap control from the hopper to the spreader units.

The spreading discs are driven by the PTO shaft and are equipped with a short and a long spreading vane.

The conveyor belt is driven electro hydraulically.

The spreader units distribute the spreading material.

Depending on the authorization (see the technical specifications), the machine can be transported at speeds of 25 or 40 km/h.

Depending on the draw bar type, the **ZG-B** is suitable for

- tractor pulling eye (straight draw bar)
- hitch coupling (cranked hitch draw bar).

The **ZG-B** can be equipped with different kinds of axles and brake systems

- Brake axle with run on brake up to 8000 kg, up to 25 km/h,
- Brake axle up to 10000 kgup to 25/40 km/h,
- Running axle up to 8000 kg, 25 km/h
- Tandem brake axle, spring suspended and steering,
- Dual circuit air brake system solo and tandem,
- Hydraulic brake, solo and tandem (for export only).

Fig. 4

The infinitely variable setting of the different working widths is achieved by swivelling the spreading vanes on the spreading discs. The spreading discs OM 18-24 and OM 24-36 are available for working widths between 18 – 36 m. For these settings, please follow the data given in the setting chart. The mobile fertiliser test kit (special option) allows an easy checking of the working width.

Spiral agitators (Fig. 5/1) in the hopper tips provide an even fertiliser flow onto the spreading discs. The slowly rotating spiral shaped segments of the agitator guide the fertiliser evenly to the corresponding outlet opening.

Boundary / side spreading:

Limiter **ZG-B** (**special option**): If the first tramline has been created on half the working width from the field's side, the border can be spread remote controlled with the aid of the Limiter **ZG-B** (**special option**).

- **ZG-B preciS**:
  - Distance related metering via electro hydraulically controlled floor belt.
  - On board-computer **AMATRON+**
  - Standard feature: double shutter system / half side shut off
  - Option: weighing system, available only for **ZG-B 7001 a**nd only straight draw bar).
  - Option with hydraulic track follow draw bar Trail – Tron (**ZG-B 7001**).

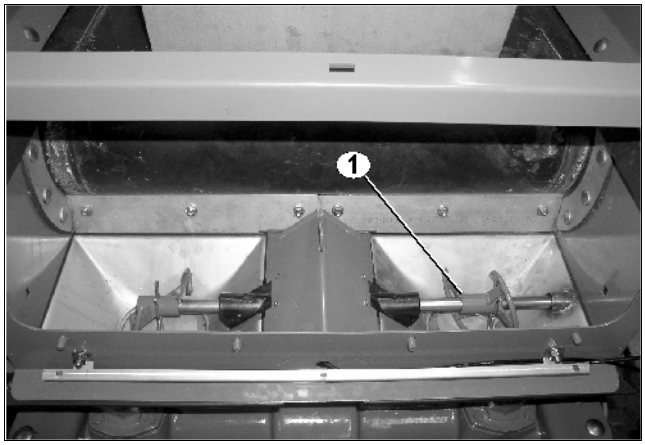


Fig. 5

3.4 On board computer AMATRON+

With the on board computer **AMATRON+** the **ZG-B preciS** can conveniently be accessed, controlled and monitored.

Electronic spread rate control via **AMATRON+** in dependence on the forward speed by setting various shutter opening widths with the aid of setting motors actuating the shutter slides. The required shutter position is determined by a fertiliser calibration. The opening and closing of the outlet openings is achieved by two additional shutters hydraulically (closing) or by a tensioning spring (opening).

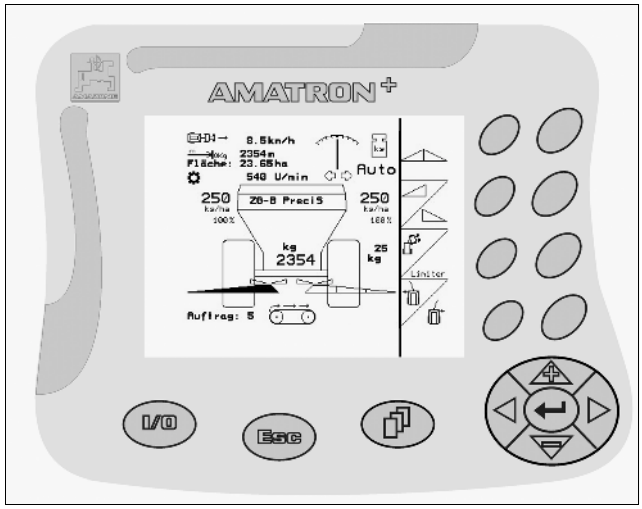


Fig. 6

As the spreading properties of the fertiliser may heavily deviate we recommend that you to recheck the chosen shutter position for the desired spread rate by a spread rate check.

AMATRON+ controls the hydraulic functions:

- opening and closing of the shutter.
- Lowering the Limiter into work and raising out of work.
- Change of application rate.
- Hopper cover – open / close.

3.5 Danger zones

Danger zones exist:

- between tractor and machine, especially while coupling and uncoupling. ,
- In the area of moving parts:
  - Rotating spreading discs with spreading vanes
  - Rotating PTO shaft
  - Hydraulic actuation of Limiter
  - Hydraulic actuation of the shutter slides
- By climbing on to the machine.
- Underneath a lifted, not secured machine or machine parts
- During spreading operation within the spread fan range by fertiliser grains.

In these zones always danger prevails or unexpected danger may occur. Safety symbols mark these danger zones (see para.2.4).

4. On receipt of the machine

Check that no damage has been caused in transit and all parts are present. Otherwise no responsibility can be accepted by us or the carrier.

Check whether all parts (including options) listed up in the delivery note are present.

- spreading discs "Omnia-Set" (OM)
- Instruction manual,
- Setting chart,
- AMATRON+
- Sample container for fertiliser service,
- Limiter (special option).

Before commencing work, remove all packing material, wire etc!

Please check the correct fitting of the spreading discs. Looking into driving direction: left hand spreading disc decal "left hand" ("links") and right hand spreading disc decal "right hand" ("rechts").

Check the correct fitting of the scales on the spreading discs. The scales on the left hand spreading disc are marked with "left hand" [links] and on the right hand one with "right hand" [rechts]. The scales with the figures of 5 to 28 belong to the shorter spreading vanes and the scales with the figures of 35 - 55 to the longer spreading vanes.

4.1 Before using the machine for the first time

8. Before the bulk precision broadcaster is loades, it must first be coupled to the towing vehicle. Since the **ZG-B precis** is a single axle vehicles, the broadcaster must never be uncoupled if the loasd is unevenly distributed toward the rear of the hopper. The towing shaft may tip up causing injury.
9. Before the bulk precision broadcaster is uncoupled from the towing vehicle, the brake must always be applied and the support wheel lowered. In addition, the two chocks (located in the holders on the side of the vehicle) must also be used to prevent the bulk precision broadcaster from rolling away

5. Mounting and dismounting

Observe the safety advice when hitching on and off!

Attach implements as advised and only to the advised devices!

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

When attaching or removing the machine bring any parking or storing devices into the corresponding position (standing safety)!

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 supplied chocks.

Do not exceed the maximum permissible load

5.1 Hitching up the ZG-B preciS

All **ZG-B preciS** are equipped with a sprung draw bar and may be reised or lowered.

At random, the bulk material spreader can be-equipped with:

- a draw bar (Fig. 7) with overrunning brake and automatic recoil device,
- a straight draw bar (Fig. 8),
- a cranked draw bar (Fig. 9),
- Trail-Tron track follow draw bar (Fig. 10) (only **ZG-B 7001 preciS**).

Do not exceed the maximum permissible load for the pulling eye or the hitch coupling!

There must be no persons between the tractor and the bulk precision broadcaster when the two machines are being coupled!

When the bulk precision broadcaster is coupled, the front axle amounts to 20 % of the tractor´s unladen weight.

Attaching and securing the draw bar of the bulk precision broadcaster to the pulling eye or the hitch coupling of the tractor:

Ensure that the coupling point has adequate room for movement!

If the frame of the **ZG-B** behind the tractor is not horizontal to the ground when the two machines have been coupled, the coupling of the tractor or the draw bar of the spreader must be adjusted.

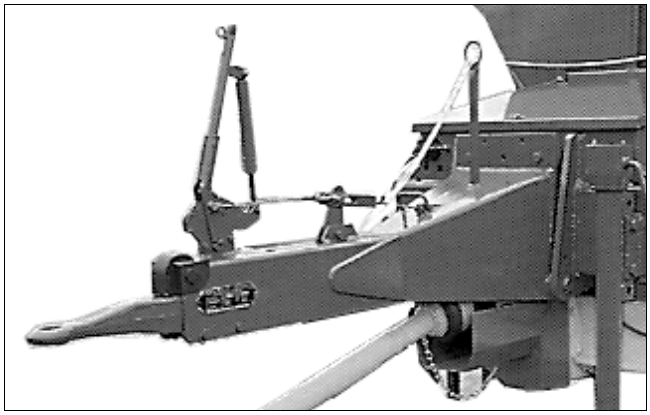


Fig. 7

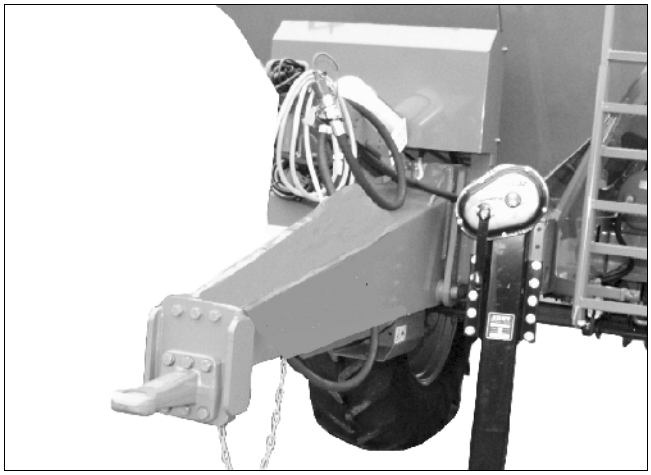


Fig. 8

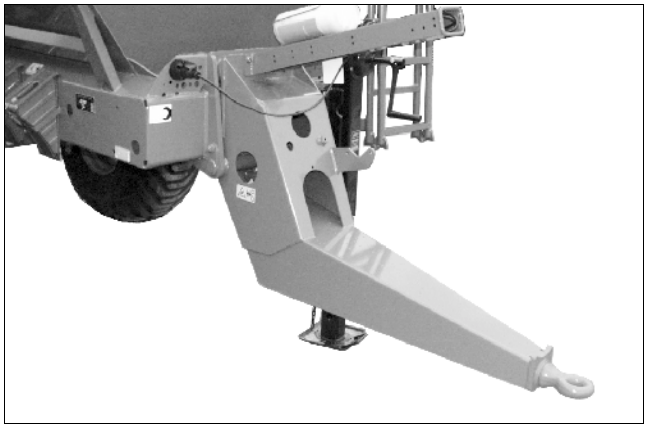


Fig. 9

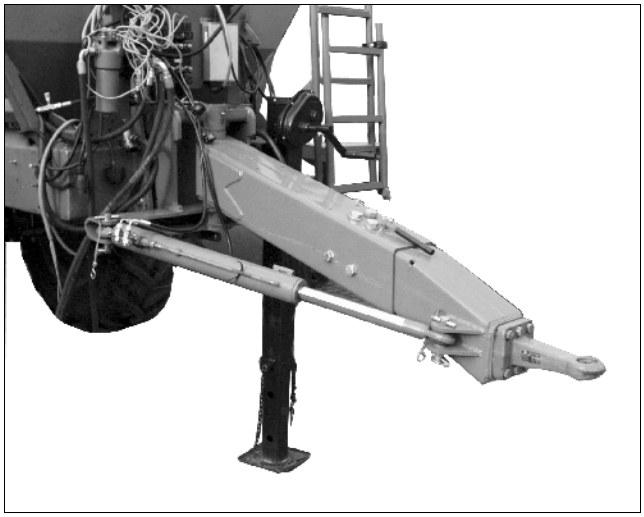


Fig. 10

5.1.1 Adjusting the draw bar of the ZG-B precis

- Uncouple the spreader (see chap. 5.8) and allow it to rest on the castor wheel.
- Rest the draw bar on a solid trestle (Fig. 11/1) and remove the two securing bolts (Fig. 11/2).
- By changing the position of both sets of spacing discs (Fig. 11/3) evenly, you can adjust the draw bar. The buffer discs (Fig. 11/4) must not be remove. They dampen the jolts transmitted from the tractor to the spreader.
- Insert and tighten the draw bar bolts (torque 540 Nm).

