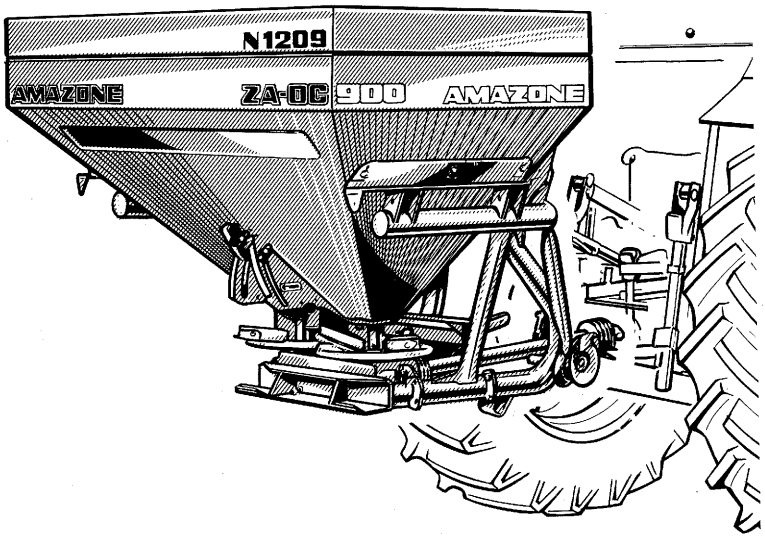
Instruction Book

Centrifugal Twin Disc Precision Broadcaster

AMAZONE ZA-OC



AMAZONEN-WERKE

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AMAZONE

We congratulate you on the purchase of your new AMAZONE ZA-OC fertilizer broadcaster. You have made a good choice.
Please study these instructions carefully and by adhering to them make fullest use of your machine. You will then enjoy trouble-free and accurate spreading with your new AMAZONE broadcaster.

No responsibility can be accepted by us if complaints and breakages are due to faulty operation or lack of maintenance.

Never put to operation your AMAZONE broadcaster before having read chapter 3 - General safety and accident prevention advice.

Your broadcaster complies only with the regulations of the agricultural Health and safety authorities when in case of repair original spareparts of AMAZONE are used for replacement.

By this sign we have marked all chapters which refer to your safety.

Please pass this instruction hand book also to other users of this machine.

Please enter the serial number of your broadcaster here. You will find the number stamped on the type plate.
Please always quote the machine type and serial number when ordering options, spareparts or making enquiries:

Centrifugal broadcaster ZA-OC .....

Machine serial No.: .....

We invite you to study these instructions carefully, and by adhering to them, make fullest use of your machine. You will then enjoy trouble-free and accurate Broadcasting with your new AMAZONE Precision Parallel Twin Disc Broadcaster.

No responsibility can be accepted by us if complaints and breakages are due to faulty manipulation or lack of maintenance.

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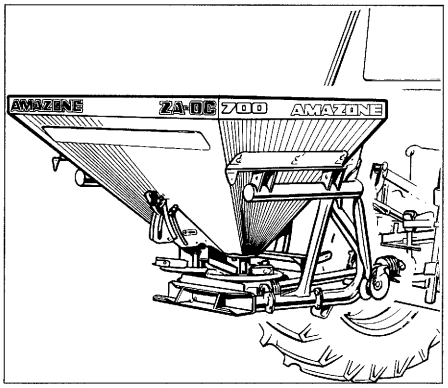
* The „standard execution“ and „options“ of our machines are determined by our importers and thus may vary from country to country.



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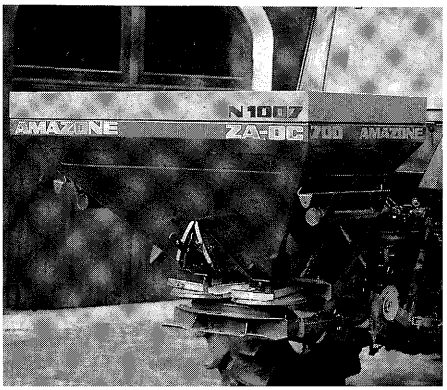

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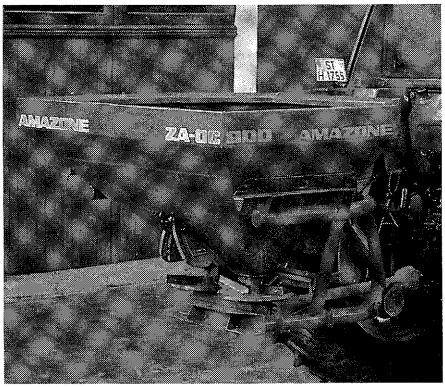

