

AMAZONE

Operator's manual Bulk material spreader

ZG-B 7001, ZG-B 10001, ZG-B 20001 T

Standard / drive



MG 959
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Before starting to operate, please carefully read and adhere to this operator's manual and safety advice



Preface

Dear Customer,

The bulk precision fertiliser spreader **ZG-B** 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 operator's manual before starting to operate with your machine.

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

This operator's manual is valid for all bulk precision fertiliser spreader of the type

ZG-B 7001, ZG-B 10001 and ZG-B 20001 T.



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 and damp lime.

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	ZG-B 20001 T
Hopper capacity:	5200 L	7200 L	1200 L
Permissible total weight*:	8000 to 10000 kg	8000 to 10000 kg	20000 kg
Net weight without spreader unit and without special execution:	2000 kg	2200 kg	5000 kg
Payload on public roads:	5900 – 7700 kg	5800 – 7600 kg	ca. 15000 kg
Total length:	6,00 m	6,50 m	7,90 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			2750** / 2820
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			2770** / 2950
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 export)		
* please adhere 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 hydraulics 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 **ZG-B Standard:**

Depending on execution it is necessary to use maximal 5 double acting spool valves.

Requirements for connecting the spreader **ZG-B drive:**

- 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** has exclusively been designed for the usual operation in agriculture for spreading dry, granular, prilled and crystalline fertiliser, damp lime and sand.

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.



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 its 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:



2.4 Safety-/warning and hint symbols

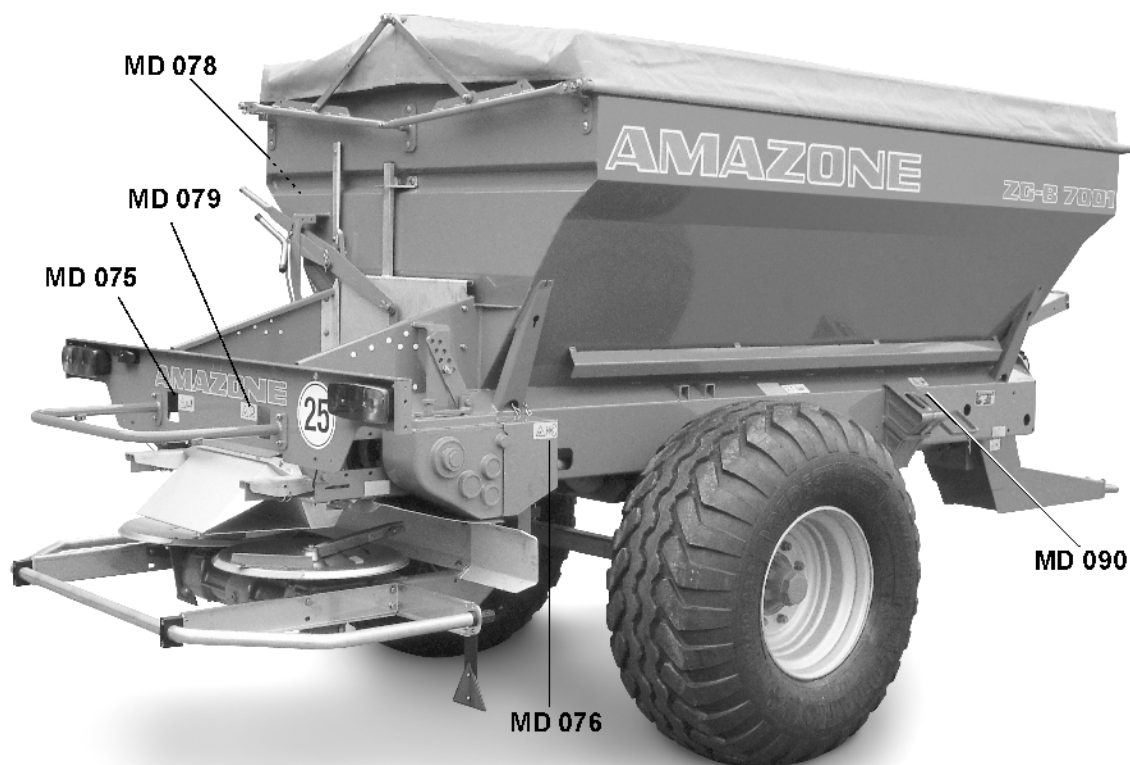
The safety/warning symbols in this instruction manual are for all users working with this machine.

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.)

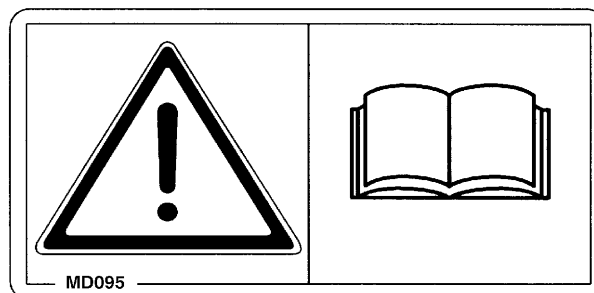




Picture No.: MD 095

Explanation:

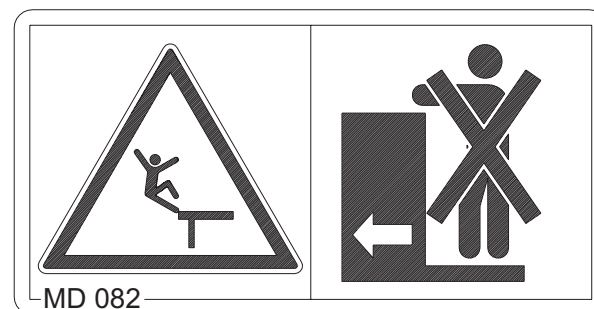
Before commencing operation read thoroughly this operation manual and all safety advice.



Picture No.: MD 082

Explanation:

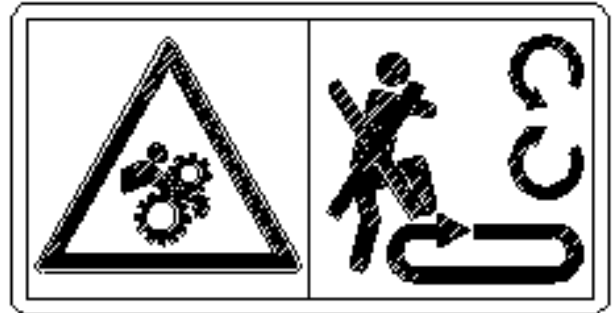
No persons must stand or sit on the machine while it is in use or being transported!



Picture No.: MD 088

Explanation:

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



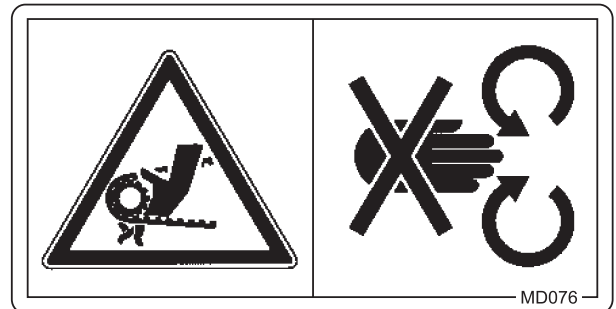
Picture No.: MD 076

Explanation:

Only use the machine if the guards are in place!

Do not open or remove the guards when the motor is running!

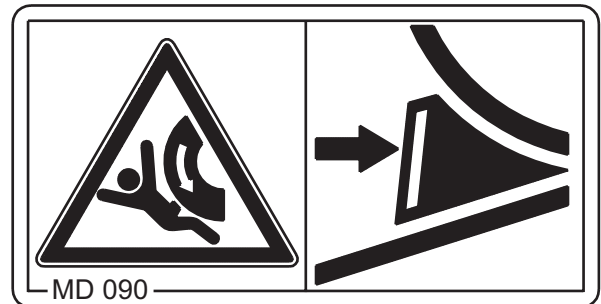
Before removing the guards, disengage the PTO. shaft, switch off the motor, and remove the ignition key!



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.

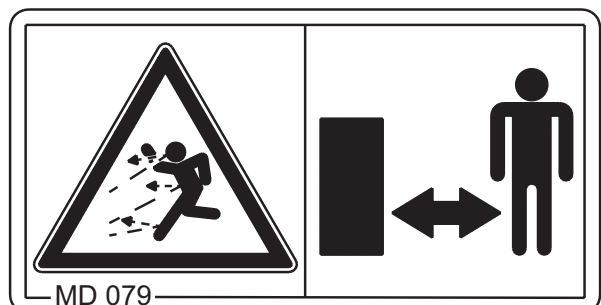


Picture No.: MD 079

Explanation:

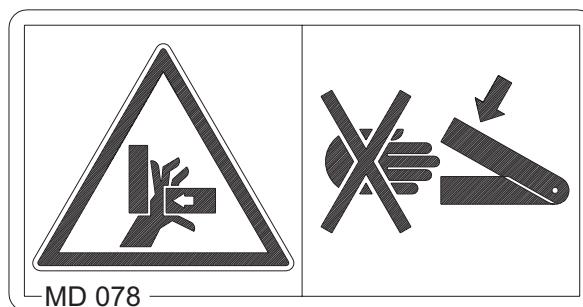
Danger because of flinging fertiliser particles.

Advise people to leave the danger area.

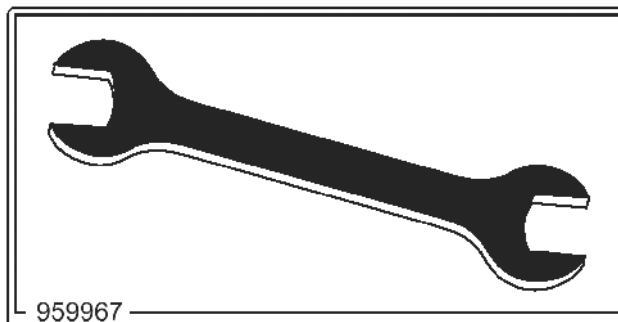


Picture No.: MD 078**Explanation:**

Never reach into the zone of danger of bruising (e.g. shutter slides and shutter openings) as long as parts can still move there.

**Picture No.: 959 967****Explanation:**

Regularly check nuts and bolts for tightness. Retighten 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 shaft 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 licensed 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/EEC 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

- 1 Spreading discs
- 2 Floor belt
- 3 Gearbox for floor belt
- 4 Shuter slide
- 5 Limiter
- 6 Draw bar
- 7 Hydraulic block (**ZG-B drive**)
- 8 Parking brake
- 9 Support leg





3.2 Safety devices

- 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** is a universal broadcaster with a hopper volume of 5200l to 12000 l.

In agriculture, **ZG-B** is used for spreading

- damp fertiliser (spreading discs of lime) and
- granular fertiliser (spreading discs OM).

Per Förderband wird das Streugut aus dem Behälter zu den Streuaggregaten gefördert. Die Streuscheiben werden von der Schlepperzapfwelle angetrieben.

The conveyor belt is driven

- by the tractor PTO shaft (basic equipment)
- by the ground wheel (option)
- hydraulically (**ZG-B drive**).

The freely adjustable hopper outlet determines the amount of material entering the spreading unit and thus the amount of material to be spread. The material to be spread is distributed by the spreader unit. The steep wall of the hopper and the wide floor conveyor belt mean that no material is left in the hopper even if damp fertiliser is used.

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 kg up 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. 2

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 18-24m and 24-36m. 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.

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)**.

In the municipal sector, bulk precision broadcasters are used for lime treatment in forests and applying sand on golf courses (Fig. 3).

Equipment varieties for ZG-B:

- **ZG-B Standard:**
 - Conveyor belt with drive via PTO shaft or ground wheel
- **ZG-B Drive:**
 - 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**).
 - Option with hydraulic track follow draw bar Trail – Tron (**ZG-B 7001**).



Fig. 3

3.4 On board computer **AMATRON⁺**

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

The spread rate setting is done electronically by matching the belt speed. The shutter position which is required for a specific spread rate is determined by a fertiliser calibration

The hydraulic functions are achieved via the **AMATRON⁺**:

- Opening and closing of double shutter slide.
- Switching on and off the Limiter.
- Changing the amount of the spreading material..
- Opening and closing of swivelable hopper cover.

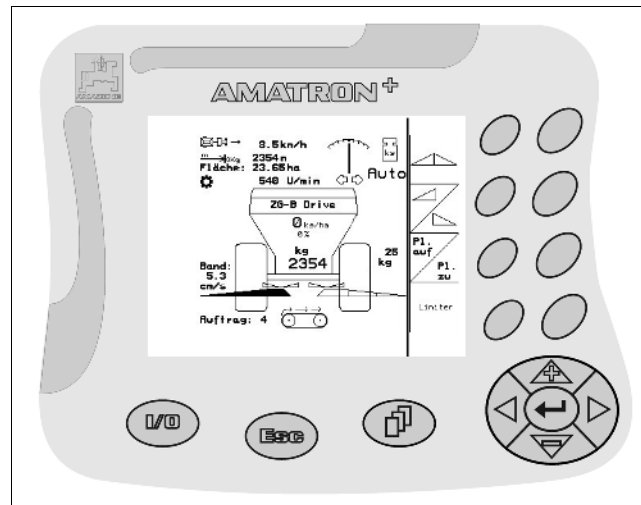


Fig. 4

3.5 Danger zones

Danger zones prevail:

- 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.