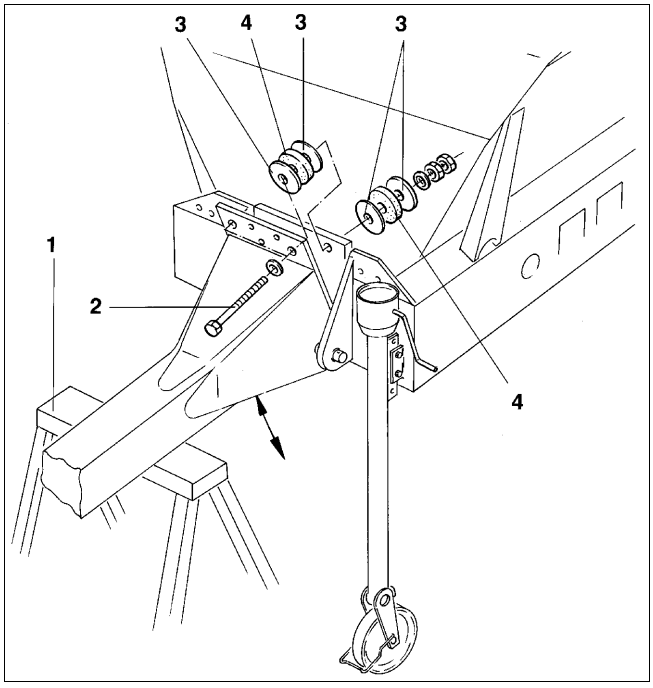


Fig. 11

5.2 Bring support leg into transport position

After coupling the spreader:

- Use the hand crank (Fig. 12/2) o crank the support leg (Fig. 12/1) upwards until the stop.
- Pull the pin (Fig. 12/3) off the support leg.
- Raise support leg.
- Insert pin in the lower hole (Fig. 12/4 and secure.

Working with the hand crank:

- **Pull out the hand crank– rapid activity of the support leg.**
- **Press down th hand crank– support leg moves slowly (for heavy loads).**

(Fig. 13)

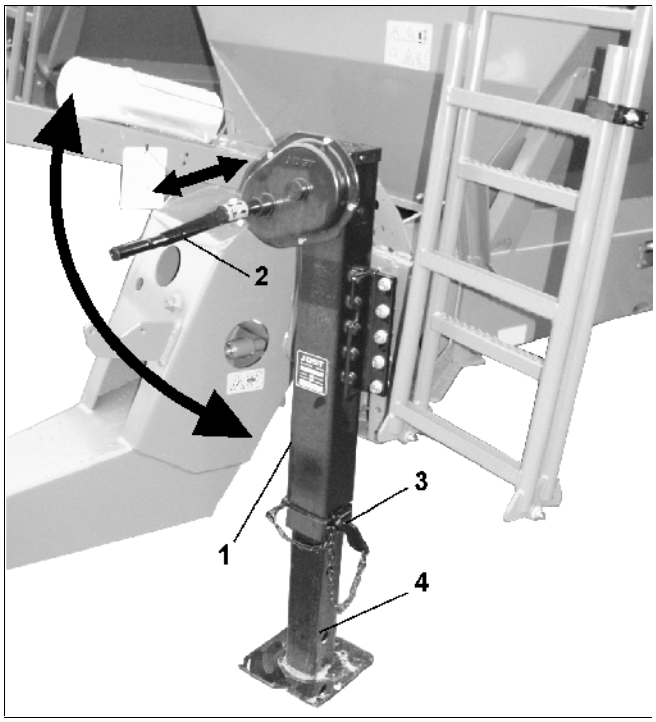


Fig. 12

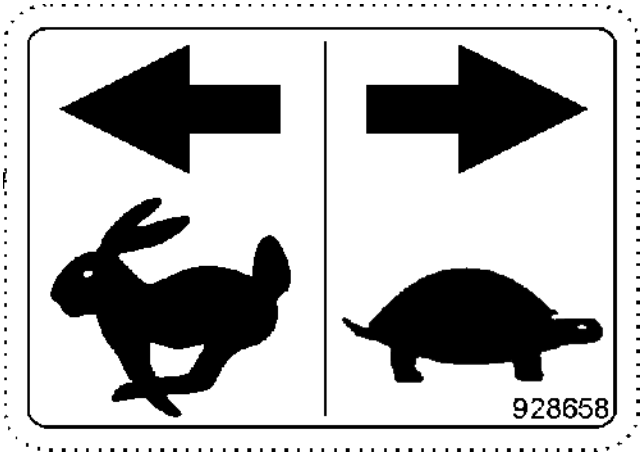


Fig. 13

5.3 Hydraulic connections

Warning - 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!

5.3.1 Hydraulic connection ZG-B precis:

- 1 single acting control spool valve - Hydraulic-block
- (smaller plug)
- one pressure-free return flow - Hydraulic-block
- (larger plug)

Pressure free oil return flow

To protect the hydraulic motors of the broadcaster from being damaged, the pressure in the return flow must not exceed 8 bar.

Therefore do not connect the oil return flow to the spool valve but to a pressure less oil return flow with a large plug coupling.

Only use DN16 hoses for the oil return flow and ensure a short return flow.

Only pressurise the hydraulic system when the free return flow has been correctly coupled.

- Install the supplied coupling sleeve on the pressure less oil return flow.

5.3.1.1 Setting the system converting bolt on the broadcaster valve block

The setting of the converting bolt (Fig. 14/1) on the spreader valve block depends on the tractor's hydraulic system. Depending on the hydraulic system:

- **unscrew the system converting bolt until its stop (factory setting) on tractors with**
  - Open-Centre-hydraulic system (stabilised **power supply** system, gear pump hydraulic).
  - Load-Sensing-hydraulic system (pressure- and current controlled setting pump) – oil decrease via control unit.

- **screw in the system converting bolt until its stop (contrary to the factory setting) on tractors with**
  - Closed-Centre-hydraulic system (constant **pressure** system, pressure controlled setting pump).

  Load-Sensing-hydraulic system (Pressure- and current controlled setting pump) with direct load-sensing pump connection. Adapt the provided volume current to the required volume current via the volume current valve of the tractor.
- **Setting the system converting bolt**:
  - Unscrew the system conversion bolt with knurled grip until the Stopp (factory setting) or screw in..

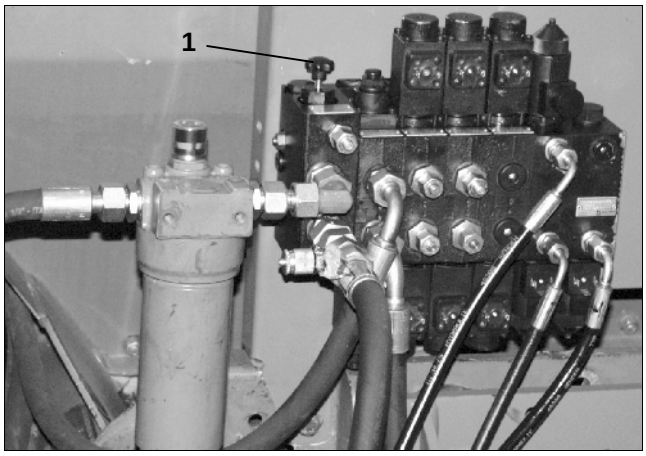


Fig. 14

5.4 Dual circuit air brake system

Coupling up

- **Coupling of the dual circuit air brake system** (if available) to tractor:
  - Coupling claw - yellow - to brake hose.
  - Coupling claw - red - to secondary hose.

Before coupling check cleanness of coupling claws and ensure correct catching!

Check route of hoses. Hoses must not be allowed to rub on foreign parts

- Before moving off the brake pressure regulator (Fig. 15/1) on the hand lever (Fig. 15/2) has to be adjusted manually according to the load of the implement.

- Machine filled - full load
- Machine partly filled - half load
- Machine empty - empty

- Release parking brake.
  - Turn hand crank (Fig. 16) located on the side of the chassis to the left until stop

After any adjustment of the brakes conduct a brake test.

- Remove chocks and secure in the pockets (Fig. 17/2) on the frame side.

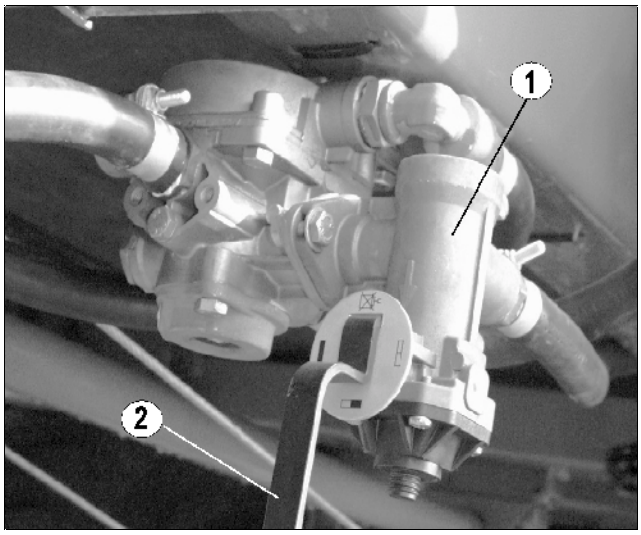


Fig. 15

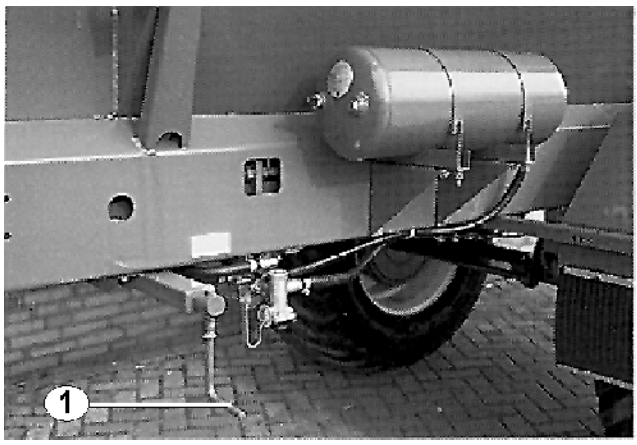


Fig. 16

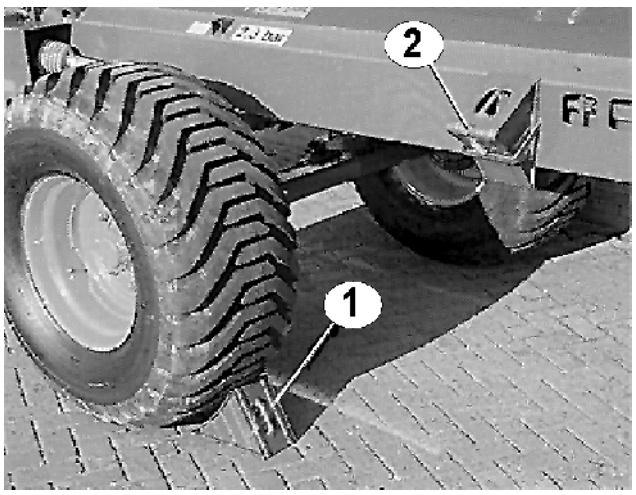


Fig. 17

5.5 Hydraulic brake system with parking brake

Coupling up

A hydraulic braking outlet on the tractor is required which controls the hydraulic brake system of the **ZG-B** ansteuert (not permitted in Germany).

- Connect the hydraulic plug of the hydraulic brake hose on the to the hydraulic socket of the hydraulic tractor brake.

Before coupling ensure that the hydraulic joint is clean and tighten by hand.

Check route of any hoses. Hoses must never rub against foreign obstacles!

- Release parking brake (Fig. 16/1):
  - Turn hand crank located on the side of the chassis to the left until the stop.

5.6 Electrical connections

Connect the electrical cable:

Connect the power cable of traffic lights on tractor and check function of the traffic lights before every use.

Connect **AMATRON+** .

5.7 PTO shaft tractor - ZG-B precis

The floor conveyor belt (except hydraulic drive) and the spreading unit are driven by the tractor´s PTO shaft.

Only connect the given PTO shaft on the tractor!

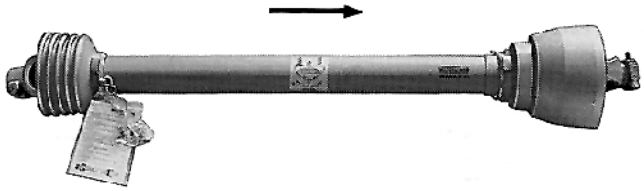


Fig. 18

Wide-angle PTO shaft (Fig. 18):

The PTO shaft is suitable for cornering manoeuvres in fields if spreading is sot to be interrupted (do not exceed the maximum PTO shaft angle specified by the manufacturer!)

Observe point 5.7.1 when using the machine for the first time or when changing the towing vehicles!

Gelenkwelle anschließen:

Connecting the PTO shaft:

1. Clean and grease the PTO shaft connections at the tractor and the ZG-B before attaching the PTO shaft!
2. Attach the PTO shaft halves to the tractor´s PTO shaft connector and to the spreaders input shaft in the prescribed manner (see the symbol on the PTO shaft).
3. The guard tubes for the PTO shaft have chains (Fig. 19) that are to be attached to the tractor and the ZG-B. These chains prevent the guard tubes from spinning with the PTO shaft. Attach the chains to the holes provided so that the PTO shaft still has sufficient room for movement in all operational positions and so that the guard tube does not spin when the shaft is in operation.
4. Work should only be commenced when all guarding devices are in position..