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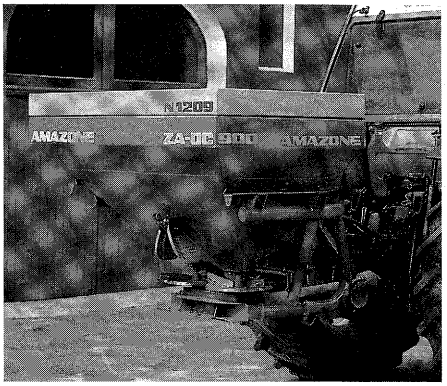


Fig. 1.4

Fig. 1.5

1.0 Details about the machine

1.1 Manufacturer

AMAZONEN-WERKE, H. Dreyer GmbH & Co. KG, P. O. Box 51
D-W-4507 Hasbergen-Gaste /F. R. Germany

1.1.1 Importers (Europe):

AMAZONE Ltd. Rowse, Pillaton, Saltash, Cornwall PL12 6QU / England
Phone (0579) 51155 - Fax (0579) 51057
FARMHAND LIMITED, Navan Road, Castleknock Cross, Dublin 15 / Ireland
Phone (01) 8213455 - Fax (01) 8213064

1.2 Technical data

Type ZA-OC	700	N 1007	L 1207	900	N 1209	L 1409
Hopper volume	700 l	1000 l	1200 l	900 l	1200 l	1400 l
Payload (kgs)	1200	1200	1400	1200	1200	1400
Net Weight	212 kg	238 kg	279 kg	214 kg	240 kg	281 kg
Filling height	0.95 m	1.08 m	1.08 m	1.02 m	1.15 m	1.15 m
Filling width	1.57 m	1.57 m	2.08 m	1.57 m	1.57 m	2.08 m
Total Length	1.35 m	1.35 m	1.35 m	1.35 m	1.35 m	1.35 m
Total width	1.72 m	1.72 m	2.23 m	1.72 m	1.72 m	2.23 m
Total height	1.03 m	1.16 m	1.30 m	1.10 m	1.23 m	1.37 m
Standard execution:*	Spreading disc-pair **"OMNIA-SET"** for settable working width of 10 up to 18 m, swivel blades for late top dressing, boundary spread disc **"Tele-Quick"**, swivelable filling sieve spread rate checking **"Quantrol"** Walterscheid universal joint shaft					
The „standard execution" and „options" of our machines is determined by our importers and thus may vary from country to country.						

Fig. 1.1 **ZA-OC 700**
Fig. 1.2 **ZA-OC N 1007**
Fig. 1.3 **ZA-OC 900**
Fig. 1.4 **ZA-OC N 1209**
Fig. 1.5 **ZA-OC L 1409**

1.3 Data about noise development

The operator related noise emission level is 74 db (A) (measured under operation conditions at the ear of the tractor operator by the OPTAC SLM 5 noise level indicator.)

2.0 Important advice

By this sign we have marked all chapters which refer to your safety or that of another person or if your or another person's safety or the machine's function is endangered. Therefore adhere to all safety advice. Please pass on all safety advice also to other users of this machine!

2.1 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. Before commencing work, remove all packing material, wire, etc. and check that all lubrication points are well supplied with grease etc. before use (e. g. universal joints)!

AMAZONE ZA-OC broadcasters are only equipped with "OMNIA-SET" spreading discs and swivelable vanes.

Do not reach or get inside the hopper.
Danger of injury by rotating stirrer fingers.

2.2 Designed use of the machine

The centrifugal broadcaster ZA-OC has been exclusively designed for the usual operation in agriculture especially for the distribution of granular fertilizers. The machine is designed to spread on slopes of up to 20 % (18º) inclination.

If the spreader is used on slopes exceeding 20 % it is no longer considered as proper use. The manufacturer does not accept any responsibility for damages resulting from this; the operator himself carries the full risk.

Adhere to the manufacturer's prescribed operation, maintenance and repair conditions.

The centrifugal broadcaster AMAZONE ZA-OC may only be operated, maintained and repaired by such persons who have been made acquainted with it and who have been advised about the dangers. The Health and Safety Executive advice as well as further generally accepted safety technical, working, medical and traffic laws should be adhered to.

Any damages resulting from arbitrary changes on the machine rule out the responsibility of the manufacturer.