- One pair of spreading discs "Omnia-Set" (OM)
- Instruction manual,
- Setting chart,
- Calculating disc rule,
- Sample container for fertiliser service
- Limiter (special option).
- Calibration device (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

1. Before the bulk precision broadcaster is loaded, it must first be coupled to the towing vehicle. Since the **ZG-B 7001** and **ZG-B 10001** are single axle vehicles, the broadcaster must never be uncoupled if the load is unevenly distributed toward the rear of the hopper. The towing shaft may tip up causing injury.
2. 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.



Observe the max. support load of the tractor!

5.1 Hitching up the **ZG-B**

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

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

- draw bar (Fig. 5) with over run brake and automatic recoil device,
- straight draw bar (Fig. 6),
- cranked draw bar (Fig. 7),
- Trail-Tron track follow draw bar (Fig. 8) (only **ZG-B 7001 drive**).



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 empty 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.

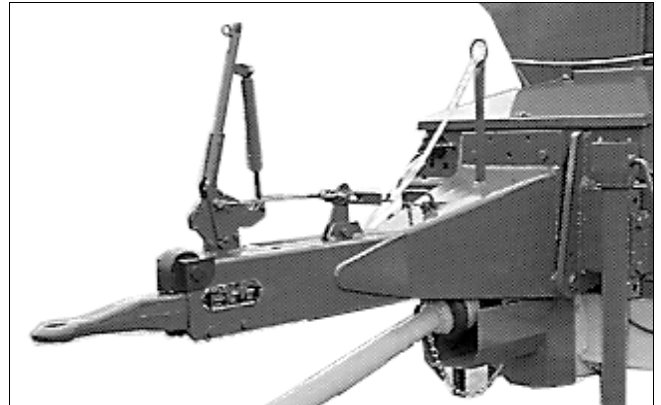


Fig. 5

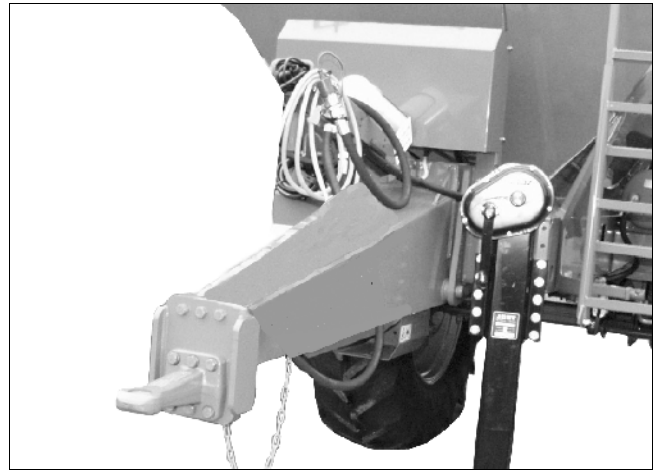


Fig. 6

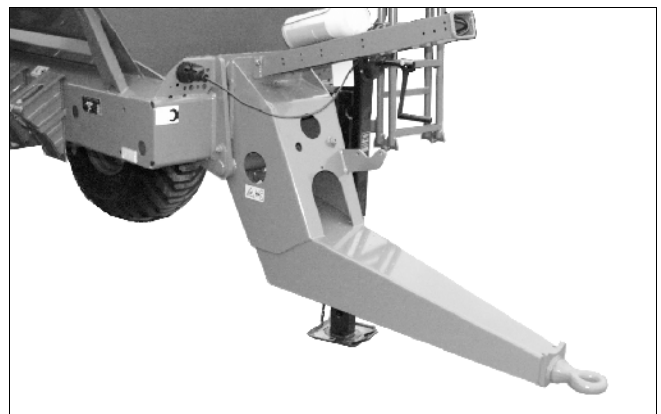


Fig. 7

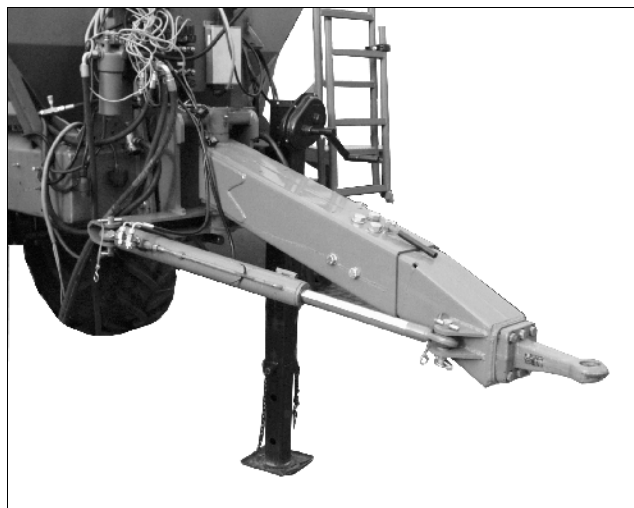


Fig. 8

5.1.1 Adjusting the draw bar of the **ZG-B**

- Uncouple the spreader (see para. **Fehler! Verweisquelle konnte nicht gefunden werden.**) and allow it to rest on the castor wheel.
- Rest the draw bar on a solid trestle (Fig. 9/1) and remove the two securing bolts (Fig. 9/2).
- By changing the position of both sets of spacing discs (Fig. 9/3) evenly, you can adjust the draw bar. The buffer discs (Fig. 9/4) must not be removed. They dampen the jolts transmitted from the tractor to the spreader.
- Insert and tighten the draw bar bolts (torque 540 Nm).

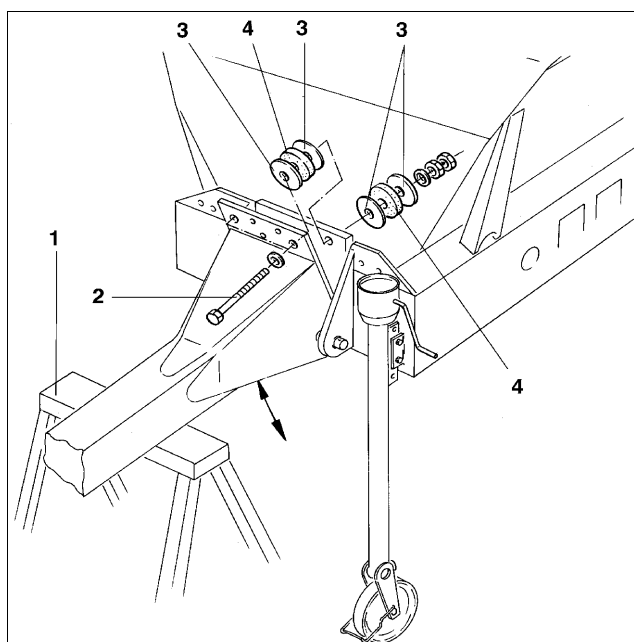


Fig. 9

5.2 Bring support leg into transport position

After uncoupling:

- Use the hand crank (Fig. 10/2) to crank the support leg (Fig. 10/1) upwards until the stop.
- Pull the pin (Fig. 10/3) off the support leg.
- Raise support leg.
- Insert pin in the lower hole (Fig. 10/4) and secure.

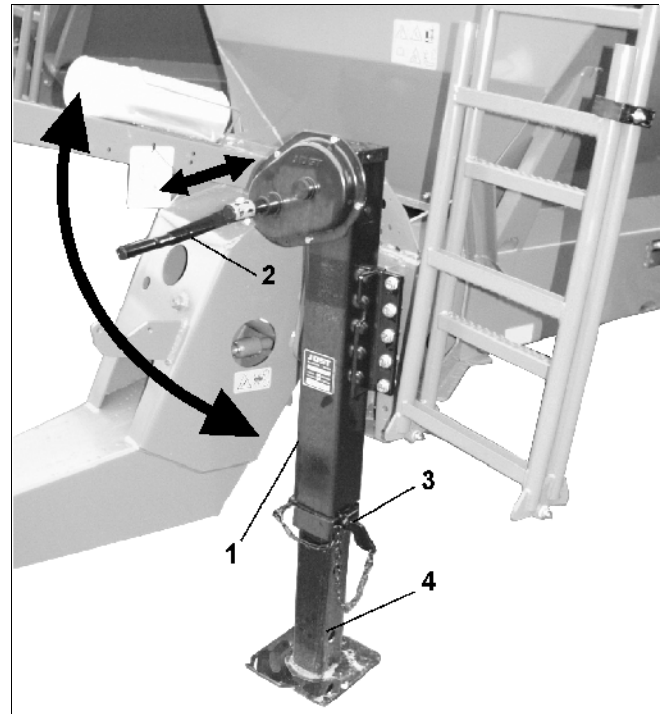


Fig. 10

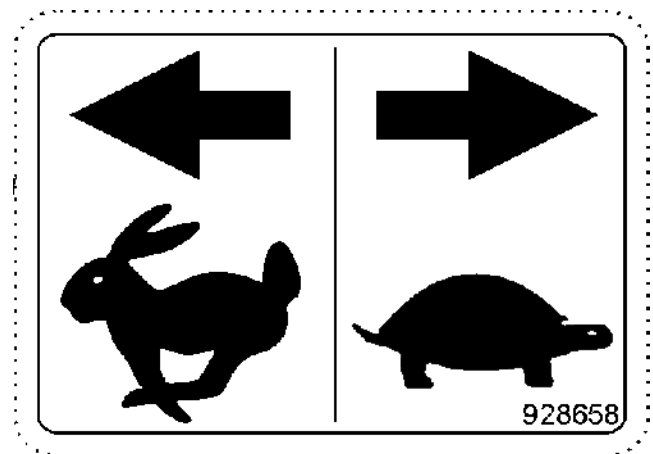


Fig. 11



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 Standard:**

- 1 double acting spool valves - hydr. double shutter
- 1 double acting spool valves - Limiter
- 1 double acting spool valves - tandem axle
- 1 double acting spool valves - cover
- 1 single acting control spool valve - ground wheel drive

5.3.2 Hydraulic connection **ZG-B drive:**

- 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.

5.3.2.1 Setting the system converting bolt on the broadcaster valve block

The setting of the converting bolt (Fig. 12/1) 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.

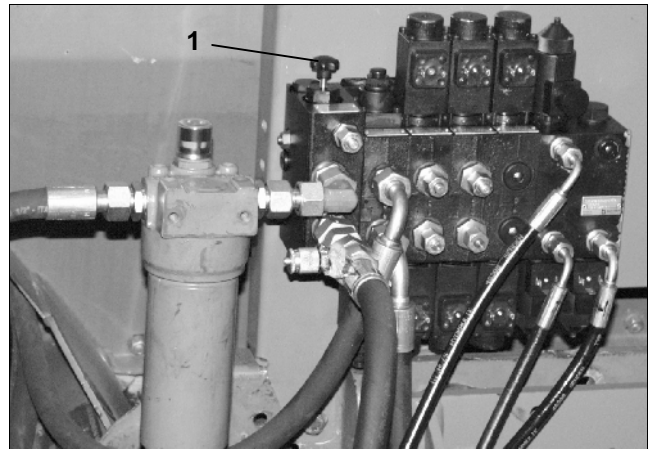


Fig. 12

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.



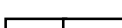


Before coupling check cleanness of coupling claws and ensure correct catching



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

- Before moving off the brake pressure regulator (Fig. 13/1) on the hand lever (Fig. 13/2) 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. 14) 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. 15/2) on the frame side.

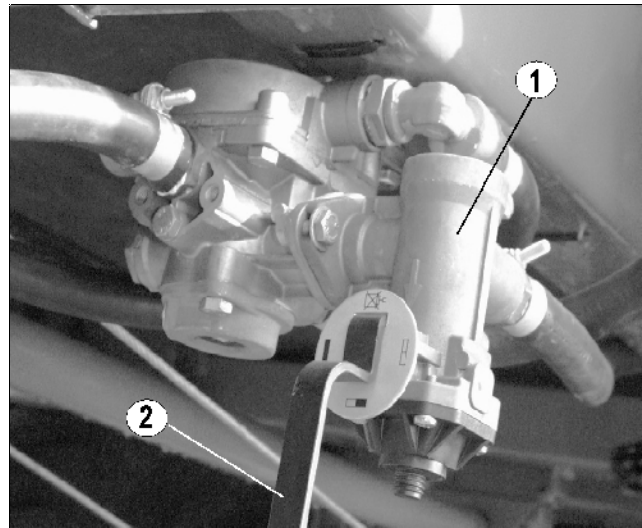


Fig. 13

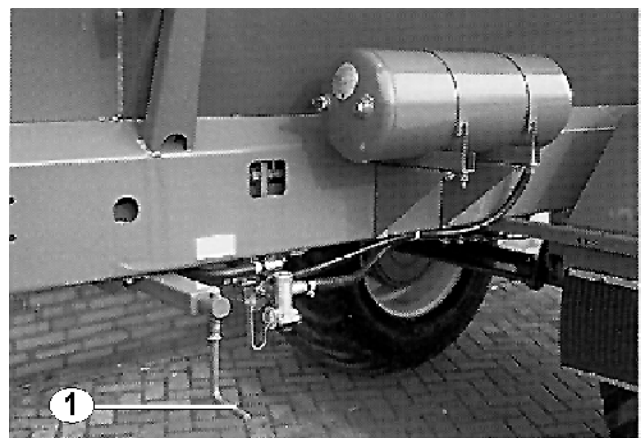


Fig. 14

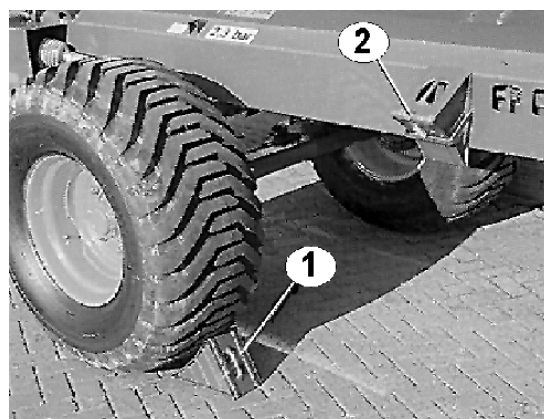


Fig. 15

5.5 Hydraulic brake system with parking brake

Coupling up

A hydraulic braking outlet on the tractor is required which accesses the hydraulic brake system of the **ZG-B** (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. 14/1):
 - 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 **ZG-B drive: AMATRON⁺**.