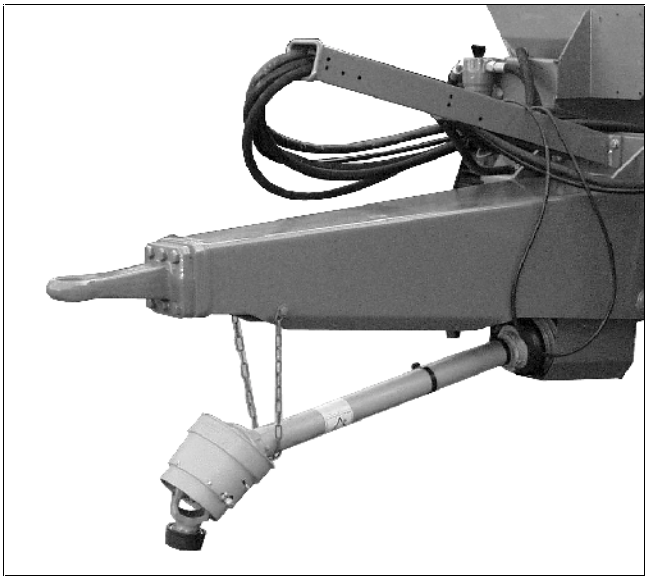


Fig. 19

Ensure that all the information regarding safety (see chap. 2.7.2) has been ovserved before engaging the PTO shaft

To prevent damage from being caused to the TO shaft, only engage the clutch when the tractor´s engine is idling or is running at al low speed.

For ZG-B with Trail-Tron draw bar: fit wide angle to the implement side.

5.7.1 Matching the PTO shaft with the tractor

Clean and grease the PTO shaft at the tractor and the input shaft of the **ZG-B** before attaching the PTO shaft!

Attach the PTO shaft halves to the tractor´s PTO shaft and to the spreaders input shaft in the prescribed manner (see the symbol on the PTO shaft) but do not slide the PTO shaft tubes **into each other.**

Fig. 20:

1. By holding the two PTO shaft tubes side by side, check whether an overlap of the PTO shaft tubes of at least A = 150 mm is guarantied as well on the lowered as on the lifted broadcaster.
2. In inserted position the PTO shaft tubes may not tough the yokes of the universal joint. Dabei ist zu beachten, dass sich die Gelenkwelle beim Bremsvorgang verkürzt, wenn der Großflächenstreuer mit einer Auflaufbremse ausgerüstet ist. A safety margin of at least 10 mm should be ensured.
3. For matching the length of the PTO shaft halves hold them side by side in the closest operating position of the machine and mark.
4. Shorten inner and outer guard tube by the same amount.
5. Shorten inner and outer profile tube in the same length as the guard tube.
6. Trennkanten abrunden und Späne sorgfältig entfernen.
7. Schiebeprofile einfetten und ineinander schieben.
8. The guard tubes of the PTO shaft have chains which should be attached to the tractor and the **ZG-B**. These chains prevent the guard tubes from spinning with the PTO shaft. Attach the chains to the holes provided so that the PTO shaft still has sufficient room for movement in all operational positions and so that the guard tube does not spin when the shaft is in operation.

Also follow the manufacturers assembly and maintenance advice attached to the PTO shaft!

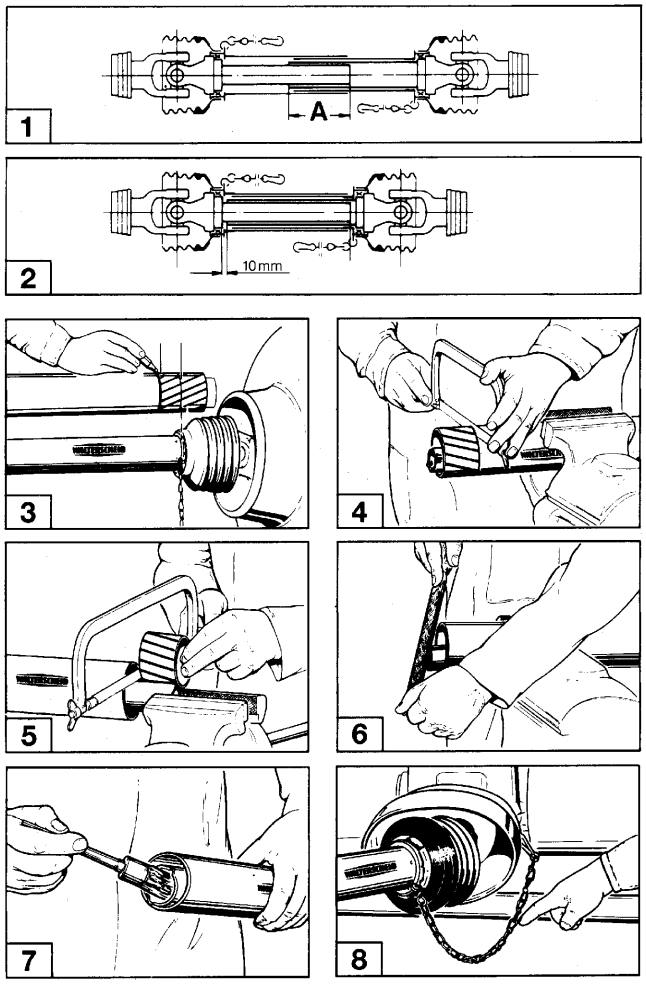


Fig. 20

5.8 Unhitching the bulk material spreader

Before uncoupling the ZG-B evenly scatter residue amounts in the hopper! Danger of tipping over!

Risk of injury caused by the towing hitch tipping up!

The bulk material spreader must never be uncoupled if its load is unevenly distributed toward the rear of the hopper!

The ZG-B is a single axle vehicle and if its load unevenly distributed toward the rear of the hopper, the spreader may tip backwards causing injury.

When uncoupling the spreader from the tractor, ensure that there are no persons located between the two machines!

Apply the brake:

- Before the ZG-B is uncoupled from the tractor, the brake (Fig. 21/1) must first be applied..
- In the case of broadcsters with air brakes, the brake is applied using a crank (Fig. 22/1) at the side of the vehicle. Turn the crank to the right as far as it will go.

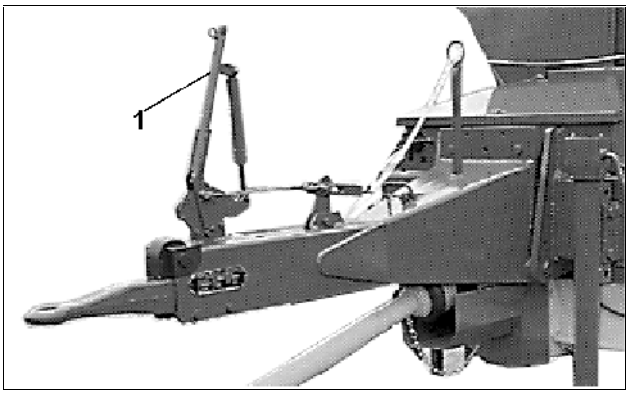


Fig. 21

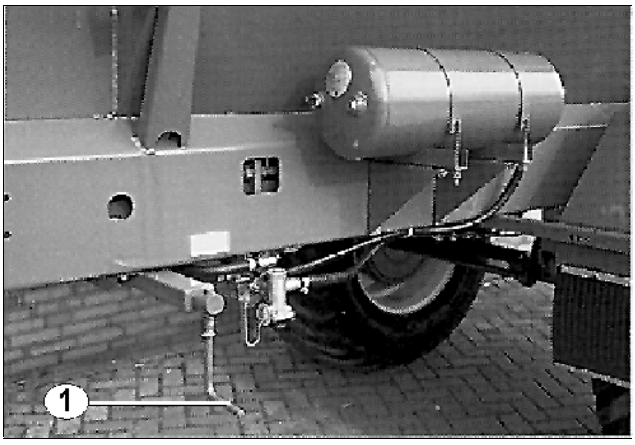


Fig. 22

Prevent the spreader from rolling by using the chocks:

- Before the ZG-B is uncoupled, the two chocks (Fig. 23/1) must be applied to ensure that the machine cannot roll away. When the spreader is in transit, the chocks (Fig. 23/2) are placed in the holders on the main frame and held in place by sprig clips.

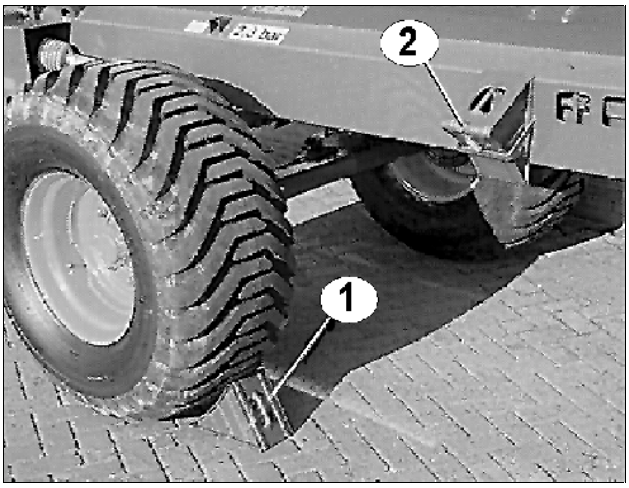


Fig. 23

Lower the support leg:

- Pull the pin (Fig. 24/4) off the lower hole.
- Lower the support leg (Fig. 24/1)
- Locate the support leg by using the pin in the upper hole and secure.
- Crank down the support leg until the draw bar releases in the tractor coupling.

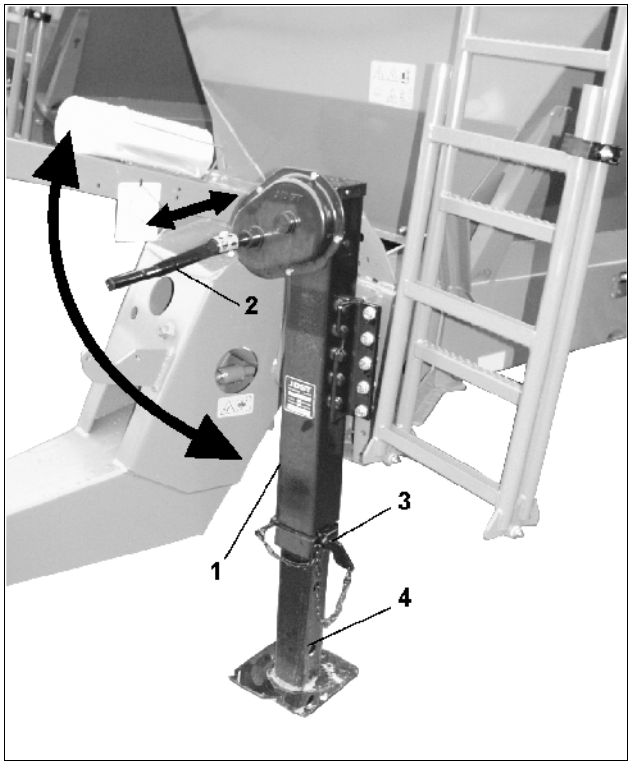


Fig. 24

Hang the PTO shaft in the chain (Fig. 25).

Uncouple the bulk precision broadcaster.

Put the hoses and cables into the holders and park positions.

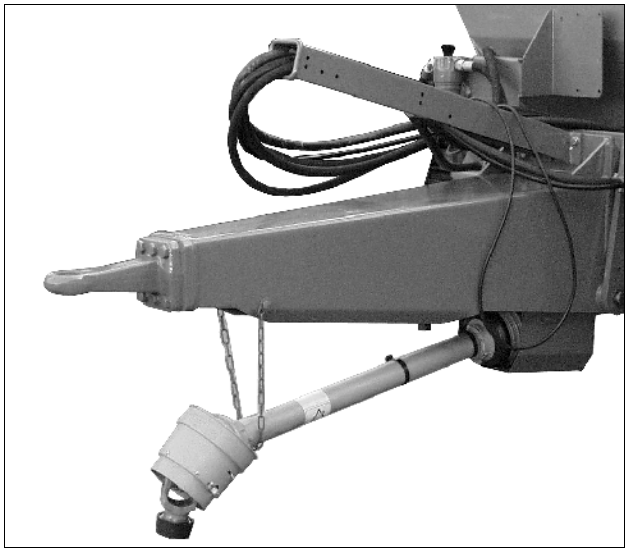


Fig. 25

6. Transport on public roads and ways

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

Vehicle owner as well as the operator are responsible for adhering to the legal traffic regulations!

Check the road traffic lights for proper function before using on public roads.

The traffic light kit must correspond to your national traffic law.

According to the harmonised European traffic regulations traffic light units and warning plates are required on agricultural and forestry implements mounted to tractors.

Observe the max. payload of the bulk material spreader!

Observe the axle loads of the tractor. If necessary travel on public roads with the hopper only partially filled.

In transport position always check all traffic safety devices for proper function.

When travelling on public roads close the shutters.

Close the swilling cover and ensure that it cannot be opened unitentionally.

No persons must stand or sit on the bulk material spreader during transport.

If the maximum permissible speed is greater than 25 km/h, the bulk precision broadcaster must be fitted with a rear barrier (Fig. 26/1) as shown as in (Fig. 27) ausrüsten.

Trailing load on the towing shaft and hitch!

When travelling on public roads switch off the conveyor belt.

When travelling on public roads switch off AMATRON+ .

Use the console to lock the steering draw bar!