Our machines are carefully manufactured. Nevertheless deviations in the spread rate or even a total failure cannot be excluded. This may be caused by e. g.:

- Varying composition of fertilizer and seed (e. g. distribution of grain sizes, bulk density, geometric shape, dressing etc.).
- Air drift.
- Blockage or bridging (e. g. by foreign parts, residue of bags, moist fertilizer).
- Undulated terrain.
- Worn metering or distribution parts (e. g. vanes, metering wheels, V-belts).
- Damage by outside influence.
- Wrong drive speeds and forward speeds.
- Fitting wrong spinner discs (e. g. by mixing up).
- Wrong setting up the machine (incorrect mounting, ignoring the setting chart.
- Adverse weather conditions.

Therefore please check your machine for proper function and sufficient metering accuracy before every operation and also during the operation.

Any demand for replacement or damages which are not occurred on the broadcaster itself are excluded. This means that claims for subsequential damages due to spreading faults are excluded. Any damages resulting from arbitrary changes on the machine rule out the responsibility of the manufacturer for such damages.

The supplier's exclusion of liability does not apply in case of intention or gross negligence by the owner of the manufacturing company or by his senior employee and also not in such cases in which the product liability law is applicable, i. e. in case of faults on the broadcaster causing injuries to persons or damages to privately used objects.

The supplier's exclusion of liability is also not applicable in case of properties missing which were expressly assured when the aim of the assurance had the purpose to insure the purchaser against damages accrued to other objects than to the broadcaster itself.

3.0 General safety and accident preventive advice

Basic principle: Always check traffic and operational safety before putting the machine into any operation!

1. Adhere to the general rules of Health- and safety precautions as well as to the advice in this instruction manual.
2. Adhering to warning and information signs is important for a trouble-free operation and your own safety!
3. When making use of public roads adhere to the applicable traffic rules.
4. Become acquainted with all devices and controlling elements as well with their function **before** beginning the operation.
5. Avoid wearing loose clothing!
6. Keep machine clean.
7. Before beginning to drive check surrounding (children). Ensure sufficient visibility!
8. Sitting or standing on the implement during operation or during transport is not permissible.
9. Attach implement only as described.
10. Special care should be taken when the implement is coupled to or off the tractor.
11. When coupling machine to or off bring the supporting device into the corresponding position (to avoid tipping over).
12. Weights should always be fitted to the mounting points provided for that purpose.
13. Adhere to the maximum permissible axle loads and total weight of the tractor. Refer to vehicle documents and machine's instruction manual.
14. Do not exceed maximum permissible transport measurements of the traffic department.
15. Fit and check transport gear, e. g. traffic lights, warning- and protection devices!
16. The release ropes for quick coupler should hang freely and in the low position must not release the quick coupling by themselves.
17. During driving never leave the operator's seat!

18. Moving characteristics, steering and braking ability are affected by mounted implements, trailers and ballast weights. Therefore take account of these effects and allow sufficient steering and braking margin.

19. When lifting the fertilizer broadcaster 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 into bends mind the projection to the sides and the gyrating mass of the implement! - To avoid sideways swing of the spreader during operation stabilizer bars or chains can be fitted to the tractor's lower arms of the three-point linkage (see tractor accessory).

21. Take implement into operation only when all guards are fixed in position.

22. Never stay or let anyone stay within the operating area! Warning: Never come near to rotating spinner discs, danger of injury! Be careful when staying or when seeing other persons staying within the throwing zone of the fertilizer broadcaster.

23. Filling the fertilizer broadcaster may only be done with a stopped tractor engine, removed ignition key and closed shutters!

24. Never stay or let anyone stay within the operating area!

26. On all hydraulically, electrically or mechanically actuated pivoting parts exists danger of injury by bruising and trapping.

27. Before leaving the tractor lower the implement to the ground. Actuate the parking brake, stop the engine and remove the 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 maximum permissible filling loads**:

    Maximum filling load of the

    ZA-OC 700, ZA-OC 900, ZA-OC 1007 and **ZA-OC N 1209** **= 1200 kgs**

    ZA-OC L 1207, and ZA-OC L 1409 **= 1400 kgs**

30. The pulling eye of the broadcaster provided must only be used for towing suitable implements or twin axle trailers if:

    - the forward speed of 25 k.p.h. is not exceeded,
    - the trailer is equipped with a run-on brake or a brake which can be controlled by the tractor operator,
    - the total permissible weight of the trailer is not more than 1.25 times of the total weight of the towing vehicle but in maximum is 5 tons.
    - **Pulling single axle trailers by the pulling eyes of the broadcaster is strictly prohibited.**

- The application of excessive vertical load on the towing jaw is very dangerous and will damage the spreader.