5.7 PTO shaft tractor - **ZG-B** -

The floor conveyor belt (except for ground wheel-driven units, hydraulic drive) and the spreading unit are driven by the tractor's PTO shaft.



Only connect the given PTO shaft on the tractor!

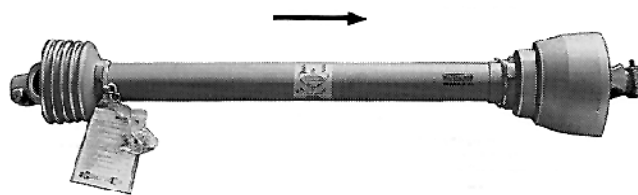


Fig. 16

Wide-angle PTO shaft (Fig. 16):

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

Observe point Fehler! Verweisquelle konnte nicht gefunden werden. when using the machine for the first time or when changing the towing vehicles!

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. 17) 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..

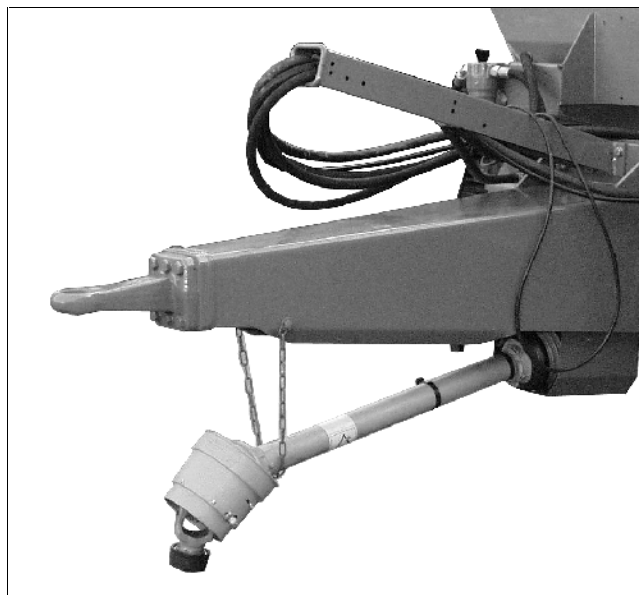


Fig. 17



Ensure that all the information regarding the safety (see chap. 2.7.2) has been observed 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 a 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. 18:

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 guaranteed as well on the lowered as on the lifted broadcaster.
2. In inserted position the PTO shaft tubes may not touch the yokes of the universal joint. 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. Round off the cut edges and carefully remove any metal filings.
7. Apply grease to the profile tubes and insert.
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.

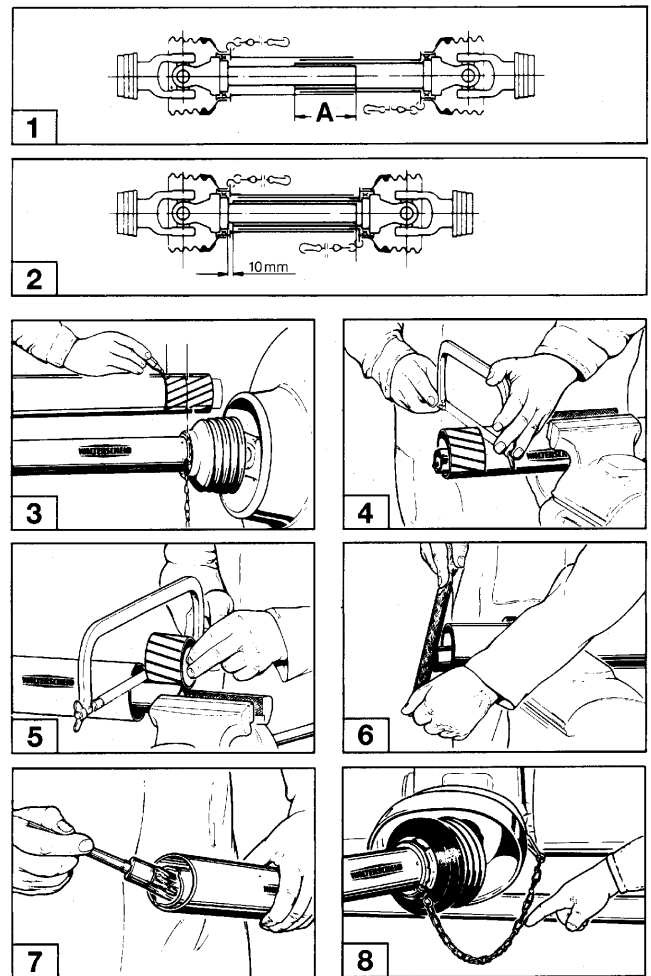


Fig. 18



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

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 (**ZG-B 7001/10001**) 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. 19/1) must first be applied..
- On broadcasters with air brakes, the brake is applied using a crank (Fig. 20/1) at the side of the vehicle. Turn the crank to the right as far as it will go.

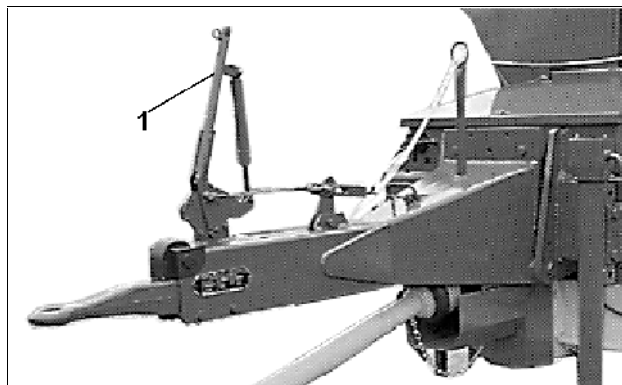


Fig. 19

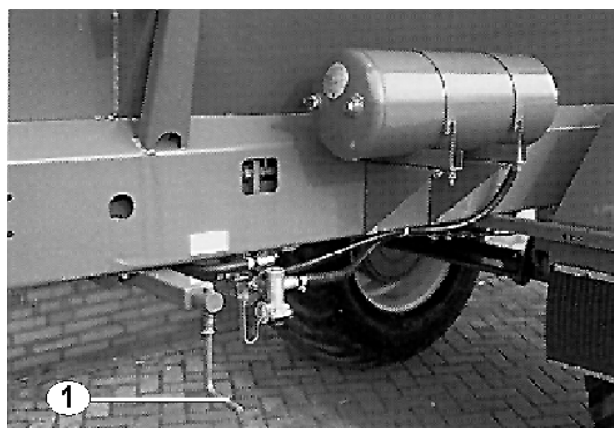


Fig. 20

Prevent the spreader from rolling by using the chocks:

- Before the **ZG-B** is uncoupled, the two chocks (Fig. 21/1) must be applied to ensure that the machine cannot roll away. When the spreader is in transit, the chocks (Fig. 21/2) are placed in the holders on the main frame and held in place by spring clips.

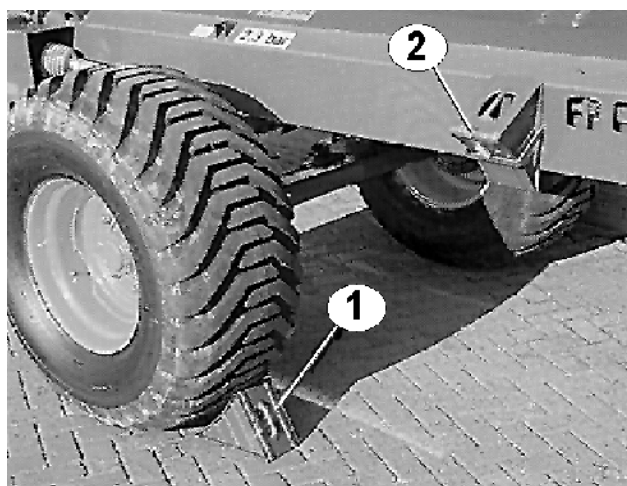


Fig. 21

Lower the support leg:

- Pull the pin (Fig. 22/4) off the lower hole.
- Lower the support leg (Fig. 22/1)
- 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.

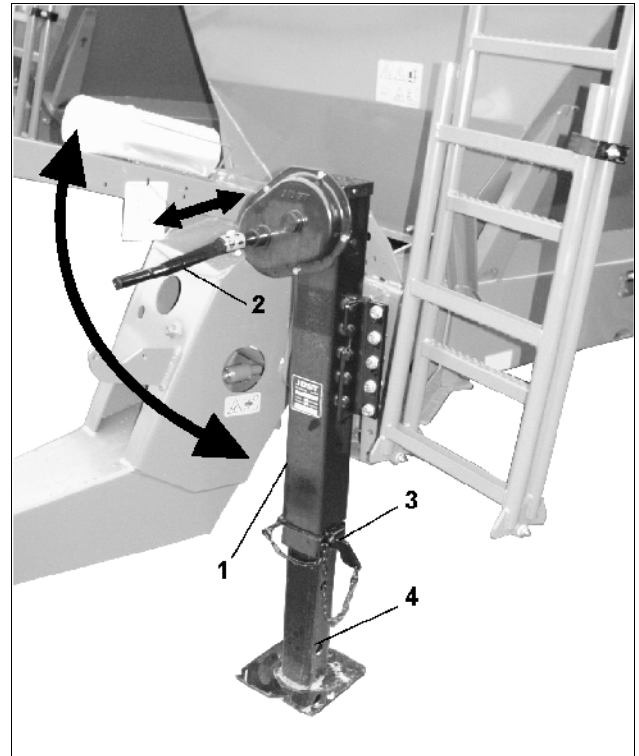


Fig. 22

Hang the PTO shaft in the chain (Fig. 23).

Uncouple the bulk precision broadcaster.

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

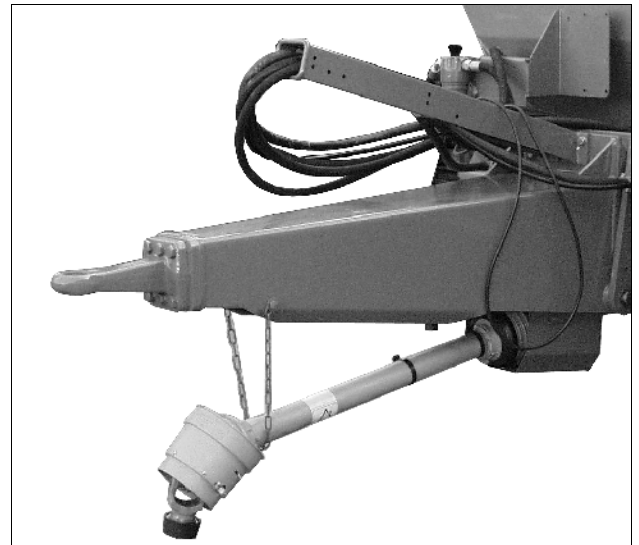


Fig. 23



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. The regulations are (slight national differences may be possible):

If the prescribed rear lights, the indicators or the registration number are hidden by the broadcaster they will have to be repeated on the mounted implement. If the sides of the mounted implements protrude more than 400 mm the outer edge of the light emitting source of the limiting or rear lights of the tractor, extra parking warning plates and side lights are required. If the mounted implement protrudes more than 1 m beyond the rear lights of the tractor, parking warning plates, rear light units and rear reflectors are required. The light units and possibly required parking warning plates and –foils according to DIN 11030 can be obtained from the manufacturer of the implement or from your dealer. As always the latest edition of the national traffic regulations is valid, please verify them at your local traffic office



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.



Lock the tandem axle hydraulically!



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



Do not exceed the width of 2,55 m during the transport.



When travelling on public roads close the shutters.



Close the swivelling cover and ensure that it cannot be opened by accident.



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. 24/1) as shown as in (Fig. 25).



Trailing load on the towing shaft and hitch.



Ensure that the conveyor belt is switched off when travelling on public roads.

Ground wheel drive: Close lock tap and secure the ground wheel by using the chain (Fig. 26/2) and clip pin (Fig. 26/3).



ZG-B drive: AMATRON⁺ should be switched off during road transport.



Unlock console for steering draw bar!