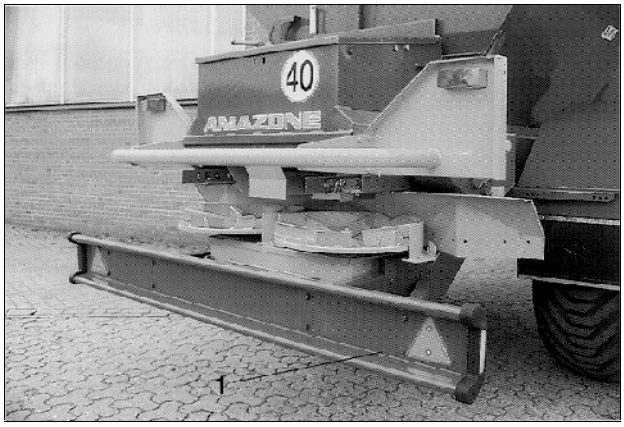


Fig. 26

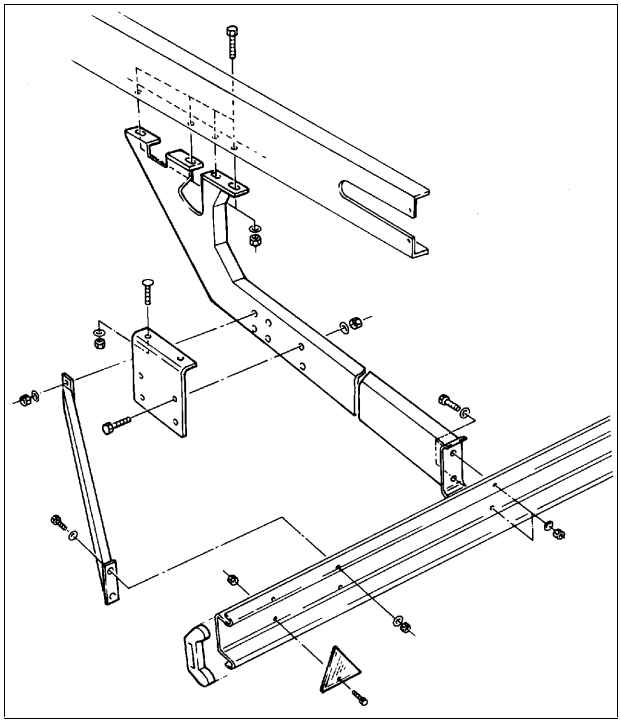


Fig. 27

7. Settings

All settings on the bulk precision broadcaster **AMAZONE ZG-B** follow the indications of the **setting chart**.

All common fertilisers are test-spread in the **AMAZONE**-test hall and the hereby determined setting figures are entered into the setting chart. All fertiliser s mentioned in the setting chart were in excellent condition when determining the setting values.

Due to varying fertiliser characteristics because of

- weather influence and/or unfavourable storing conditions,
- deviations of the physical properties of the fertiliser ,
- also within the same kind and brand,

the spreading behaviour of the fertiliser may change and thus deviations from the figures for setting the desired spread rate or working width in the setting chart may become necessary.

No guarantee can be given that your fertiliser – even with the same name and from the same manufacturer – has the same spreading behaviour as the fertiliser tested by us.

We strictly point out that no compensation will be accepted for damage resulting from spreading errors.

With unknown kinds of fertiliser or for a checking of the working width set, a working width check can easily be carried out with the mobile test kit (option).

We strictly point out that no compensation will be accepted for damage resulting from spreading errors.

The figures in the setting chart can only be taken as standard data as the spreading properties of the fertiliser may change and thus require other settings.

The indicated setting recommendations for the lateral distribution (working width) only correspond to the weight distribution and not to the nutritious distribution.

Settings or other work on the centrifugal broadcaster must only be carried out with the motor switched off and pressure less hydraulic system. Remove the ignition key. Secure the vehicle against unintended putting to operation and rolling away!

Before carrying out any settings or other work on the implement, wait until all moving machine parts have come to a full stand still!

If the fertiliser cannot distinctly be associated with a certain kind in the **setting chart**, the **AMAZONE-fertiliser service** will give you **recommendations** for the setting, either immediately on the phone or after sending a small fertiliser sample.

AMAZONE-fertiliser service

☎ Germany: 0049-5405/ 501111or 501164 - Fax: 5405/501134

or for the UK and Rep. of Ireland: (UK: 0044) 01302-751200

monday - friday

8.00 till 13.00 o'clock

7.1 Setting the spread rate

See operation manual AMATRON+

The **shutter slide position** for the desired **spread rate** is set with the aid of the two setting levers.

After having entered the desired spread rate on **AMATRON+** [required rate in kg/ha] determine the fertiliser calibration factor (spread rate check). It determines the control behaviour of **AMATRON+.**

7.2 Checking the spread rate

It is recommended to check the spread rate with every change of fertiliser.

Carry out the **spread rate check** (calibration test) **stationary**.

The multiplier for the total quantity considers the one-sided spread rate check.

7.2.1 Arrangements for the spread rate check

- Remove the left hand spreading disc.
  - Unscrew the hexangonal bolt (Fig. 28/1) for fixing the left hand spreading disc and pull the spreading disc off the gear box shaft (Fig. 28/2).
  - Srew the hexangonal bolt again in gear box shaft (to avoid any fertiliser dropping into the threaded hole).
- Put the calibration funnel (Fig. 28/3) between the bridge (Fig. 28/4) and distribution drive(Fig. 28/5)and push it until the gear box shaft..
- Locate the collecting bucket (Fig. 28/6) underneath the calibration funnel.

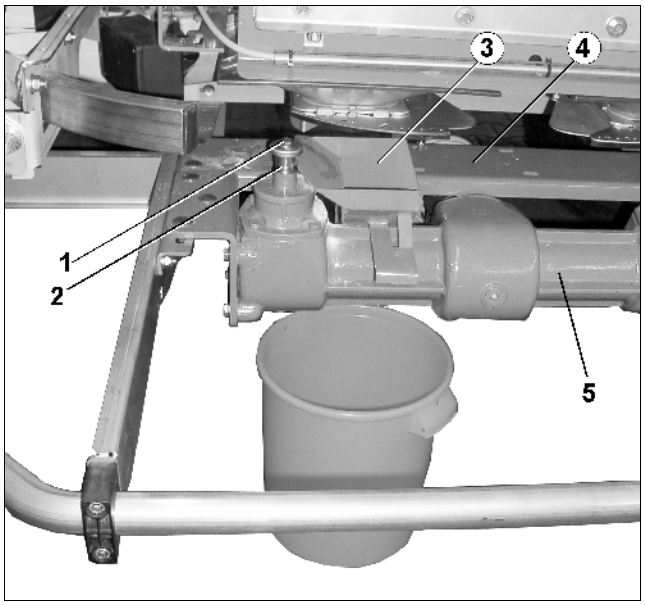


Fig. 28

7.3 Setting the working width

The working width (distance between the tramlines) are adjustable within the working widths of the relevant Omnia-Set (OM) spreading disc pairs (when spreading urea, however, deviations might occur).

Choose the suitable spreading disc for the desired working width.

Working width:	Spreading discs
18 – 24 m	OM 18 - 24
24 – 36 m	OM 24 - 36

the tramlines) for **normal fertilising** is set with the aid of varying **spreading vane** positions.

The spreading properties of the fertiliser have a great influence on the working width and the fertiliser lateral distribution.

The main influences on the spreading behaviour of the fertiliser are:

- grain size,
- bulk density,
- surface condition,
- humidity..

We therefore recommend to use well granulated fertilisers of renown fertiliser manufacturers and the checking of the pre-set working width with the mobile fertiliser test kit.

7.3.1.1 Setting the spreading vane positions

The spreading vane position depends on

- the working width and
- the kind of fertiliser.

For the accurate tool less setting of the individual spreading vane position two different unmistakable scales (Fig. 29/1 and Fig. 29/2) are arranged on every individual spreading disc.

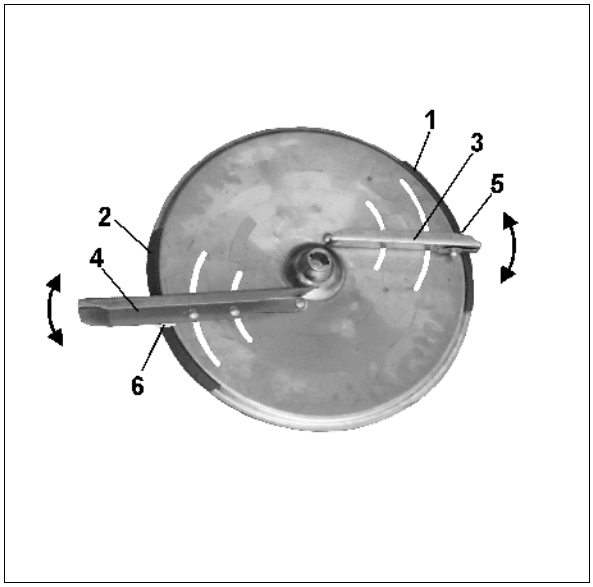


Fig. 29

The scale (Fig. 29/1) with the figure from 5 to 28 refers to the shorter spreading vane (Fig. 29/3) and the scale (Fig. 29/2) with the figures from 35 to 55 refers to the longer spreading vane (Fig. 29/4).

Swivelling the spreading vanes to a higher figure on the scale (Fig. 29/1 or Fig. 29/2) results in an increase of the working width.

The shorter spreading vane distributes the fertiliser mainly in the spread pattern center, whereas the longer spreading vane mainly spreads the outer spread pattern range.

Set the spreading vanes on the spreading discs as follows:

Slacken thumb nut underneath the spreading disc.

For slackening the thumb nut turn the spreading disc until the thumb nut can be slackened without any difficulty.

- Read off the setting chart the required spreading vane position.
- Look for the scale figure for the position of the short spreading vane on scale (Fig. 29/1) aufsuchen.
- Swivel the read off edge (Fig. 29/5) of the **short** vane (Fig. 29/3) on to the scale figure and **retighten the thumb nut firmly**.
- Look for the scale figure for the position of the **long** spreading vane on scale (Fig. 29/2) aufsuchen.
- Swivel the read off edge (Fig. 29/6 of the **long** vane (Fig. 29/4) on to the scale figure and **retighten the thumb nut firmly.**

Example:

Kind of fertiliser: **CAN 27 % N prilled, BASF (white)**

Spreading disc**:** **OM 24 - 36**

Desired working width: **27m**

- **For fertiliser or trade name, please refer to the setting chart.**
- **Read off group of fertiliser.**
- **For spreading vane position please refer to the right hand side of the table:**

  Group 1; working width 27m

  Short vane position 12,

  Long vane position 44

Fertiliser	Fertiliser or trade name	Group of fertiliser
CAN	CAN 27% N gran. Fertiva Gmbh	1
	CAN 27% N gran. Linzer NAC	2
	CAN 27% N gran. Hydro Rostock	1
	CAN 27% N gran. Hydro Sliskll (NL)	1

Group of fertiliser	m					
	24	27	28	30	32	36
1	10/44	12/44	13/44	15/44	15/44	16/47
2	15/43	17/44	17/44	17/45	17/46	17/47

7.3.2 Checking the working width with the mobile test kit (option)

The setting values of the setting chart have to be considered as **guide values** only, as the spreading properties of the kinds of fertiliser vary. It is recommended to check the set working widths of the fertiliser broadcaster with the **mobile test kit** (Fig. 30) (option).

For further details, please refer to the instruction manual "Mobile test kit"

Fig. 30

7.3.3 Late top dressing

The spreading discs are supplied as standard with spreading vanes by which besides the normal spreading (Fig. 31) procedure also late top dressing in crops may be conducted.

For late top dressing Swivel the swivel blades of the spreading discs without slackening the nuts (without any tools) into the upper position (Fig. 32). This way the fertiliser spread fan is raised.

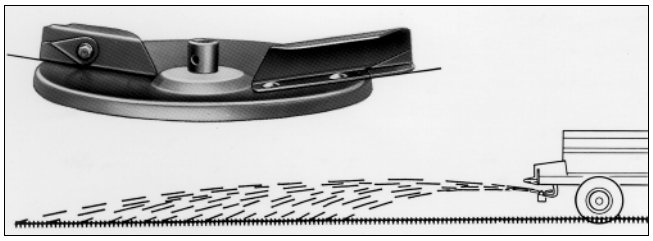


Fig. 31

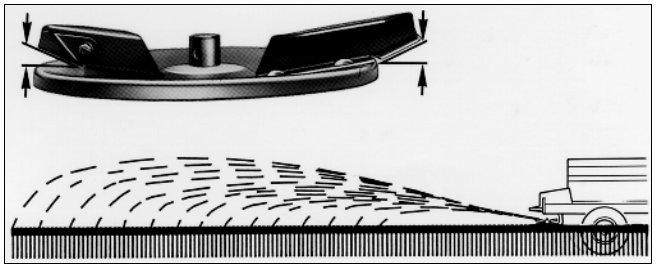


Fig. 32

7.3.4 Eco-border and normal-border spreading

Border spreading is divide in eco-border and normal-border spreading.

Eco-border spreading according to fertiliser application decree:
(with half spacings) (Fig. 33)

The adjacent area is a road or a water.

According to fertiliser decree:

- no fertiliser may be thrown beyond the border.
- eroding and washing off (e. g. in surface water) must be prevented.

In order to avoid an over-fertilizing inside the field, the spread rate thrown towards the boundary must be reduced. This results in only a little over-fertilizing in front the field's boundary.

- For boundary spreading the pre-set fertiliser spread rate should be reduced by 10 %. Therefor press key –10% on **AMATRON+**.

The eco-border spreading corresponds to the requirements of the fertiliser application decree.