31. Do not place any foreign objects inside the hopper.
32. During the calibration test watch out for danger zones due to rotating parts of the machine.
33. Never park the filled broadcaster on its own (danger of tipping over).
34. When travelling longer distances with a filled hopper, whereby shutter openings are closed and pto-drive disengaged (transfer to the field operation) first open shutter slides completely before engaging pto (to remove possible compaction of fertiliser in the hopper bottom). Thereafter engage the pto slowly and briefly spread stationary.

    Important note: Only after having set the shutter slides to the required setting the spreading operation may be started.

35. After spreading Super phosphate, lime marl and moist granular fertilisers remove the ring of fertiliser down inside the hopper tips. Also remove any fertiliser sticking to the vanes and feed-on plates. Keep machine clean.

3.1 Mounted implements

1. When fitting the machine to the three-point linkage of the tractor bring all control levers in such a position at which an unintentional lifting or lowering is impossible.
2. When fitting to the three-point linkage the mounting categories at the tractor and the implement must coincide.
3. In the area of the three-point linkage exists danger of injury by bruising and shearing places.
4. When actuating the control levers for the three-point linkage never step between tractor and implement.
5. To avoid sideways swing of the spreader during operation stabilizer bars or chains can be fitted to the tractor's lower arms of the three-point linkage (see tractor accessory).
6. When driving on public roads with a lifted machine the lifting control lever should be locked against unintentional lowering - before leaving the tractor lower the mounted implement onto the ground and remove ignition key.
7. Mount implements in conformity with the law, check function of the trailer braking system. Adhere to the manufacturers' advice.
8. Working implements should only be transported and driven on tractors which are designed to do this.

3.2 Universal joint (P.T.O.) shaft

1. Use only P.T.O. shafts which are designed for the implement and which are equipped with all legally requested guards.
2. Guard tubes and cones of the P.T.O. shaft as well as a tractor and implement side P.T.O. guard must be fitted and kept in the correct place and in proper condition.
3. Ensure that the P.T.O. shafts have the prescribed tube overlapping in the transport- and operating position (see operating instructions of the P.T.O.-manufacturer).
4. Fit and remove the P.T.O. shaft only when engine is stopped.
5. Ascertain correct fitting and securing of the P.T.O. lock.
6. prevent P.T.O. guard from spinning by fixing the provided chain to a nearby static part (see. Fig. 1b).
7. Before switching on the P.T.O. shaft ensure that the chosen P.T.O.-speed of the tractor corresponds to the allowable implement input speed. The normal P.T.O. speed is 540 R.P.M. (please note advice in setting charts).
8. Slow engagement of the P.T.O. shaft protects tractor and spreader.
9. When using the way depending P.T.O. ensure that the speed is forward speed depending and that the sense of rotation is not reversed when driving backwards.
10. Before switching on the P.T.O. shaft take care, that no one stays in the danger zone of the implement.
11. Never switch on the tractor P.T.O. while the engine is stopped.
12. When operating with a switched on P.T.O. shaft allow no one to stay near to the spinning P.T.O.- or universal joint shaft.
13. Stop P.T.O. shaft always when it is not needed or when the shaft is in an adverse position. Switch off the P.T.O. shaft as soon as the machine's outlet openings have been shut off.
14. After switching off the P.T.O. the mounted implement may still continue to run by its dynamic masses. During this period never come too close to the implement. Begin work on the implement only after it has come to a full standstill, and the tractor engine is shut off and ignitian key removed.
15. Clean and grease the universal joint shaft and the P.T.O.-driven implement only after the P.T.O. shaft and engine have been stopped and ignition key removed.
16. After removal of the universal joint shaft replace protective cap over the tractor's P.T.O.
17. Repairs to be undertaken before beginning operation, and with regard to 14. above.
18. Always place the uncoupled pto-shaft on the brackets provided.