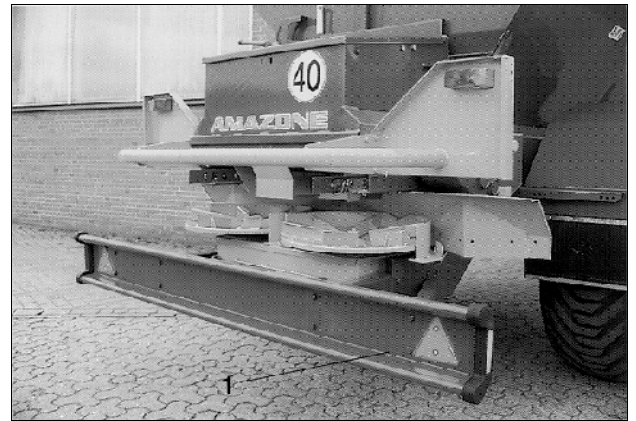


Fig. 24

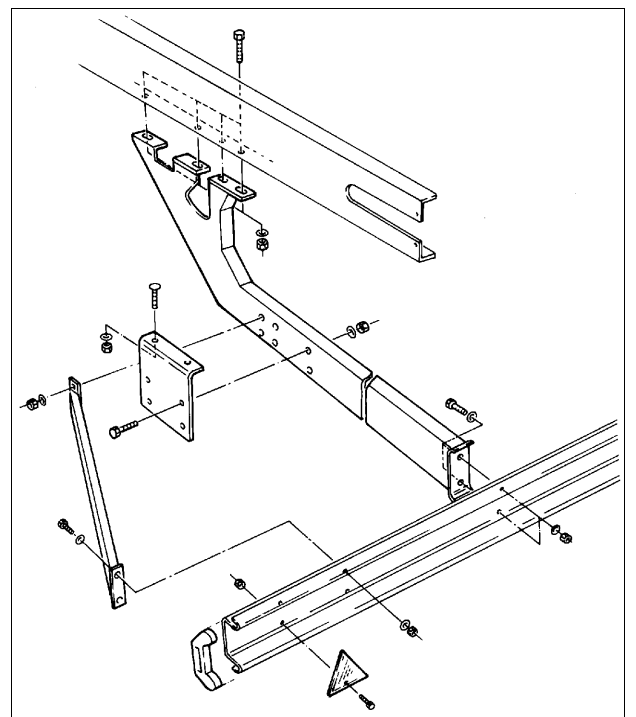


Fig. 25

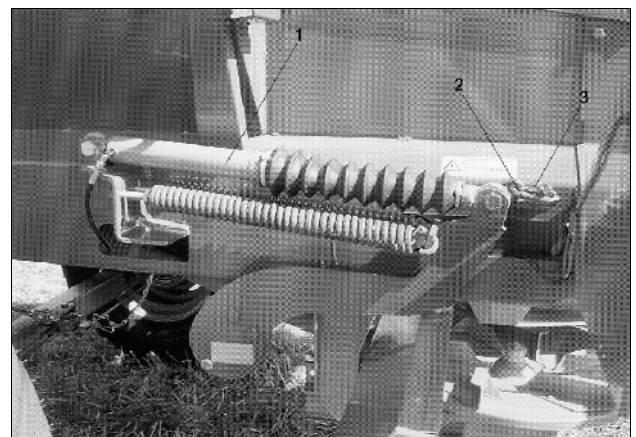


Fig. 26



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 fertilisers 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



ZG-B drive: Electro hydraulic spread rate setting via the floor belt speed.

Please refer to the instruction manual for the on-board computer **AMATRON⁺**

ZG-B Standard:

The scale value can be found in the spreading table (Fig. 27) or determined by using the enclosed slide rule. How to use the slide rule is explained in the spreading table.

The scale value depends on:

- the provided belt speed I or II,
- the kind of fertiliser to be spread (bulk density),
- the working width [m].
- the speed of operation [km/h].
- the desired spread rate [kg/ha].

Example:

(see spreading table)

Kind of fertiliser
with bulk density: **1,02 kg/l**

the working width: **24 m**

the speed of operation: **12 km/h**

the desired spread rate: **300kg/ha**

Shutter slide position which is necessary: ?

Belt speed I:

Shutter slide position: **24**

Belt speed II

Shutter slide position: **12**

- Find in the setting chart the pages **Shutter slide position for the spread rates for mineral fertiliser CAN**.
- Find among the columns with the working width **24 m** the column **12 km/h**.
- Find in column **12 km/h** the spread rate **300 kg/ha**.
- In the same line read off the shutter **slide position 24 (belt speed I) / 12 (belt speed II)**.

Set the shutter slide position with the aid of the setting levers on to the scale figure 24 or 12 as described.

		Loses Schüttgewicht: 1,00 bis 1,04 kg/l																							
I	II	20			21			24			27			28											
		km/h			km/h			km/h			km/h			km/h											
		8	10	12	8	10	12	8	10	12	8	10	12	8	10	12									
8		185	148	123	176	141	117	154	123	103	137	109	91	132	105	88									
10		231	185	154	220	176	146	192	154	126	171	137	114	165	132	110									
12		277	221	185	264	211	176	231	185	154	205	164	137	198	158	132									
14		323	258	215	308	246	205	269	215	179	239	191	159	231	185	154									
16		369	295	246	351	281	234	308	246	205	273	219	182	264	211	176									
18		415	332	277	395	316	264	346	277	231	308	246	205	297	237	198									
20	10	461	369	308	439	351	293	384	308	256	342	273	228	330	264	220									
22	11	507	406	338	483	387	322	423	338	282	376	301	251	362	290	242									
24	12	554	443	369	527	422	351	461	369	308	410	328	273	395	316	264									
26	13	600	480	400	571	457	381	500	400	333	444	355	296	428	343	286									
28	14	646	517	431	615	492	410	538	431	359	478	383	319	461	369	308									
30	15	692	554	461	659	527	439	577	461	384	513	410	342	494	395	330									
32	16	738	591	492	703	562	469	615	492	410	547	437	365	527	422	351									
34	17	784	627	523	747	598	498	654	523	436	581	465	387	560	448	373									
36	18	830	664	554	791	633	527	692	554	461	615	492	410	593	475	395									
38	19	877	701	584	835	668	557	730	584	487	649	519	433	626	501	417									
40	20	923	738	615	879	703	586	769	615	513	683	547	456	659	527	439									
42	21	969	775	646	923	738	615	807	646	538	718	574	478	692	554	461									
44	22	1015	812	677	967	773	644	846	677	564	752	601	501	725	580	483									
46	23	1061	849	707	1011	808	674	884	707	589	786	629	524	758	606	505									
48	24	1107	886	738	1054	844	703	923	738	615	820	656	547	791	633	527									
50	25	1153	923	769	1098	879	732	961	769	641	854	683	570	824	659	549									
52	26	1199	960	800	1142	914	762	1000	800	666	888	711	592	857	685	571									
54	27	1246	996	830	1186	949	791	1038	830	692	923	738	615	890	712	593									
56	28	1292	1033	861	1230	984	820	1076	861	718	957	765	638	923	738	615									
58	29	1338	1070	892	1274	1019	849	1115	892	743	991	793	661	956	764	637									
60	30	1384	1107	923	1318	1054	879	1153	923	769	1025	820	683	989	791	659									
62	31	1430	1144	953	1362	1090	908	1192	953	795	1059	847	706	1022	817	681									
64	32	1476	1181	984	1406	1125	937	1230	984	820	1094	875	729	1054	844	703									
66	33	1522	1218	1015	1450	1160	967	1269	1015	846	1128	902	752	1087	870	725									

Fig. 27

Setting the spread rate via the

- **main shutter slide** (Fig. 28/1):

The main shutter slide is adjusted by using the hand lever (Fig. 28/3).

The hand lever (Fig. 28/3) is locked by a clamping bolt (Fig. 28/4) which should be slackened before any adjustment and firmly retightened again. The position of the shutter slide (Fig. 28/1) is shown on scale (Fig. 28/2).

- **Double shutter slide** (Fig. 29/1):

Adjust the quantity to be spread on the main shutter slide.

The fertiliser sluice is opened or closed with the aid of the double shutter slide. The half side opening allows for the half side spreading.

The position of the double shutter slide inside the fertiliser sluice depends on the quantity to be spread per hectare.

Position a (rear) (Fig. 29/a):

less than 250 kg / ha

Position b (front) (Fig. 29/b):

more than 250 kg / ha

For spreading earth moist lime hook the double shutter slide in the parking position.

- Raise the shutter slide (Fig. 29/1) with the aid of the handle (Fig. 29/2) and hook into the parking position (Fig. 30) on the carrying frame (Fig. 29/3).
- secure by using the lynch pin (Fig. 29/4).



The setting figures of the setting chart may only be considered as standard data. The flowing properties of the fertiliser may change and thus require other settings. Therefore always carry out a spread rate check before commencing the spreading work.



The determination of the shutter slide position with the aid of the calculating disc rule is carried out after a spread rate check. This way the varying flowing properties of the fertiliser are already considered when determining the shutter slide position.

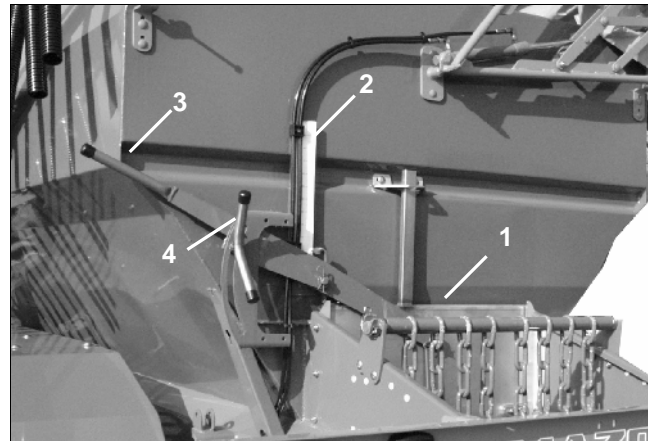


Fig. 28

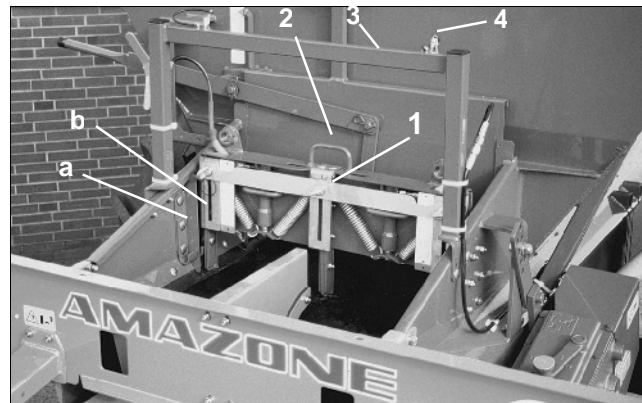


Fig. 29

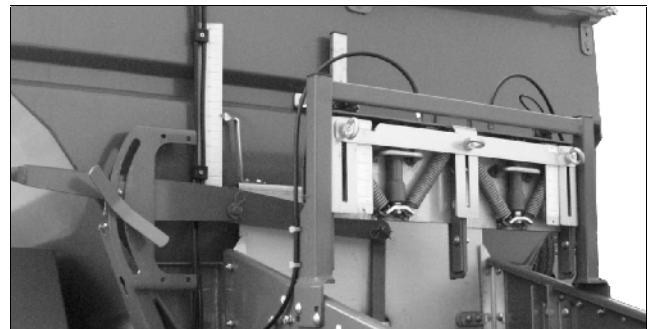


Fig. 30



The optimum spread pattern requires the maintenance of constant PTO shaft rev. speed and operating speed (except for ground wheel drive and **AMATRON⁺**) during the spreading operation.



For the ground wheel drive the ratio between operating and belt speed is always the same. To determine the shutter slide position following the setting chart refer to column 12 km/h-.



We recommend that you carry out a spread rate check with this shutter position.

7.2 Setting the belt speed

Only for **ZG-B Standard!**

On the shift gearbox (Fig. 31/1) two belt speeds can be set with the aid of the control lever (Fig. 31/2) and the conveyor belt can be disengaged.

- Belt speed I.
- Belt speed II = two-time belt speed I

Prior to any setting disengage the tractor PTO shaft and wait until the PTO shaft and the conveyor belt have come to a standstill. Briefly lift the gear change shift lever (Fig. 31/2) and let it catch in the desired position:

Belt speed I: control lever in position 1

Switching off the conveyor belt :
control lever: in position 0

Belt speed II: control lever: in position 2

Adjust the belt speed according to the chosen spread rate and shutter position according to the setting chart..

For large application rates we recommend belt speed II.

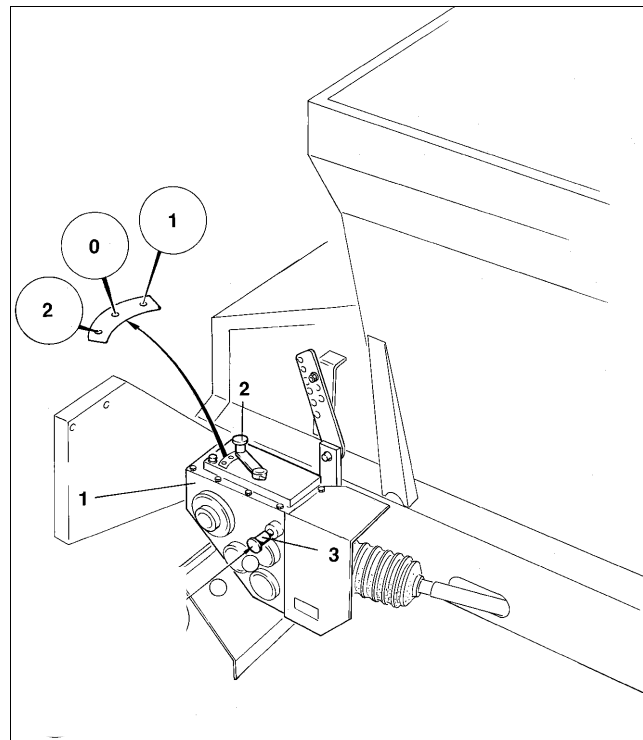


Fig. 31

7.3 Spreading granular fertiliser with spreading discs OM

For spreading granular fertilisers with the spreading discs OM always make use of the funnel chute (Fig. 32). In this way the feed on point of the fertiliser on the spreading discs is optimised.



Fig. 32

7.3.1 Setting the working width for spreading discs OM

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 **working width** (distance between 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 behavior 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. 33/1 and Fig. 33/2) are arranged on every individual spreading disc.