Symbol for eco-border spreading: no fertiliser may be thrown beyond the boundary

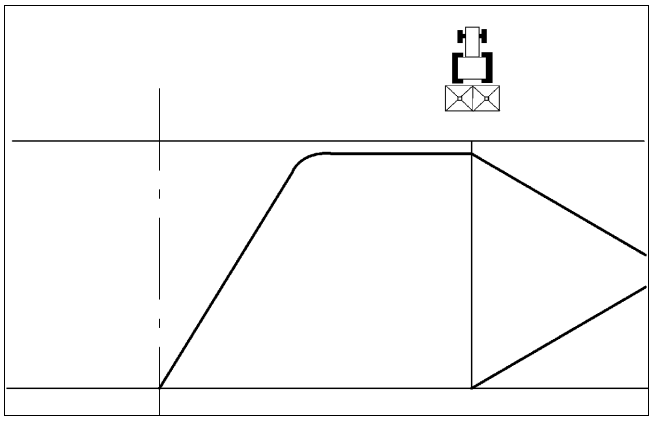


Fig. 33

Normal-border spreading

(with half spacings) (Fig. 34)

The adjacent area is an arable field. A small amount of fertiliser being thrown beyond the field's border may be tolerated.

The fertiliser distribution inside the field is still near the rated quantity at the field's border. A small amount of fertiliser will be thrown beyond the field's border.

Symbol for normal-border spreading: at least 80 % of the spread rate set until the field's border..

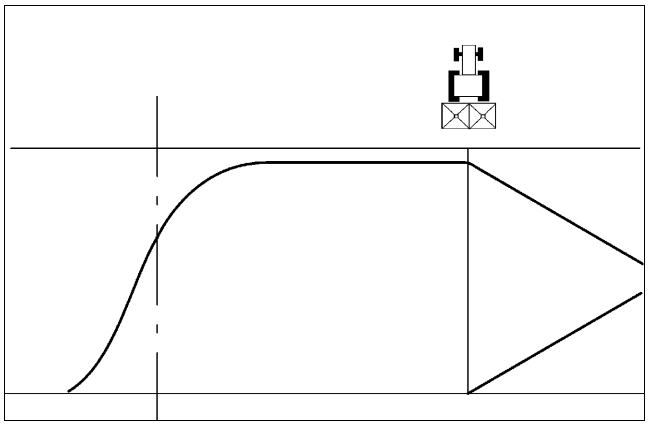


Fig. 34

The spread patterns might deviate from the illustrated spread patterns.

7.3.4.1 Eco" border spreading and border spreading with Limiter ZG-B (special option)

If the first tramline is created in a distance of half the working width of the fertiliser spreader to the field side, operate with Limiter **ZG-B** (Fig. 35) using it for eco border spreading and border spreading. It is possible to put the deflector hydraulically into or out of operation.

Adjust the deflector plate on the guide rail according to the setting chart. . The setting depends on:
- the distance from the border,
- the kind of fertiliser,
- border- or eco-border spreading.

For operation hydraulically fold down the border spread deflector into operational position.

After having spread the border hydraulically swivel the border spread deflector upwards and continue the normal spreading operation.

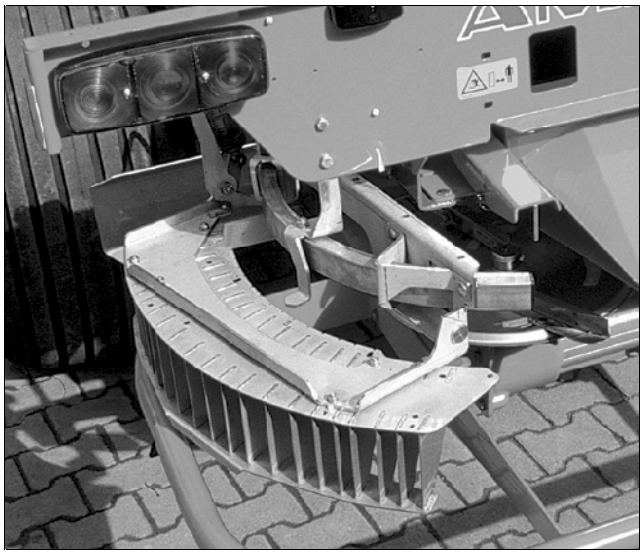


Fig. 35

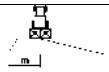
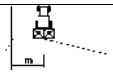
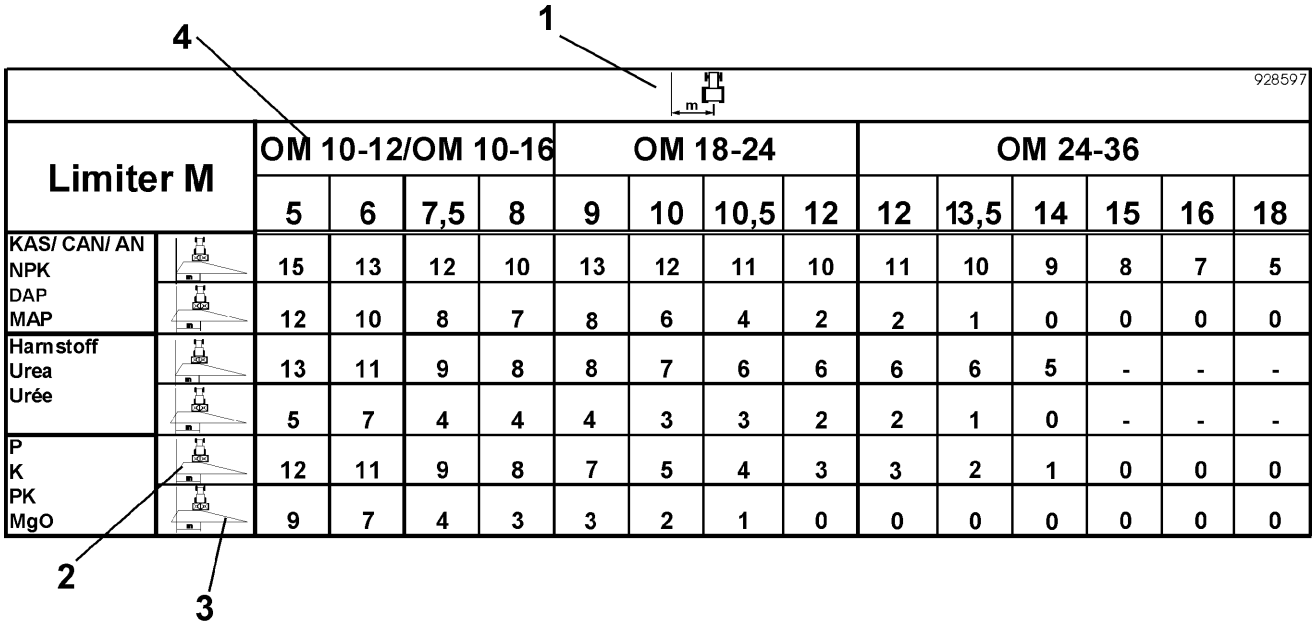
Declaration of symbol of the following table		
1		½ distance
2		Eco border spreading
3		Border spreading
4		Spreading discs which are taken

Table for border spreading and eco border spreading



928597

Limiter M		OM 10-12/OM 10-16				OM 18-24				OM 24-36					
		5	6	7,5	8	9	10	10,5	12	12	13,5	14	15	16	18
KAS/ CAN/ AN NPK		15	13	12	10	13	12	11	10	11	10	9	8	7	5
DAP MAP		12	10	8	7	8	6	4	2	2	1	0	0	0	0
Harnstoff Urea Urée		13	11	9	8	8	7	6	6	6	6	5	-	-	-
		5	7	4	4	4	3	3	2	2	1	0	-	-	-
P K PK MgO		12	11	9	8	7	5	4	3	3	2	1	0	0	0
		9	7	4	3	3	2	1	0	0	0	0	0	0	0

Late top dressing with Limiter ZG-B

For late top dressing bring the border spread deflector into a medium high position (Fig. 36).

- To do this lower the border spread deflector hydraulically.

On the upper side of the border spread deflector you will find on the right hand and left hand side each one setting lock (Fig. 37).

- Slacken the nuts of the setting locks.
- Manually raise the deflector
- Position the setting locks up to the Stopp and firmly tighten the locks.
- Lower the deflector.

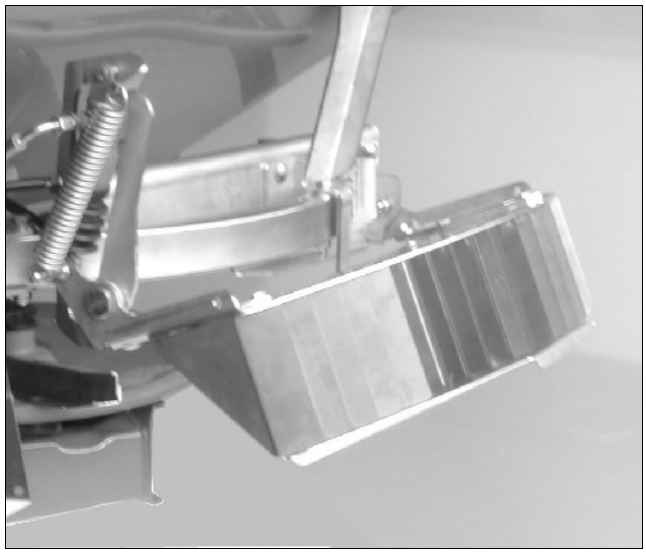


Fig. 36

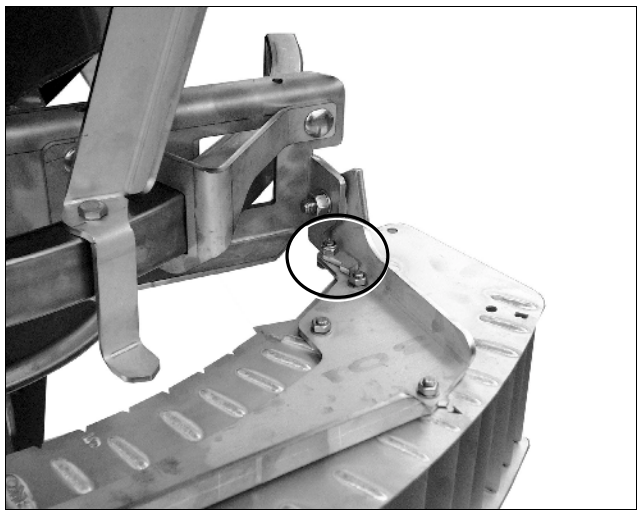


Fig. 37

- The speed for raising the Limiter is determined by the setting screw (Fig. 38/1) of the throttle valve on the hydraulic block. It is set by the factory so that the Limiter is slowly raised.

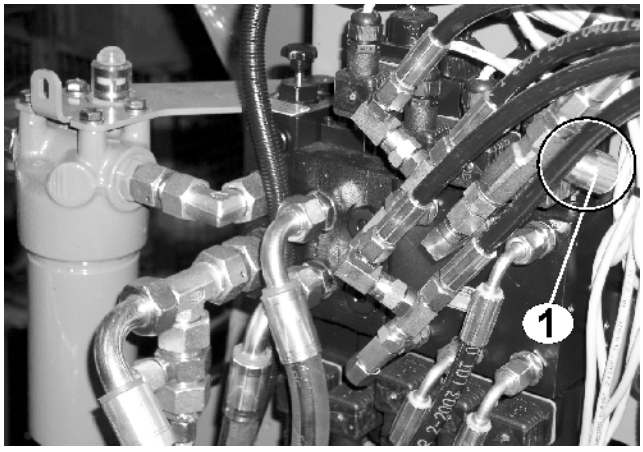


Fig. 38

8. Operation

before starting with the spreading operation:

- **Job-data**
- **Machine-data**

Enter on AMATRON+ and recheck.

See operation manual of AMATRON+.

Observe the maximum payload!

Ensure that the PTO shaft rev. speed is matched with the spreader unit (Fig. 39, Fig. 40)!

Adjust 720 R.P.M. or 540 R.P.M.!

Do not approach rotating spreading discs. Danger of injury. Danger from fertiliser particles being thrown around. Advice people to leave the danger area

At new machines after 3 – 4 hopper fillings check nuts and bolts regularly for tightness and retighten if necessary.

Only use well granular fertiliser s and kinds mentioned in the setting chart. In case of insufficient knowledge about the fertiliser check the fertiliser lateral distribution for the set working width by using the mobile test kit.

When spreading mixed fertiliser s mind that

- **the individual kinds may have different spreading properties.**
- **a demixing of the individual kinds may occur.**

The recommended settings for the lateral distribution exclusively refer to the weight distribution and not to the nutrient distribution.

Maintain a constant spreading disc rev. speed and forward speed!

After every operation remove fertiliser which may still be sticking on the spreading vanes.

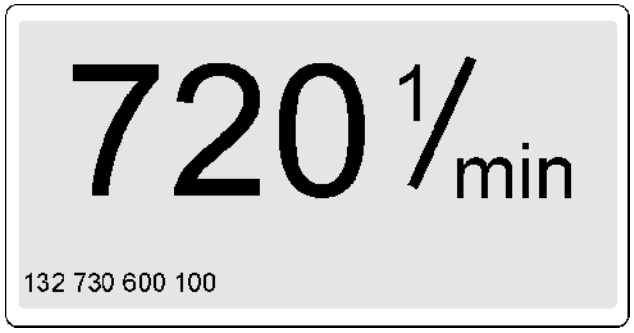


Fig. 39

Fig. 40

8.1 Filling the ZG-B preciS

Before filling, briefly run the floor belt to reduce the adhesion.