The scale (Fig. 33/1) with the figure from 5 to 28 refers to the shorter spreading vane (Fig. 33/3) and the scale (Fig. 33/2) with the figures from 35 to 55 refers to the longer spreading vane (Fig. 33/4).



Swivelling the spreading vanes to a higher figure on the scale (Fig. 33/1 or Fig. 33/2) results in an increase of the working width.



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

Set spreading vanes on spreading discs as follows:

- Slacken thumb nut beneath 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. 33/1).
- Swivel the read off edge (Fig. 33/5) of the **short** vane (Fig. 33/3) on to the scale figure and **re-tighten the thumb nut firmly**.
- Look for the scale figure for the position of the **long** spreading vane on scale (Fig. 33/2) a.
- Swivel the read off edge (Fig. 33/6) of the **long** vane (Fig. 33/4) on to the scale figure and **re-tighten the thumb nut firmly**.

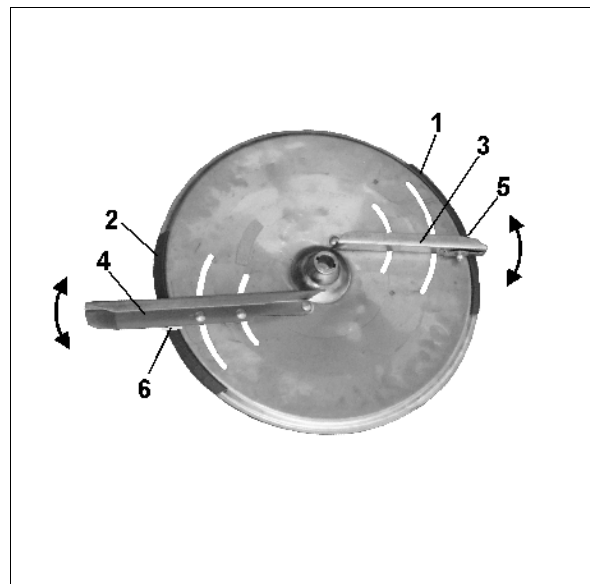


Fig. 33

Example:

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

Spreading disc: **OM 24 - 36**

Desired working width: **27m**

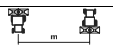
- For fertiliser or trade name, please refer to the setting chart.
- Read off group of fertiliser.
- For spreading vane position please refer to the right hand side of the table:

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 Sliskil (NL)	1

Group of fertiliser						
	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. 34) (option).

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



Fig. 34

7.3.3 Late top dressing

The spreading discs are supplied as standard with spreading vanes by which besides the normal spreading (Fig. 35) 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. 36). This way the fertiliser spread fan is raised.

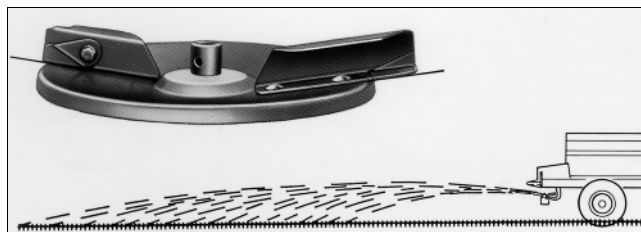


Fig. 35

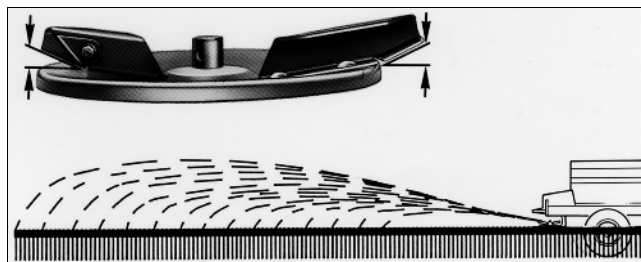


Fig. 36

7.3.4 Setting the funnel chute

Secure the funnel chute on either side by inserting the numbered lynch pins into the appropriate holes. The holes are labelled with the numbers 1 and 2 (see Fig. 37)

Adjust the funnel chute as follows:

Funnel chute position	Spread rate
Hole 1	up to 150 kg/ha
Hole 2	over 150 kg/ha

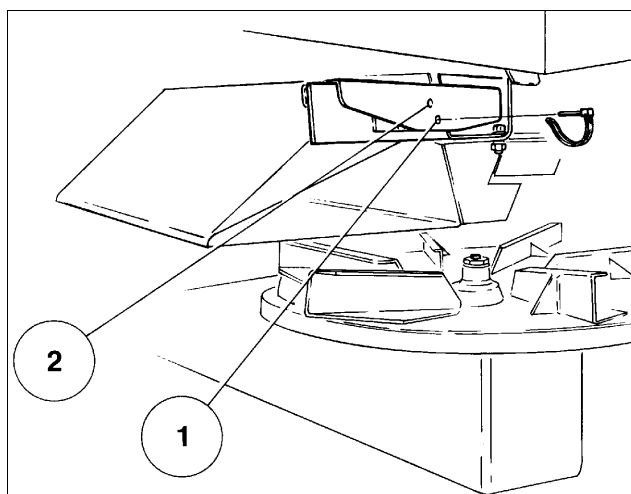


Fig. 37

7.3.5 Eco-border and normal-border spreading

With aid of the border spread deflector Limiter **ZG-B** border spreading is effective possible (special option) (see chap. 7.3.5.1).

Eco-border spreading according to fertiliser application decree:


(with half spacing) (Fig. 38)

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.

- **ZG-B drive:** For boundary spreading the pre-set fertiliser spread rate should be reduced by 10 %. Therefore 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.

Normal-border spreading

(with half spacing) (Fig. 39)

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.



The spread patterns might deviate from the illustrated spread patterns.

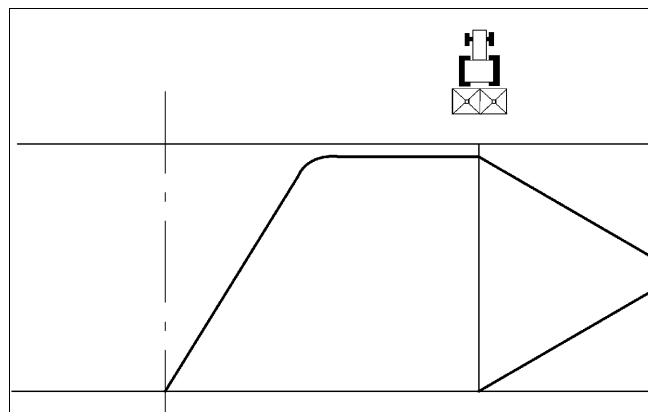


Fig. 38

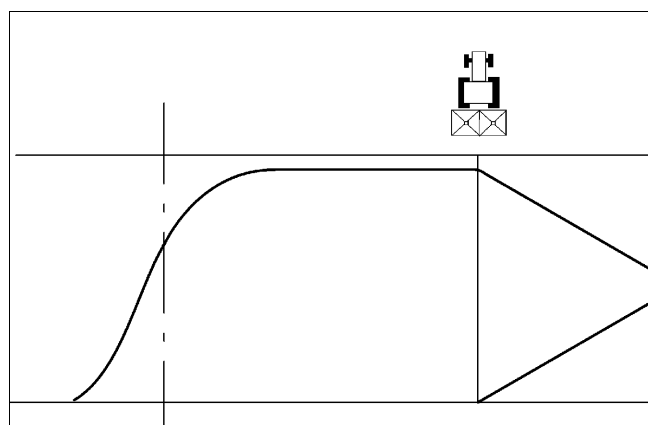


Fig. 39

7.3.5.1 "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. 40) 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. 40











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

Table for border spreading and eco border spreading

Limiter M																928597	
		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 DAP MAP		15	13	12	10	13	12	11	10	11	10	9	8	7	5		
		12	10	8	7	8	6	4	2	2	1	0	0	0	0		
		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. 41).

- 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. 42).

- 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.

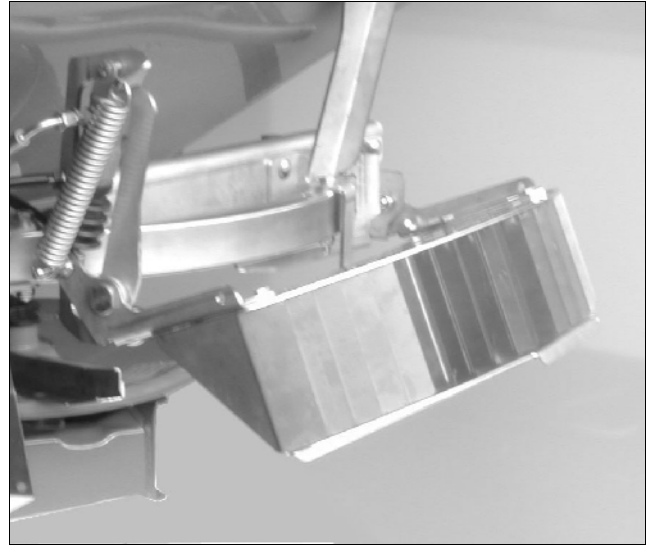


Fig. 41

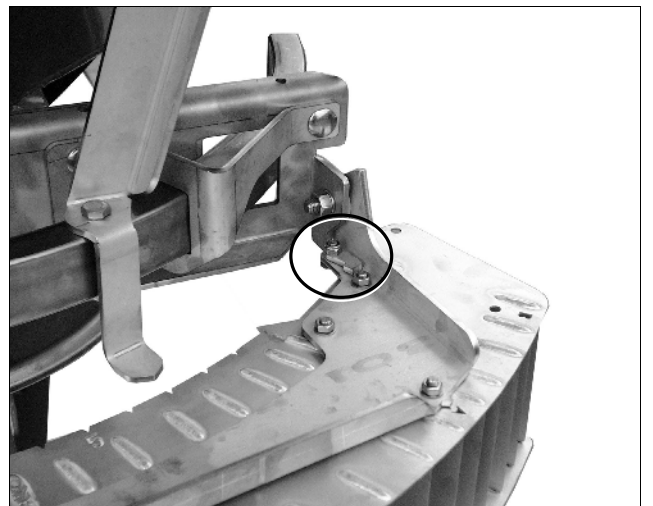


Fig. 42

7.4 Spreading with lime spreading discs

7.4.1 Spreading earth moist lime fertiliser by using the lime spreading discs

For spreading damp fertiliser

- remove the additional roof chute (Fig. 44/1)

Attach guide plate for large amounts

7.4.2 Spreading granular fertiliser with lime spreading discs

Special case:

The lime spreading disc (Fig. 43) allows for spreading granular, not nitrogeneous fertiliser up to a working width of 18 m.

If granular fertiliser is to be spread using the lime spreading discs, the additional chute (Fig. 44/2) must be fitted to optimise the drop point of the fertiliser onto the spreading discs. This chute is simply bolted on top of the chute that is already mounted (Fig. 44/1).

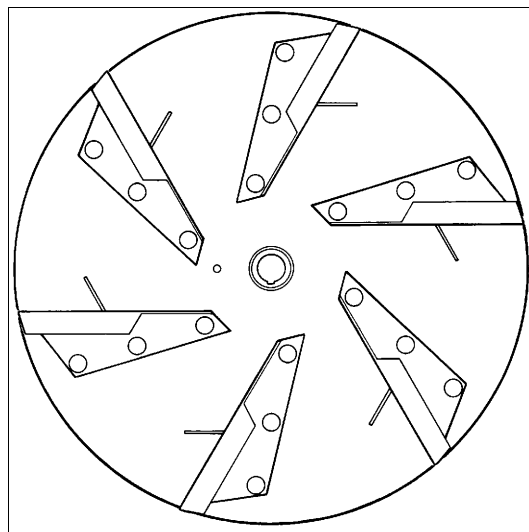


Fig. 43

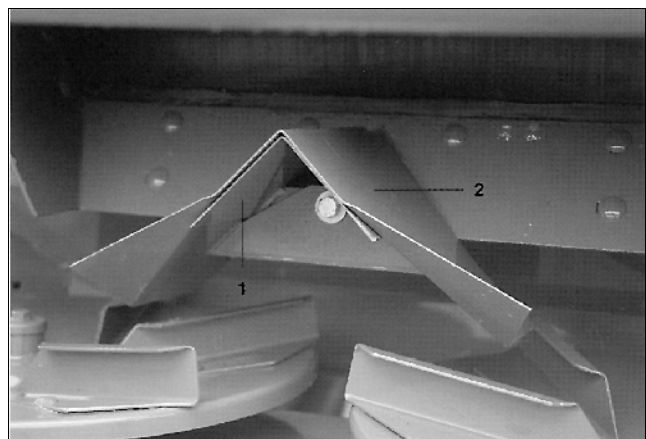


Fig. 44

8. Operation



ZG-B drive, before starting with the spreading operation:

- Job-data
- Machine-data

Enter on **AMATRON⁺** and recheck.

See operation manual of **AMATRON⁺**.



Observe the permissible payload of the spreader (please refer to technical data)!



Ensure that the PTO shaft rev. speed is matched with the spreader unit (Fig. 45, Fig. 46)!

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. Advise 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.



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).



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.

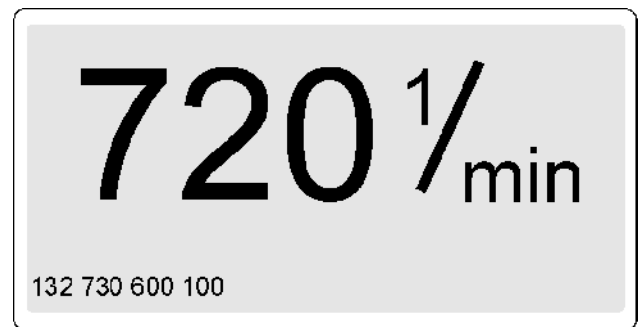


Fig. 45



Fig. 46



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



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.