Danger of accident!

Before the bulk precision broadcaster is loaded, it must first be coupled to the tractor!

Do not exceed the maximum permissible weight! Weigh the vehicle

If the maximum overall weight is exceeded in the case of journeys on roads not classed as public highways it must be rembered that the brakesare then no longer sufficiently effective for the top speed! The speed of the vehicle must be reduced accordingly.

Before filling the hopper ensure that there are no foreign particles in the hopper.

Strictly follow the safety advice of the fertiliser manufacturer.

Enter the refilled amount of fertiliser into the AMATRON+.

See operation manual of AMATRON+.

8.2 Spreading operation

See operation manual of AMATRON+.

Standard PTO shaft rev. speeds: 540 or 720 1/min (depending on the input gearbox). For some kinds of fertiliser another PTO shaft rev. speed is required. Please observe the indications in the setting chart.

Do not stay within the zone of spinning spreading discs Advise people to leave the danger area!

The technical condition of the spreading vanes essentially influences the even lateral fertiliser distribution in the field (creation of stripes).

The life span of the spreading vanes depends on the kinds of fertiliser used, the operation times and quantities spread.

With some spreading materials, as Kieserite, Excello-granules and magnesium sulphate an increased wear on the spreading blades may occur (more wear resistant spreading vanes are available as an option).

Before commencing any operation with the fertiliser spreader ensure that all safety devices are present and fitted in the correct position (para.3.2)

8.3 Recommendations for broadcasting on the headlands

Precondition for an accurate broadcasting at field borders or field sides is the correct creating of tramlines. By using the deflector Limiter **ZG-B** the first tramline (Fig. 41/T1)) is usually always created in a distance of half the tramline spacing to the field side (see para 7.3.4). In the same way, such a tramline is created on the headlands. As a check a further tramline (broken line) on the headlands is very helpful – with full spacing of one working width.

Following the advice given in para. 7.3.4 drive along the field in the first tramline in clockwise direction (right hand turn). After this course round the field disengage Limiter (fold upwards).

As centrifugal broadcasters also throw the fertiliser to the rear, the following has strictly to be noted for an accurate distribution on the headlands:

Open and close shutter in different distance to the field's side when driving up (tramlines T1, T2 etc.) and down (tramline T3, etc.).

Open the shutter when "driving up" approx. **on point P1 (**Fig. 42**)**, when the spreader is in line with the 2nd tramline on the headlands (broken line).

Close the shutter when "driving down" **on point P2 (**Fig. 42**)**, when the spreader is in line with the 1st tramline on the headlands.

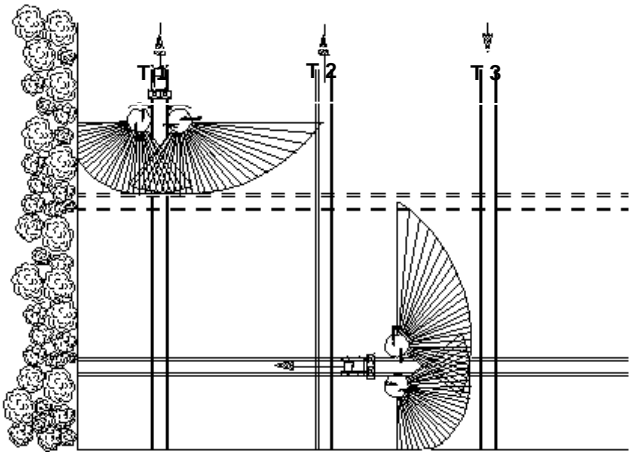


Fig. 41

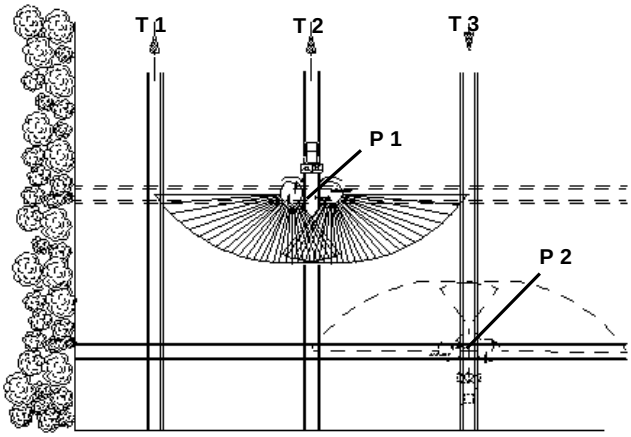


Fig. 42

Proceeding as described above prevents fertiliser losses, over- or under fertilising and thus is an environment friendly working method.

9. Cleaning, maintenance and repair

Clean, grease or adjust the broadcaster only , if the hydraulic drive switched off, engine have been stopped and the ignition key is removed.

For vehicles wider than 2.55 m the inner tyre pressure should not exceed 1.5 bar – please follow the traffic law regulations of your country

- After use clean the machine with a normal jet of water (greased implements only on washing bays with oil traps).
- Clean outlet openings and shutters especially carefully.
- For this slacken the hex. bolts M10 on the rear flap (Fig. 43/1) and unhook the rear flap.
- Check the control flap (Fig. 44/1) for easy going every day and readjust the setting rings is necessary.
- Treat dry machine with an anticorrosive agent. (Only use biologically degradable protective agents).
- All bolted joints on the machine must be checked and, if necessary, tightened after first 30 hours of operation. See para.9.12.1 or the torque to be applied to the wheel nuts.
- Check the tyre air pressure (see table) at regular intervals..
- For cleaning, maintenance and repair use the foldable ladder (Fig. 45/1) to climb up the hopper.

  Before climbing up:
  - Lift the securing clamp (Fig. 45/2).
  - Fold down the ladder (Fig. 45/1).
  - After having finished work fold in the ladder again.

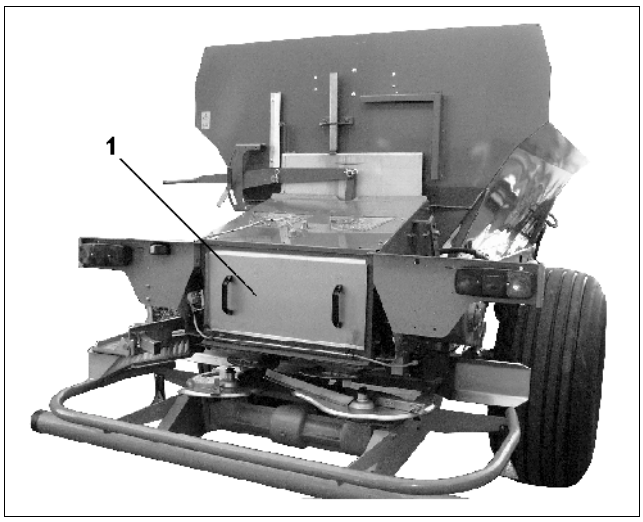


Fig. 43

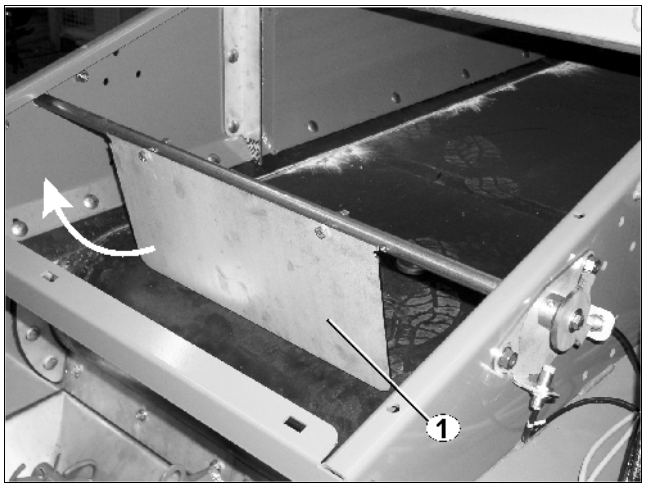


Fig. 44

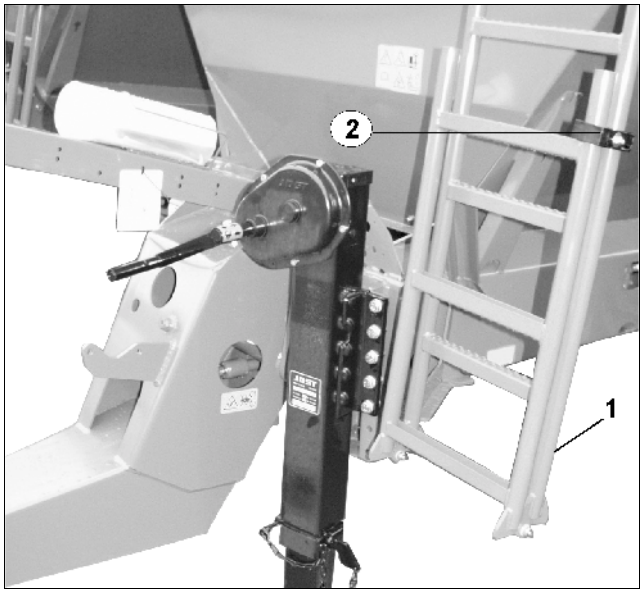


Fig. 45

9.1 Scraper

- The segment plates may slip depending on the use of the bulk material spreader. The segment plates should fit to the floor belt in the full length. If this is not the case, slacken the hex. bolts and adjust with an auxiliary tool. Retighten the hex. bolts.
- The pressure of the scraper (Fig. 46/1) on the belt floor is adjusted on both sides of the machine with the aid of the setting screw (Fig. 47/1):
  - Tighten the nut (Fig. 47/2) of the setting screw until the segment plates are in straight position on the floor belt.
  - Tighten counter nut (Fig. 47/3) with appropriate tool.

Too strong a pressure of the scraper onto the belt floor may lead to increased wear!

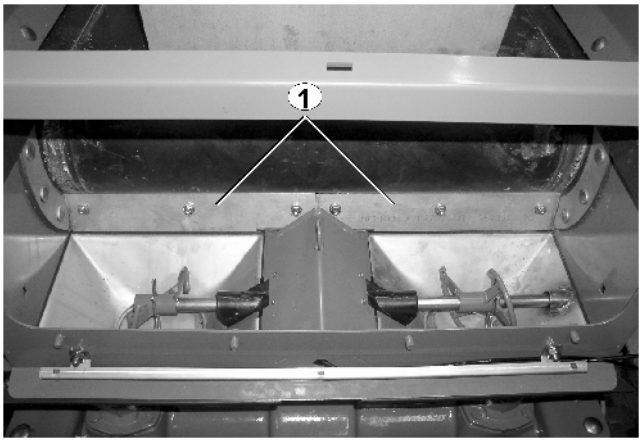


Fig. 46

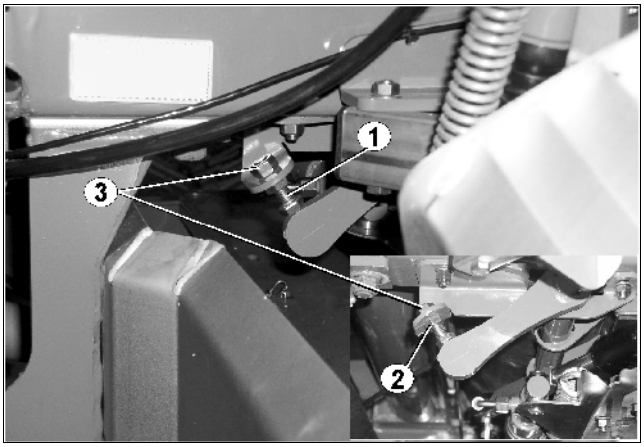


Fig. 47

9.2 Spreading vanes and swivel blades

- Slacken self-locking nut (Fig. 48/1).
- Remove washer (Fig. 48/2) and flat mushroom head bolt (Fig. 48/3).
- Slacken thumb nut (Fig. 48/4) and exchange spreading vanes.
- Fitting the spreading vanes is done in vice versa order.
- Tighten the self locking nut (Fig. 48/1) in such a way, that the spreading vane can be swivelled by hand.

Note the correct fitting of the spreading vanes. The open side of the U-shaped spreading vane shows into sense of rotation (Fig. 48/5).

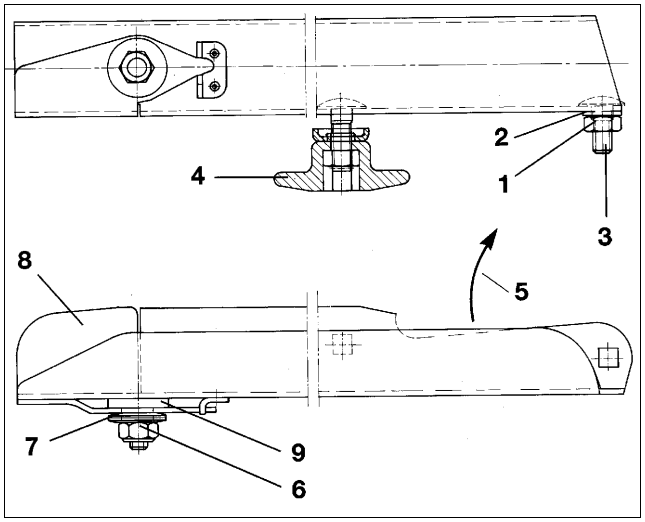


Fig. 48

The technical condition of the spreading vanes incl. their swivel blades essentially influences the even lateral fertiliser distribution in the field (creation of stripes).

The spreading vanes have been manufactured from especially wear resistant and non corrosive steel. However it is indicated that the spreading vanes and their swivel blades are wearing parts.

Die Streuschaufeln bzw. Schwenkflügel auswechseln, sobald Durchbrüche durch Abrieb erkennbar sind.

9.2.1 Exchange of swivel blades

- Slacken self locking nut (Fig. 48/6) and remove together with spring washers (Fig. 48/7).
- Exchange swivel blades (Fig. 48/8).
- **Heap up** spring washers **reciprocally** (do not stack).
- Tighten self locking nut (Fig. 48/6)) with a torque of **6 - 7 Nm**, so that the swivel blade can still be swivelled upwards by hand, however does not swivel up by itself during operation.

Mind plastic washer (Fig. 48/9) between spreading vane and swivel blade.

9.3 Exchanging the spreading discs

- Remove the M10 hexagonal bolt (Fig. 49/1) lösen.
- Pull off the spreading disc from the gearbox shaft.
- Set up other spreading disc
- Fix spreading disc – the spreading discs to the gear shafts of the twin disc sprading unit and bolt in place using M10 hexagonal bolts (Fig. 49/1) by tightening the thumb nut..

When setting up spreading discs do not mix up "left hand" and "right hand". The spreading discs are labelled accordingly

Holders (Fig. 50/2) which can be attached to the boradcasters hopper are available for additional spreading discs (Fig. 50/1).

Do not stand in the immediate vicinity of the rotating spreading discs!

Do not touch any of the machine´s moving parts! Wait until they have come to a complete standstill!

Before changing the spreading discs or adjusting the spreading vanes, switch off the tractor´s PTO shaft, turn off the tractors engine and remove the ignition key!

Keep clear of flying fertiliser! Risk of injury!

Ensure that no persons are located in the danger zone!

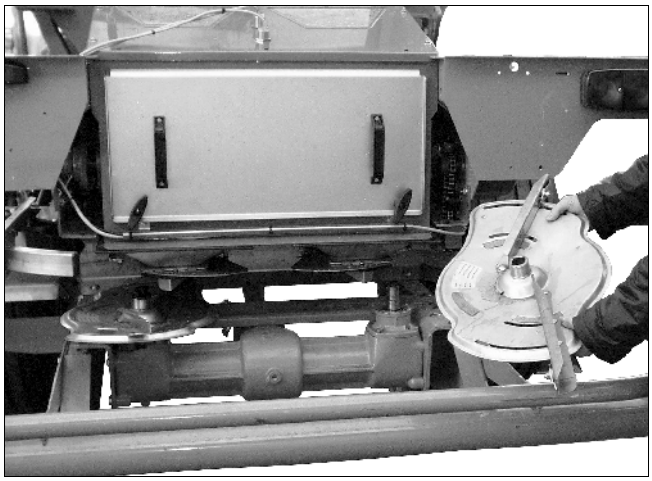


Fig. 49

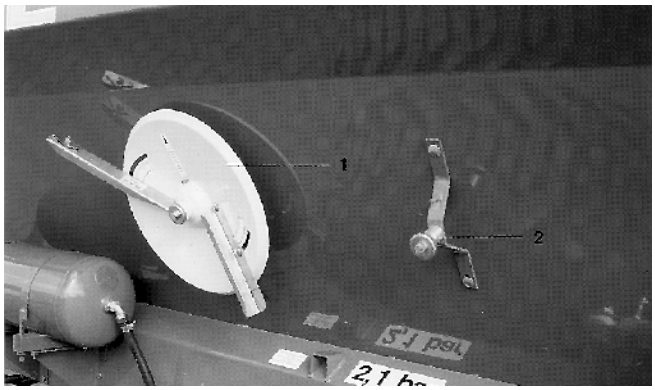


Fig. 50

9.4 PTO shafts

Grease the PTO shafts at regular intervals (operating hours h) (Fig. 51) in accordance with the greasing diagram. When the spreader is used in winter, the guard tubes must be greased to prevent seizure caused by freezing. Carefully clean the grease nipple and grease gun before the grease is applied.

Also follow the shaft manufacturer´s assembly and maintenance instructions attached to the PTO shaft.

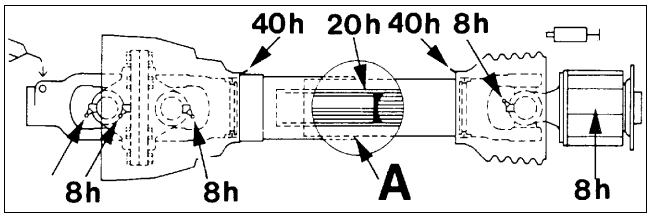


Fig. 51

9.5 Grease nipples

Grease all grease nipples before and after each spreading period. Carefully clean the grease nipples and grease gun before the grease is applied.

9.6 Gear boxes

Gear oil: SAE 090

The oil soes not have to be changed.

Quantity of oil:

- Universal spreading unit gear box - 2,5 l.
- Gearbox for the hydraulic belt floor drive 1,2 l.

9.7 Agitator shaft

Agitator spiral clip (Fig. 52/1). serve as shear off safety for the agitator shaft.

Apply oil to the drive chain of the agitator shaft in regular intervals of approx. 50 operating hours. While doing so, check the tensioning and readjust with the aid of the chain tensioner (Fig. 53/1) in the slotted hole if found necessary.

Grease the bearings of the agitator shaft in regular intervals after approx. 50 operating hours.

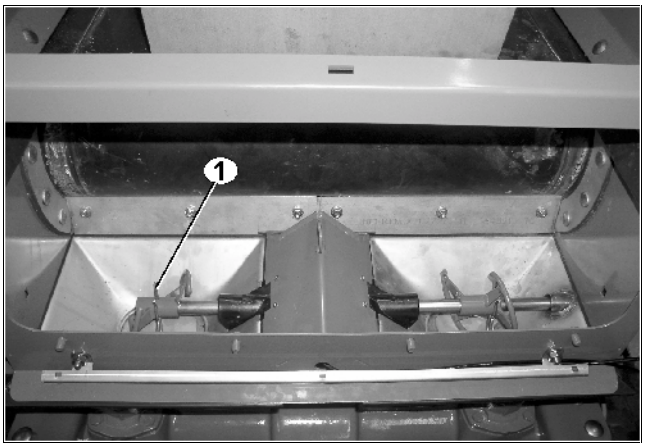


Fig. 52

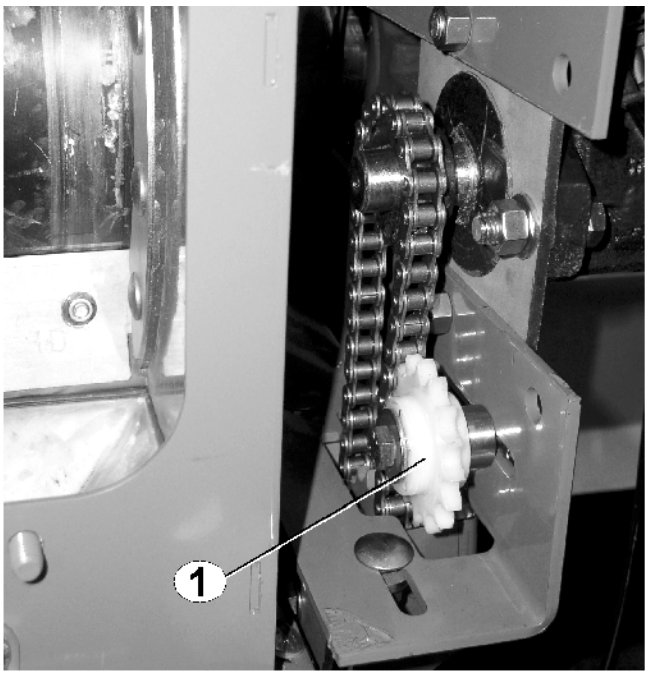


Fig. 53

9.8 Hydraulic hoses

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

If hoses are found defective in any way, exchange 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 leakages
- Check the appropriate fitting of the hoses
- Check the hose 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.

9.8.1 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).

9.8.2 Marking

Hydraulic hoses are marked as follows:

- Name of the manufacturer
- Date of production

Maximum dynamic operational pressure

9.8.3 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.

9.9 Check of the hydraulic oil filter

During operation the function of the hydraulic oil filter can be checked on the control block. Indication in the check window.

Green filter functions properly

Red exchange filter / clean

For removal of the filter twist off the filter cover and take out filter.

9.10 Cleaning the solenoid valves

Flush the solenoid valve to clean them from pollution. This might become necessary when deposits prevent an entire opening or closing of the shutters.

- Unscrew solenoid cap
- Remove magnet coil
- Screw out the valve rod with valve seat and clean with compressed air or hydraulic oil.

9.11 Floor conveyor belt with beltcentering

Conveyor belts (Fig. 54/1) tend to shift laterally if the broadcaster is tilted (for example, when used on slopes) or if the load is unevenly distributed to one side. The conveyor belt then runs outward. This is prevented from occuring in **AMAZONE**-bulk precision broadcaster **ZG-B** by means of the automatic belt centering system.

The conveyor belt is tensioned in the belt frame between the driving drum (Fig. 54/2) and the tail pulley (Fig. 54/3) The driving drum is fixed in the belt frame, whereas the tailing pulley can rotate about the swivelling pin (Fig. 54/4) The conveyor belt also runs between two control rollers (Fig. 54/5) which are connected to the tailing pulley by a frame (Fig. 54/6).

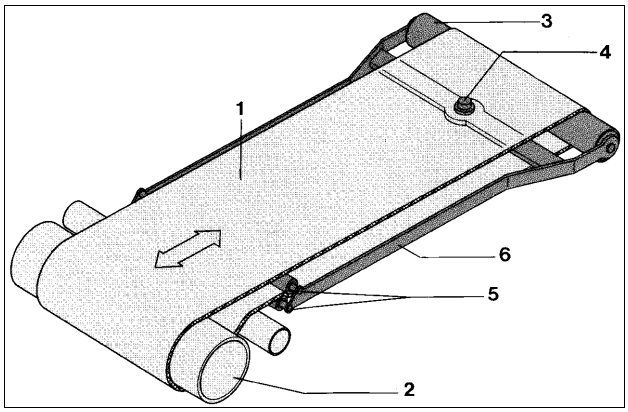


Fig. 54

If the conveyor belt runs outward owing to the load being distributed to one side of the belt, the control rollers follow this movement. This, in turn, causes the tailing pulley to turn about the swivelling axis. As a result, the distance between the tailing pulley and the driving drum increases at the side to which the conveyor belt has shifted. The increased distance causes the conveyor belt to move back to the center and to remain there.

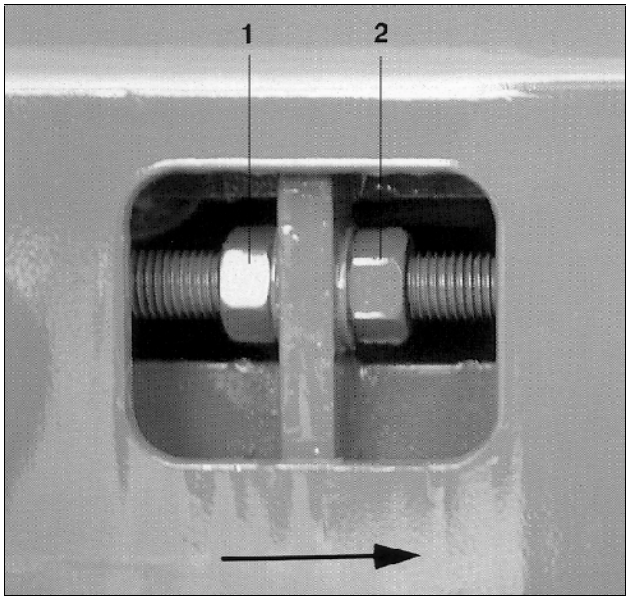


Fig. 55

Tensioning the conveyor belt:

The conveyor belt is tensioned in the belt frame by a tensioning device to ensure that the belt runs smoothly and evenly. If, for some reason, the conveyor begins to run irregularly, the conveyor belt must be tensioned at both sides in the following way:

1. Loosen the rear counter nuts (Fig. 55/1),), on both sides by turning them to the left (the direction of travel is indicated by the arrow).
2. Turn the hexagonal nuts (Fig. 55/2) on both sides to the left by the same amount (the direction of travel is indicated by the arrow).

Important!
The amount that the hexagonal nuts (Fig. 55/2) have been moved must be the same on both sides of the belt unit. Do not turn the two hexagonal nuts (Fig. 55/2) by more than ½ a spanner turn. Tighten the counter nuts and check whether the conveyor belt is running evenly.

Bearing

The driving drum and tailing pulley of the belt unit are fitted with maintenance-free ball bearings which have been sufficiently lubricated for the length of their working life. The suport rollers are fitted with special maintenance-free bearings.

9.12 Axles and brakes

The notes regarding assembly and adjustment are part of the warranty conditions. Claimsresulting from natural wear as well as faults caused by overloading, unauthorized welding, and modifications are not covered by the warranty!

Axles must **never** be overloaded. Overloading reduces the working life of the machine and causes damage to the axles.