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

Checking the outlet-openings of the guide chute before every operation:

- Spreading material can build up inside the outlet openings (Fig. 47/1) of the guide chute to become too narrow to achieve a correct spread pattern. To achieve a correct spread pattern ensure that both outlets are clean. Therefore before every operation of the bulk spreader check or clean the outlets as follows:



Disengage tractor PTO shaft, stop tractor engine and remove ignition key.

- Pull out two clip pins (Fig. 47/2) and pull guide chute (Fig. 47/3) to the rear until the outlets (Fig. 47/1) can be seen.
- Check or clean the outlet openings.
- Push guide chute back into position and affix by two clip pins (Fig. 47/2).

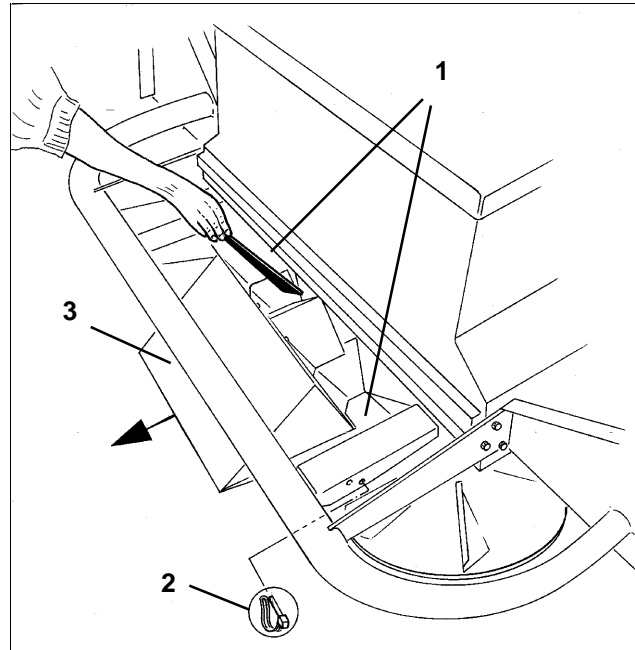


Fig. 47

8.1 Filling the **ZG-B**



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 when travelling on roads not classed as public highways it must be observed that the brakes are 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.



When filling the spreader ensure that there are no foreign particles in the fertiliser.



Before filling the hopper the shutters must be closed!



Strictly follow the safety advice of the fertiliser manufacturer.



ZG-B drive: Enter the refilled amount of fertiliser into the **AMATRON⁺**.

See operator's manual for **AMATRON⁺**.



Fig. 48



8.2 Spreading operation



Before starting the spreading operation hydraulically unlock the tandem axle.



ZG-B drive: See operation manual of **AMATRON⁺**.

ZG-B Standard:

1. Open the shutter.
 - Main shutter adjustment according to the setting chart
 - Double shutter: Open shutter hydraulically.
2. Engage the universal joint shaft at low tractor engine speed.



Standard PTO shaft rev. speed: 540 1/min. For some kinds of fertiliser another PTO shaft rev. speed is required. Please observe indications in the setting chart.

3. Ground wheel driven unit for the conveyor belt: Create the drive with the aid of a single acting control spool valve.



Do not stand in the slewing range of the drive wheel (Fig. 49/1) and its operating mechanism (Fig. 49)!



Ensure that there are no persons in the danger zone!



Never reach inside the machine while parts may still be moving! Risk of injury!

When the control spool valve is actuated, the drive wheel (Fig. 49/1) is either forced against the spreader's tyre by means of a spring or lifted from the tyre by means of the hydraulic ram (Fig. 50/1). The stroke of the drive wheel can be adapted to the size of the spreader's tyre by changing the position of the ram.

4. For border spreading lower Limiter hydraulically into work.
5. After having finished the spreading operation:
 - Close the shutter.
 - Disengage the PTO shaft at slow tractor's rev. speed
 - Stop ground wheel drive.



Fig. 49

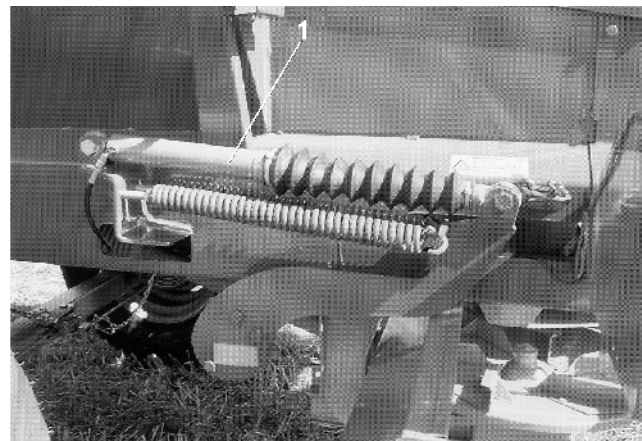


Fig. 50



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



ZG-B Standard: Maintain a constant spreading disc rev. speed and forward speed.



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. 51/T1) is usually always created in a distance of half the tramline spacing to the field side (see para 7.3.5). 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. 7.3.5 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. 52), 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. 52), when the spreader is in line with the 1st tramline on the headlands.

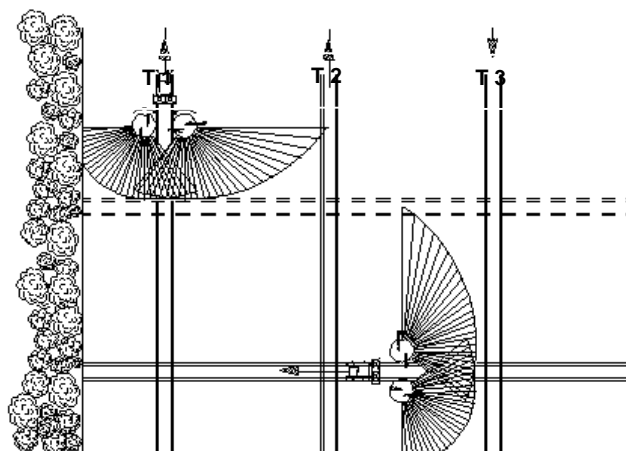


Fig. 51

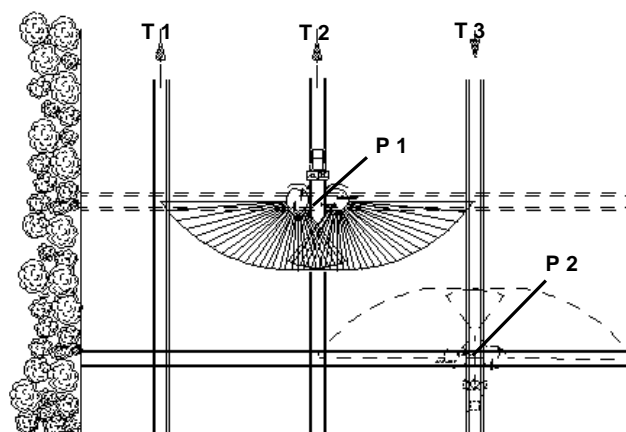


Fig. 52



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 with the hydraulic drive switched off, stopped engine and removed ignition key.



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.
- 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. 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. 53/1) to climb up the hopper.

Before climbing up:

- Lift the securing clamp (Fig. 53/2).
- Fold down the ladder (Fig. 53/1)
- After having finished work fold in the ladder again.

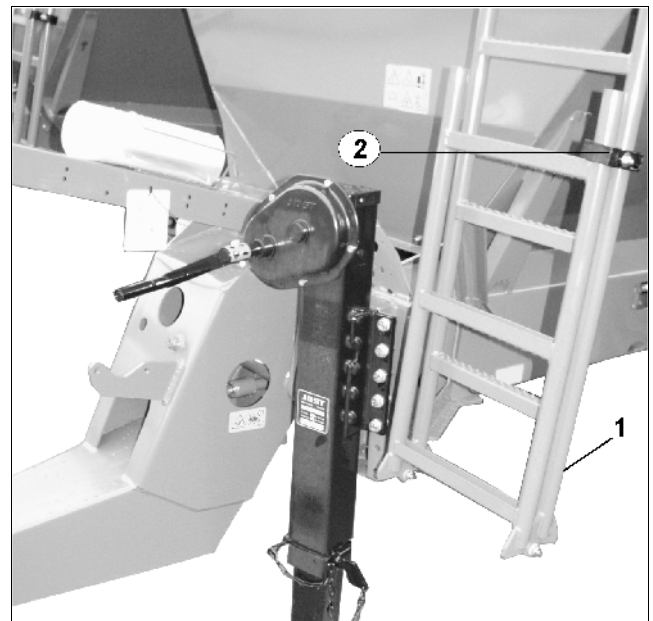


Fig. 53

9.1 Spreading vanes and swivel blades

- Slacken self-locking nut (Fig. 54/1).
- Remove washer (Fig. 54/2) and flat mushroom head bolt (Fig. 54/3).
- Slacken hexagonal bolt (Fig. 54/4) and exchange spreading vanes.
- Fitting the spreading vanes is done in vice versa order.
- Tighten the self locking nut (Fig. 54/1) 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. 54/5).

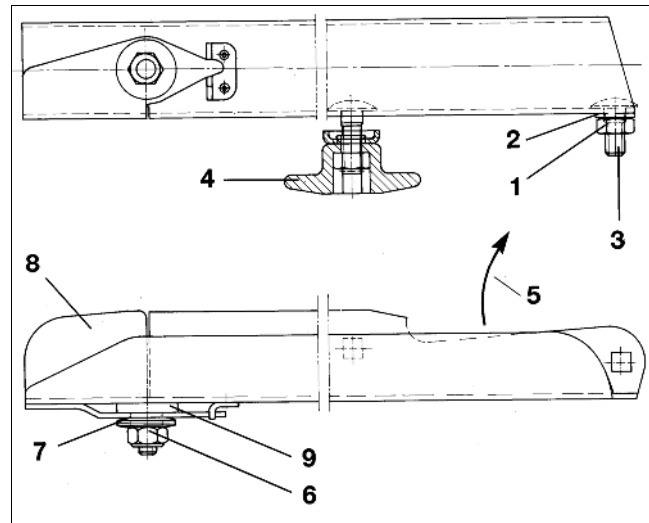


Fig. 54



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.



Exchange the spreading vanes or swivel blades as soon as breakage due to wear is noticed.

9.1.1 Exchange of swivel blades

- Slacken self locking nut (Fig. 54/6) and remove together with spring washers (Fig. 54/7).
- Exchange swivel blades (Fig. 54/8).
- **Heap up** spring washers **reciprocally** (do not stack).
- Tighten self locking nut (Fig. 54/6) 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. 54/9) between spreading vane and swivel blade.

9.2 Exchanging the spreading discs

- Remove the M10 hexagonal bolt (Fig. 55/1).
- 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 spreader unit and bolt in place using M10 hexagonal bolts (Fig. 55/1) 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. (Fig. 56/1).



Beforehand remove the funnel chute (if fitted).



The right hand side gearbox shaft is provided with a shear pin: Here always set up the right hand spreading disc with the two keys.



Holder (Fig. 57/2) which can be attached to the broadcasters hopper are available for additional spreading discs.

- The condition of the spreading vanes plays a major role in determining the broadcasters ability to distribute the fertiliser evenly across a field. For this reason, the spreading vanes are made of particularly abrasion-resistant and partly rust-free material. Change the spreading vanes and discs as soon as holes in it become visible.
- The casting range of the fertiliser may vary even if the working range of the broadcasters remains constant. Spreading patterns with different, fertiliser-specific overlap zones which may deviate from those spreading patterns given in these operating instructions and the spreading table may result depending on the type of fertiliser used.
- Remove any fertiliser stuck to the spreading vanes and the guiding chutes at regular!



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!

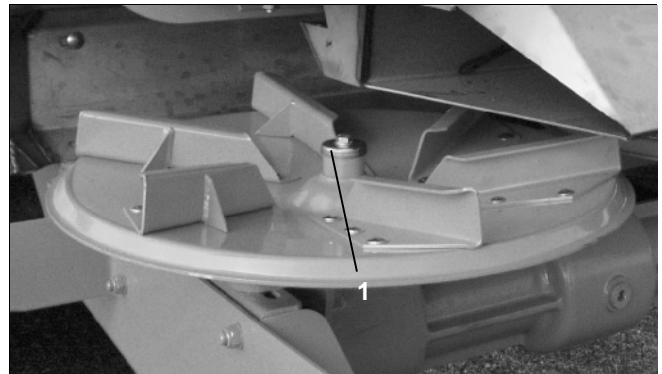


Fig. 55



Fig. 56

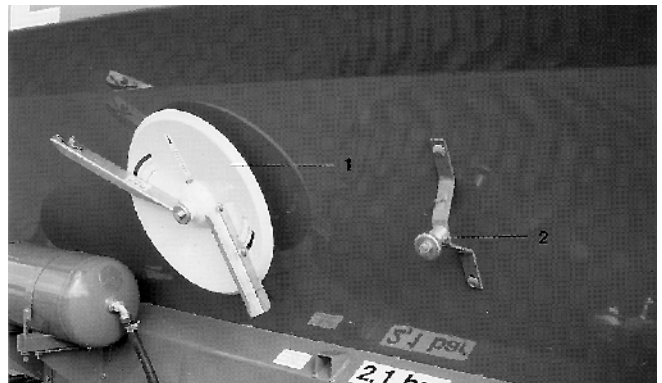


Fig. 57



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



Keep clear of flying fertiliser! Risk of injury!