The following errors may lead to overloading and must be avoided:

- Driving over curb stones.
- Exceeding the max. permissible speed.
- Fitting wheels with incorrect wheel offset.
- Fitting oversized tyres.
- Uneven loading.

The wheel brakes must always be set correctly (by a specialist workshop) in order to ensure operational safety.

The brake linings must be changed well before the rivets come into contact with the brake drum. Only brake linings prescribed for the axles should be used, otherwise the operating licence for the vehicle may be revoked. Never drive without hub caps, otherwise dirt may penetrate and destroy the wheel bearings.

9.12.1 Wheel nuts

Tighten the wheel nuts after the first laden journey (at least after 5km).

See the table for the torque valus.

Bolt thread/ wheel nuts (mm)	Spanner size (mm)	max. torque (Nm)	
		black	galvanized
M 18 x 1,5	24	265	245
M 20 x 1,5	27	323	294
M 22 x 1,5	32	441	343

9.12.2 Wheel change

To jack up the **ZG-B** for tyre change position the jack at the marked place (Fig. 56/1).

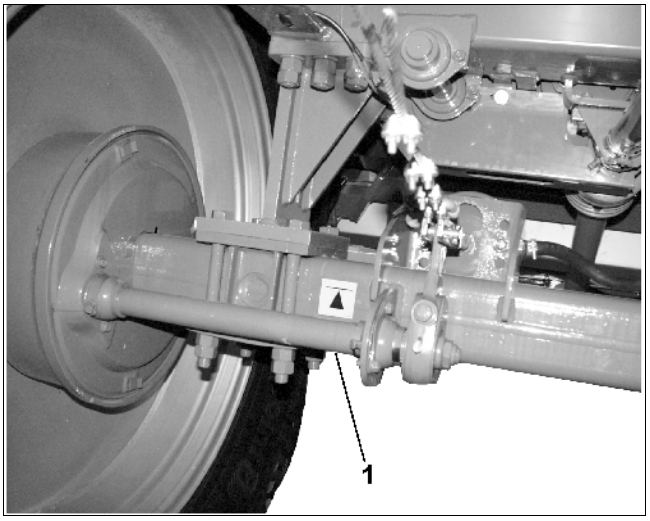


Fig. 56

9.13 Maintenance plan for axles and brakes

The work listed in the maintenance plan may only be performed by trained persons or in specialist workshops. The following plan is applicable to all vehicles. If you have any queries, consult a specialist workshop, the manufacturer of the axles, or the manufacturers sales organization.

This plan applies to vehicles subjected to normal use. In the case of vehicles subjected to more frequent use and greater loads, the maintenance intervals must be recduces acoordingly in order to prevent damage

After the first laden journey, at least after 5 km	**After 50 operating hours**	**Every 100 operating hours:**
-Tighten the wheel nuts (see the „Wheel nuts“ table for the torque values). -Wheel hubs: check the bearing clearance.	- Wheel hubs: check the bearing clearance. - Check and lubricate the front axle.	- Wheel hubs: check the bearing clearance. - Brake camshaft:: Lubricate the bearing. - Check and if necessary, adjust the postion of the brake lever.

Every 500 operating hours	**Every 1000 operating hours, at least every 6 months:**	
-Adjust the bevel-type roller bearing: Remove the hub cap and cotter pin. Tighten the axle nut until the wheel hub and braking drum are slightly braked. Slacken the axle nut to the next cotter pin hole. Check the bearing clearance. Secure the axle nut using a cotter pin and replace the hub cap. -**Attention!** If the wheel hub and braking drum are set too closely, damage may be cause to the bearing.	- Relubricate the wheel hubs using roller bearing grease: Use top-quality lithium base grease only (drop point 190^{o}). Using the wrong grease or too much grease will cause damage to the wheel bearings. - Check the wear on the brake linings and , if nexessary, replace the linings. - Front axle bearing: replace the roller bearing grease.	

9.14 Airbrake system

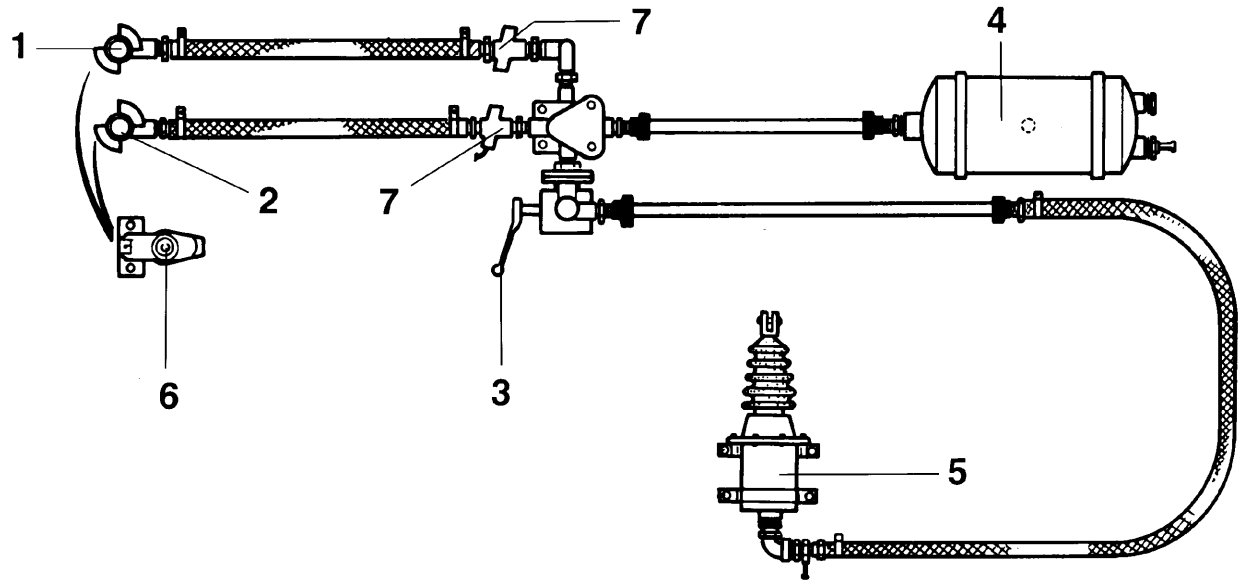


Fig. 57

The following checking-, maintenance- and care-schedule is valid. The components of the air brake on your bulk precision broadcaster may be dirfferent from that shown in (Fig. 57.6) In case of any queries, please contact a skilled workshop or the manufacturer of the air brake system or its distribution network.

Before travelling on public roads check the following functions:

1. Open shut off valve on tractor!
2. Check cleanliness of coupling heads before coupling and pay attention to a proper fitting! The hose coupling (Fig. 57/1) for the brake line has a yellow marking. The hose coupling (Fig. 57/2) for the supply line has a red marking.
3. Hoses should not touch other parts. Check guidance of hoses!
4. Check hand brake position (Fig. 57/3 of braking power governor!
5. If nexessary, drain the compressed-air container (Fig. 57/4) Conduct a braking test!
6. Check the piston stroke of the braking ram! Only two thirds of the braking rams stroke (Fig. 57/5) may be used. If this is not the case, adjust the brake! Replace damaged dust covers!
7. After coupling off, hang the coupling heads into the dead couplings (Fig. 57/6) on the **ZG-B**!

Check the following functions (about once every week):

1. Hydraulic socket and hydraulic plug (Fig. 57/7) for cleanness before coupling and observe proper fitting!
2. Check the air-tightness of the brake system! With the engine turned off, operating pressure is permitted to drop by 0,1 bar in ten minutes (by 0,6 bar per hour).
3. Do not weld or solder on pipes. Exchange damaged parts!
4. During the general greasing apply oil to the pin on the yoke head of the piston cylinder!
5. Grease the components! Special gray grease for pneumatic devices must be used as lubricant.

Brake inspections!

The following inspections must be performed at regular intervals:

1. Interim brake inspections
2. Special brake inspections
3. Main inspections

If the visual, functional, or working tests reveal faults, an „internal“ examination of the individual components must be performed by trained persons or in a specialist workshop.

10. Special options

10.1.1 Spreading discs

- **OMNIA-SET OM 18-24 (Paar**)

For working widths or tramline spacings of 18 to 24m.
Product No.: 927 777

- **OMNIA-SET OM 24-36 (Paar)**

As standard with hard metal coated vanes (HP) for a longer lifespan.

For working widths or tramline spacings of 24 to 36m.
Product No.:927 778

- **Holder for spreading discs ZG-B**

Product No.: 1 577 000

10.1.2 Spreading table

Product No.: MH280

10.1.3 Mobile fertiliser test kit

Product No.: 1 259 000

10.1.4 Boundary spreading device Limiter ZG-B

Limiter **ZG-B** (Fig. 58) is usually taken for boundary spreading and border spreading, if the first tramline has been created on half the working width of the spreader.

Boundary spreading device, left hand Limiter ZG-B

Product No.: 922 476

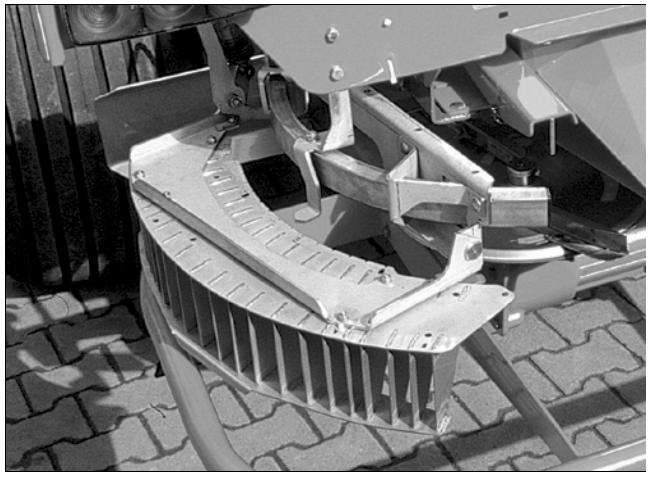


Fig. 58

10.1.5 Sieve grates

Sieve grates (Fig. 59) cover the entire hopper. Lumps of fertiliser and foreign bodies are caught by the sieve grates when the hopper is filled. The grates (Fig. 59/1) are attached to brackets and secured in place using spring pins (Fig. 59/2).

ZG-B 7001 **Product No.: 1 817 000**

ZG-B 10001 **Product No.: 951 298**

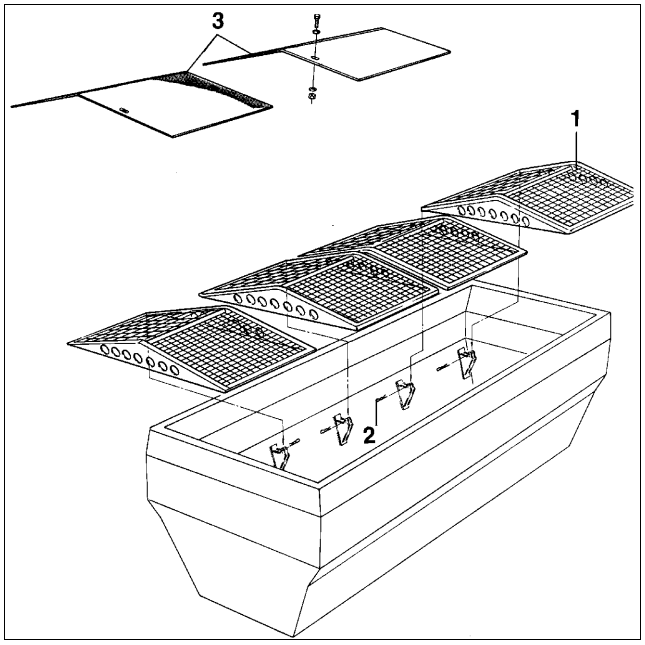


Fig. 59

10.1.6 Swivelable hopper cover

10.1.6.1 Pneumatic filling of the hopper

The swivelable hopper cover (Fig. 60/1) prevents the fertiliser in the hopper from becoming wet. It also prevents spreading errors caused by changes with regard to the fertilisers spreading characteristics which may result from exposure to dampness. Powdered fertiliser cannot be caught by the wind passing overit during transport.

Swivelable hopper cover**:**

ZG-B 7001 with mechanical actuation
Product No.: 1 787 000

ZG-B 7001 with hydraulical actuation
Product No.: 958 339

ZG-B 10001 with hydraulical actuation
Product No.: 958 340

Swivelable hopper cover (Fig. 61) can be opened and closed using a lever.

Secure the closed swivelable hopper cover (only with mechanical actuation) using tensioning rope (Fig. 62/1) If the cover is not secured in place, it may be forced open by a gust of wind or by the wind passing over it during transport.

Fig. 60

Fig. 61

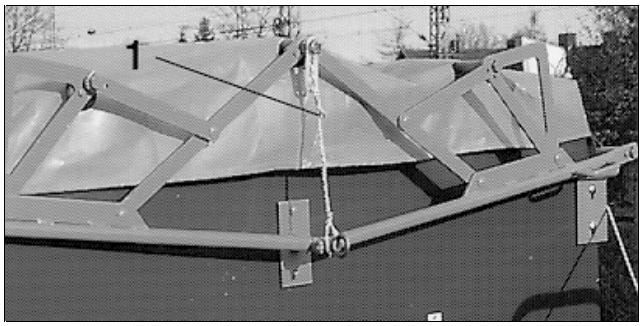


Fig. 62

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