Ensure that no persons are located in the danger zone!

9.3 PTO shafts

Grease the PTO shafts at regular intervals (operating hours h) (Fig. 58) 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.

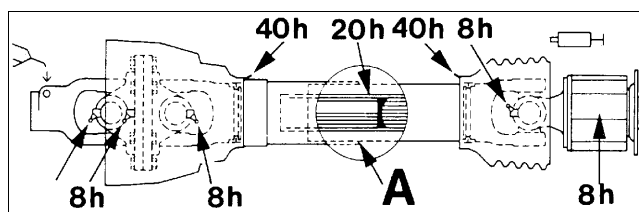


Fig. 58

9.4 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.

9.5 Gear boxes

Gear oil: SAE 090

The oil does not have to be changed.

Quantity of oil:

- Floor conveyor belt gear boxes – 4,5 l.
- Universal spreading unit gear box - 2,5 l.
- Angular gear box, ground wheel drive - 1,0 l.

9.6 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.

9.6.1 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).

9.6.2 Marking

Hydraulic hoses are marked as follows:

- Name of the manufacturer
- Date of production

Maximum dynamic operational pressure

9.6.3 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.

9.7 Check of the hydraulic oil filter

ZG-B drive:

During operation the function of the hydraulic oil filter (Fig. 59/1) can be checked on the control block. Indication in the check window (Fig. 59/2):

Green filter functions properly

Red exchange filter / clean

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

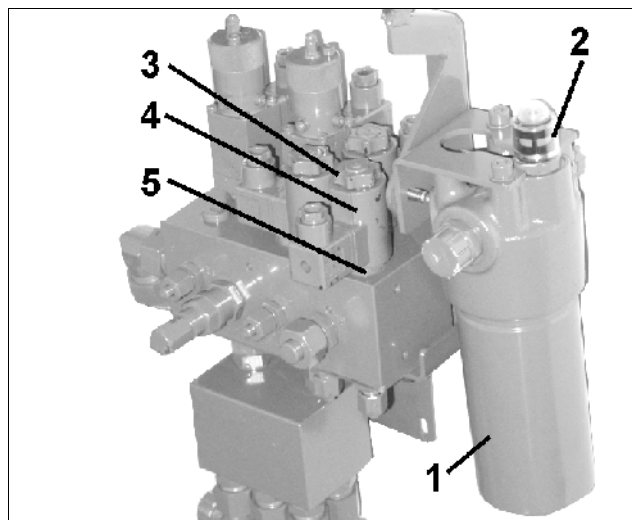


Fig. 59

9.8 Cleaning the solenoid valves

ZG-B drive:

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 (Fig. 59/3).
- Remove magnet coil (Fig. 59/4).
- Screw out the valve rod (Fig. 59/5) with valve seat and clean with compressed air or hydraulic oil.

9.9 Floor conveyor belt with belt centring

Conveyor belts (Fig. 60/1) 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 occurring in **AMAZONE**-bulk precision broadcaster **ZG-B** by means of the automatic belt centring system.

The conveyor belt is tensioned in the belt frame between the driving drum (Fig. 60/2) and the tail pulley (Fig. 60/3). The driving drum is fixed in the belt frame, whereas the tailing pulley can rotate about the swivelling pin (Fig. 60/4). The conveyor belt also runs between two control rollers (Fig. 60/5) which are connected to the tailing pulley by a frame (Fig. 60/6).

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 centre and to remain there.

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. 61/1), on both sides by turning them to the left (the direction of travel is indicated by the arrow).
2. Turn the hexagonal nuts (Fig. 61/2) 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. 61/2) have been moved must be the same on both sides of the belt unit. Do not turn the two hexagonal nuts (Fig. 61/2) by more than $\frac{1}{2}$ a spanner turn. Tighten the counter nuts and check whether the conveyor belt is running evenly.

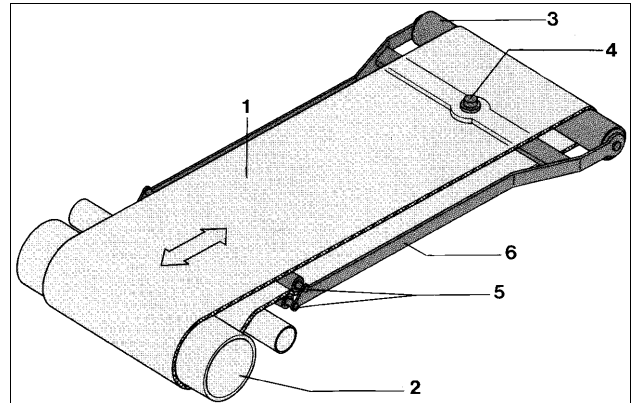


Fig. 60

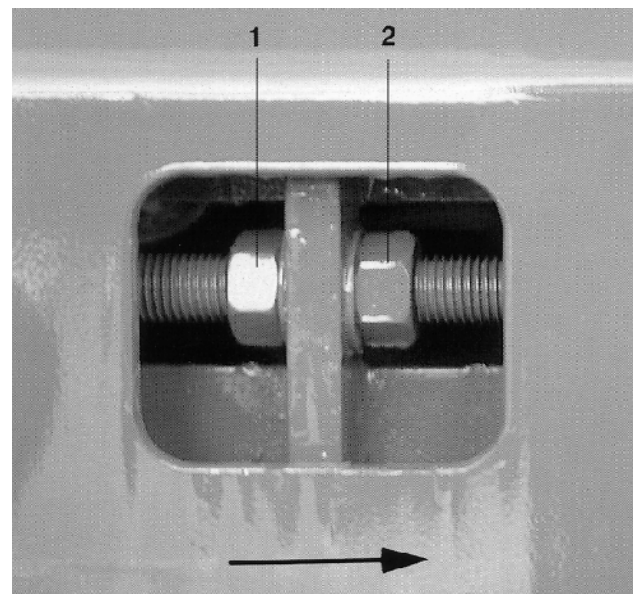


Fig. 61



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 support rollers are fitted with special maintenance-free bearings.



9.10 Axles and brakes

The notes regarding assembly and adjustment are part of the warranty conditions. Claims resulting 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.

9.10.1 Wheel nuts

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

See the table for the torque values.

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

9.10.2 Wheel change

To jack up the **ZG-B** for tyre change position the jack at the marked place (Fig. 62/1).

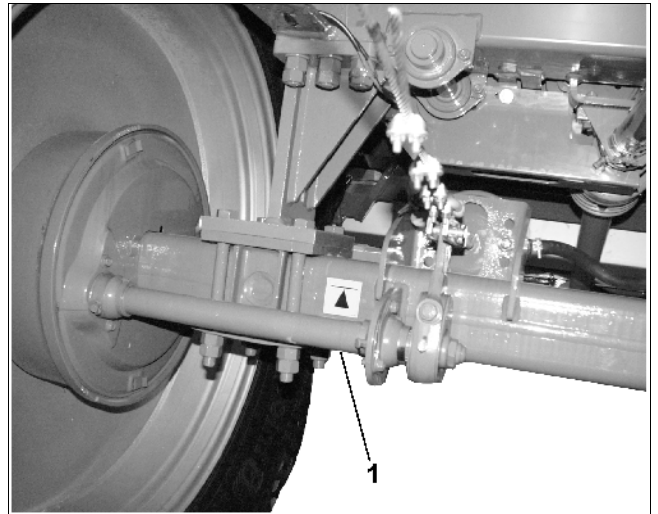


Fig. 62



9.11 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 reduced accordingly in order to prevent damage.

After the first laden journey, at least after 5 km	After 50 operating hours	Every 100 operating hours:
<ul style="list-style-type: none"> -Tighten the wheel nuts (see the „Wheel nuts“ table for the torque values). -Wheel hubs: check the bearing clearance. 	<ul style="list-style-type: none"> - Wheel hubs: check the bearing clearance. - Check and lubricate the front axle. 	<ul style="list-style-type: none"> - Wheel hubs: check the bearing clearance. - Brake camshaft:: Lubricate the bearing. - Check and if necessary, adjust the position of the brake lever.

Every 500 operating hours	Every 1000 operating hours, at least every 6 months:	
<ul style="list-style-type: none"> -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 caused to the bearing. 	<ul style="list-style-type: none"> - Re-lubricate the wheel hubs using roller bearing grease: Use top-quality lithium base grease only (drop point 190°). Using the wrong grease or too much grease will cause damage to the wheel bearings. - Check the wear on the brake linings and , if necessary, replace the linings. - Front axle bearing: replace the roller bearing grease. 	

9.12 Airbrake system

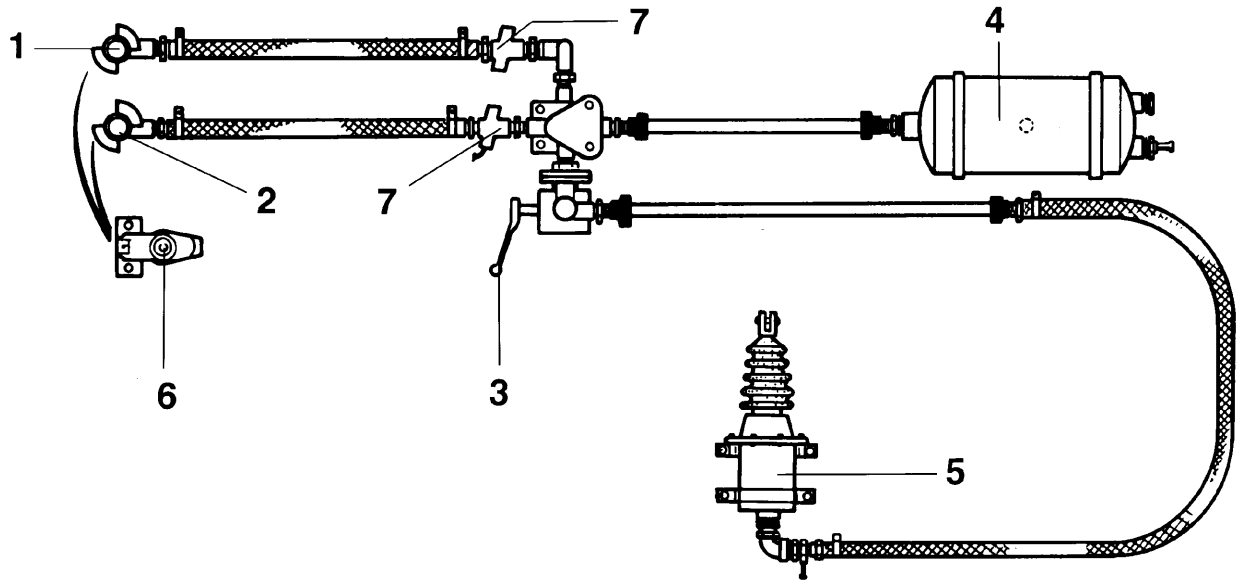


Fig. 63

The following checking-, maintenance- and care-schedule is valid. The components of the air brake on your bulk precision broadcaster may be different from that shown in (Fig. 63.6). 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. 63/1) for the brake line has a yellow marking. The hose coupling (Fig. 63/2) 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. 63/3) of braking power governor!
5. If necessary, drain the compressed-air container (Fig. 63/4)!
6. Conduct a braking test!
7. Check the piston stroke of the braking ram! Only two thirds of the braking rams stroke (Fig. 63/5) may be used. If this is not the case, adjust the brake! Replace damaged dust covers!
8. After coupling off, hang the coupling heads into the dead couplings (Fig. 63/6) on the **ZG-B**!

Check the following functions (about once every week):

1. Hydraulic socket and hydraulic plug (Fig. 63/7) 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 grey 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 Fittings for all equipments

10.1.1 Spreading discs

- **OMNIA-SET OM 18-24 (1 pair)**

For working widths or tramline spacing of 18 to 24m.

Product No.: 927 777

- **OMNIA-SET OM 24-36 (1 pair)**

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

For working widths or tramline spacing of 24 to 36m.

Product No.: 927 778

- **ZG-B spreading discs of lime with additional chute**

Product No.: 950 749

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

Product No.: 1 577 000

10.1.2 **ZG-B** spreading discs OM-with funnel chute

Product No.: 950 748

10.1.3 Calibration device **ZG-B**

For an easier spread rate control without spreading disc removal, right hand side

Product No.: 951 785

10.1.4 Spreading table

Product No.: MH280

10.1.5 Mobile fertiliser test kit

Product No.: 1 259 000

10.1.6 Boundary spreading device Limiter **ZG-B**

Limiter **ZG-B** is usually taken for boundary spreading and border spreading, if the first tramline has been created on half the working width of the fertiliser spreader **ZG-B** (Fig. 64).

Boundary spreading device, left hand
Limiter ZG-B

Product No.: 922 476

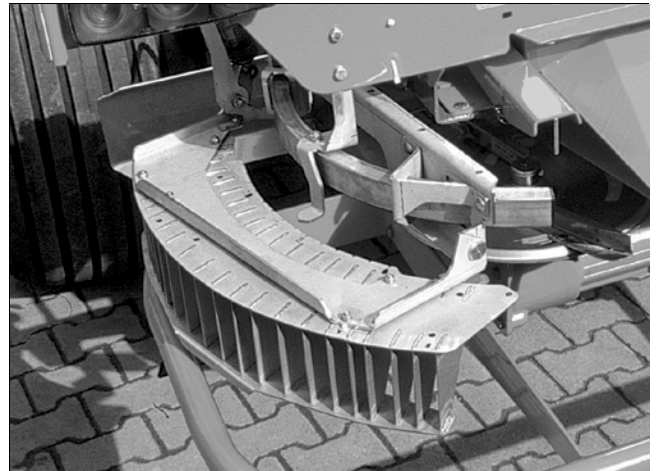


Fig. 64

10.1.7 Sieve grates

Sieve grates (Fig. 65) cover the entire hopper. Lumps of fertiliser and foreign bodies are caught by the sieve grates when the hopper is filled. The grates (Fig. 65/1) are attached to brackets and secured in place using spring pins (Fig. 65/2).

ZG-B 7001

Product No.: 1 817 000

ZG-B 10001

Product No.: 951 298

ZG-B 20001 T

Product No.: 958 262

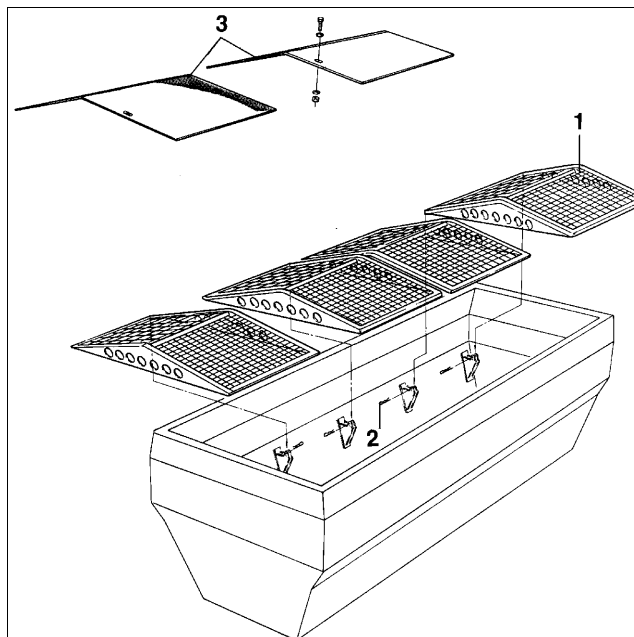


Fig. 65

10.1.7.1 Sieve grate **ZG-B** in front of the sluice

Sieve grate **ZG-B** : A fine meshed vertical sieve is fitted in front of the sluice (Fig. 66) directly before the shutter opening.

ZG-B in front of the sluice Product No.:951 880



Fig. 66

10.1.8 Swivelable hopper cover

10.1.8.1 Pneumatic filling of the hopper

The swivelable hopper cover (Fig. 67/1) 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 over it 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

ZG-B 20001 T with hydraulical actuation
Product No.: 958 347

Swivelable hopper cover (Fig. 68) can be opened and closed using a lever.



Secure the closed swivelable hopper cover (only with mechanical actuation) using tensioning rope (Fig. 69/1). 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. 67



Fig. 68

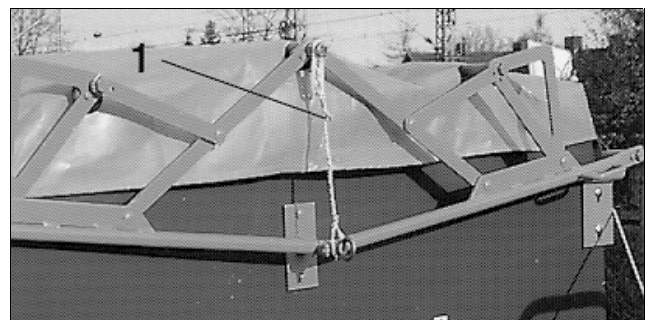


Fig. 69

10.2 Fittings for equipment **Standard**

10.2.1 Hydro-switch off clutch **ZG-B**

Product No.: 957 090

10.2.2 Shutter actuation **ZG-B** hydraulic

Product No.: 950 890

10.2.3 Double shutter **ZG-B** (short), hy- draulic, in the sluice

Product No.: 927 634

10.2.4 Fertiliser flow divider plate **ZG-B** (long)

The fertiliser flow divider is ideally suited for spreading operation on slopes. The fertilizer flow divider accurately distributes the fertilizer to both spreading discs (not for double shutter).

Fertiliser flow divider plate **ZG-B (long)**

Product No.: 954 315

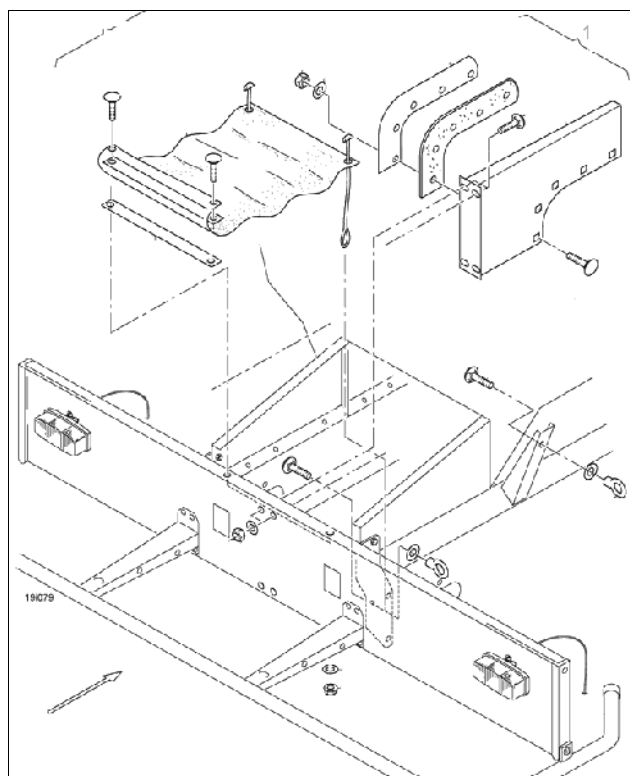


Fig. 70

10.2.5 Fertiliser rake

The fertiliser rake (Fig. 71) breaks up any lumps of fertiliser. The fertiliser rake is fitted directly before the spreading unit.

Fertiliser rake

Product No.: 956 890

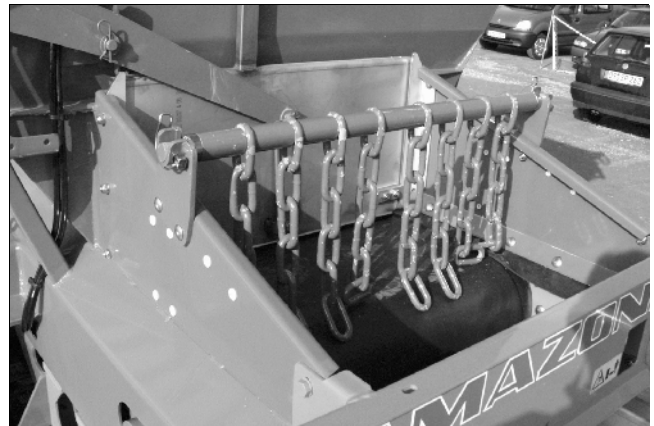


Fig. 71

10.2.6 Ground wheel drive

Ground wheel drive with hydraulical operation Product No.: 927 645

If the material to be spread is to be discharged evenly,

- the conveyor belt speed (PTO shaft speed) and
- working speed

must be constant.

In the basic model, the conveyor belt is driven by the tractors PTO shaft. In hilly areas, it is sometimes difficult to maintain both a constant PTO shaft speed and a constant speed of travel.

If the conveyor belt is driven by the ground wheel (Fig. 72), the conveyor belt speed is depending on the speed of travel and the material to be spread is distributed evenly. The spreading unit is still driven by the tractors PTO shaft.

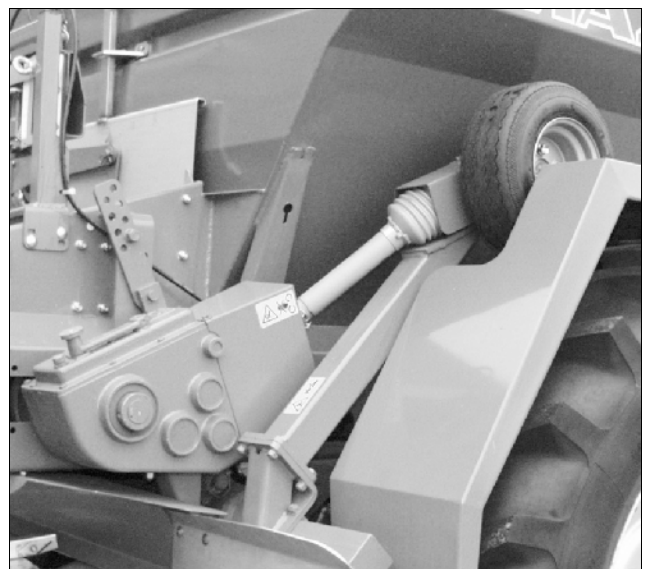


Fig. 72



The slide gate settings may be different for ground wheel drive.

Refer to the spreading table!



With the ground wheel drive the ratio between working and belt speed is always the same. To determine the shutter slide position with the aid of the setting chart use the 12 km/h-column.



Observe prior to the initial operation

- for comparatively smooth and fine cleat tractor wheels: fit the rubber wheel.
- for coarse cleat tractor tyres: fit the basket wheel.

10.2.6.1 Connect the ground wheel



Switch off the tractors PTO shaft, turn off the tractors engine, and remove the ignition key.

1. Remove the PTO shaft (Fig. 73/1) from the drive shaft under the **ZG-B** and connect it to the angular gear box (Fig. 73/2) of the ground wheel. To prevent the angle of the PTO shaft (Fig. 73/1) from becoming too extreme, the conveyor belt gear box (Fig. 73/3) must be moved accordingly. After the M16 hexagonal bolt (Fig. 73/4) has been removed, the gears can be repositioned. The new position is secured using the hexagonal bolt.
2. Connect the hydraulic plug (Fig. 74/2) to a single-action control valve on the tractor.

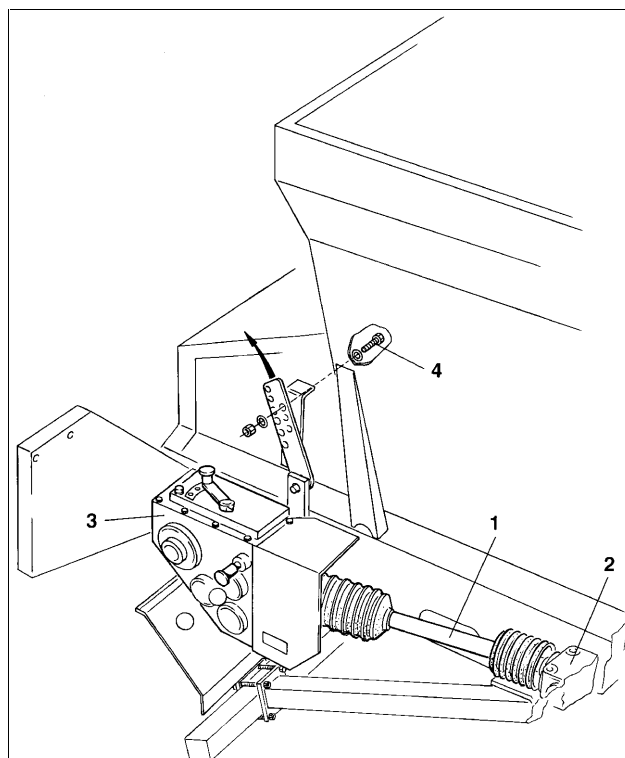


Fig. 73

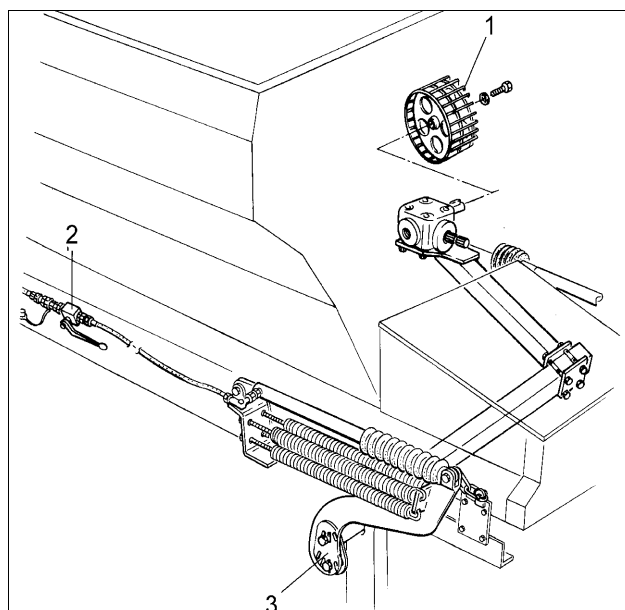


Fig. 74

10.3 Ground wheel shaft **Standard**

Product No.: 927 647

10.3.1 Ground wheel shaft cranked

Required for:

ZG-B 7001 with tyres larger than 1350 mmØ

ZG-B 10001 with tyres larger than 1590 mmØ

ZG-B 20001 with all tyres

Product No.: 927 646

10.4 Rubber wheel

Product No. 927 645

10.5 Basket wheel

Product No. 950 369

10.6 PTO shaft for floor belt drive via universal joint shaft

Additionally required for:

ZG-B 7001 with tyres 480/70 R 34 and for

ZG-B 10001 with tyres 20.8 R 38,

if a stationary emptying of the spreader is intended.

Product No.: EJ101







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Factories for mineral fertiliser spreaders, field sprayers, seed drills, soil tillage implements,
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