3.3 Safety advice for hydraulic system

1. The hydraulic system is under high pressure.
2. Connect hydraulic hoses to the hydraulic rams and motors according to the advice in the instructions.
3. When fitting the hydraulic hoses to the tractor hydraulic sockets always ensure that the hydraulic system at the tractor's as well as at the implement side is without pressure.
4. To avoid wrong hydraulic connection, sockets and plugs should be marked (e. g. colour coded). This helps to prevent contrary function (lifting instead of lowering or vice versa) and reduces the danger of accident.
5. Regularly check hydraulic hoses and pipe lines and exchange if found defective. The replacement hoses and pipe lines must meet with the implement manufacturer's technical standards.
6. When searching for leaks appropriate aids should be used because of the danger of injury.
7. Liquids leaking under high pressure (Diesel fuel, hydraulic oil) can penetrate the skin and cause severe injury. When injured see a doctor immediately! Danger of infection!

3.4 General safety and accident preventive advice at maintenance, repair and cleaning

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

2. Check nuts and bolts for tightness and re tighten if necessary.

3. When conducting maintenance work on the lifted implement always place suitable supports underneath.

4. Dispose of old oils, grease and filters as prescribed by law.

5. Before working on the electric gear disconnect battery cables.

6. When conducting electrical welding operations on the tractor or on the mounted implement remove cable from the generator and the battery.

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** spare parts.

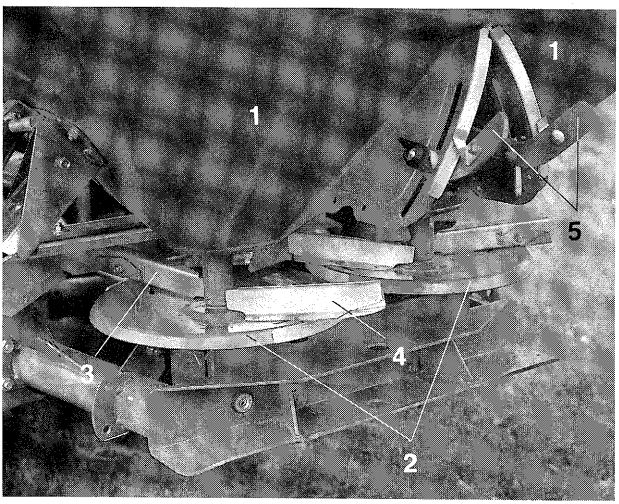


Fig. 4.1

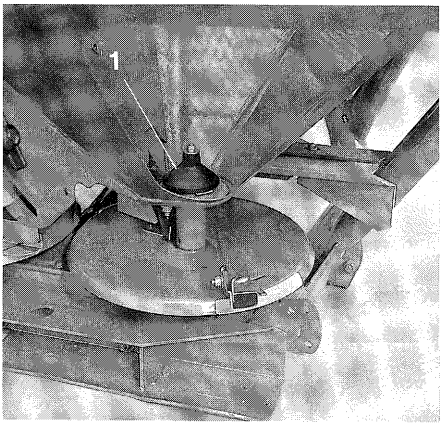


Fig. 4.2

4.0 Centrifugal broadcaster AMAZONE ZA-OC

The centrifugal broadcaster **AMAZONE ZA-OC** with its typical two hopper tips (Fig. 4.1/1) is equipped with **"Omnia-Set"** spinner discs (Fig. 4.1/2). These two spinner discs are driven to be contra-rotating from inside out and each disc is equipped with a short (fig. 4.1/3) and a long spreading vane (Fig. 4.1/4).

Conus-stirrer heads (Fig. 4.2/1) in the bottom of the hoppers provide an even flow of fertiliser onto the **"Omnia-Set"** spinner discs. By the rotating smooth cones the fertiliser is gently guided with slight pressure to sideways run out of the hopper opening - from there it drops vertically down onto its corresponding spinner disc.

The spread rate setting is done by the setting levers (Fig. 4.1/5) (setting levers provide stop for the shutters) by setting varying outlet widths at the hopper openings and in accordance to the **ZA-OC setting chart**. As the spreading properties of fertiliser may vary considerably it is recommended to determine the correct shutter setting for the required spread rage with the aid of the calibration device (option*).

The **"Omnia-Set"** spinner discs can be set to varying working widths between **10** and **18** m - depending on the kind of fertiliser - by swivelling the spreading vanes on the spinner discs, e. g. to match with existing tramline spacings. These varying settings of the stepless swivelable vanes, swivelling horizontally around the pivoting point are conducted according to the **ZA-OC setting chart**.

The boundary spread vane **"Tele-Quick"** supplied as standard allows the accurate spreading alonside field edges or boundaries without larger quantities of fertiliser crossing the boundary (saving ecology).

If the first tramline has been laid down directly alongside the field's edge then the boundary spread deflector (option*) for one-sided boundary spreading is recommended.

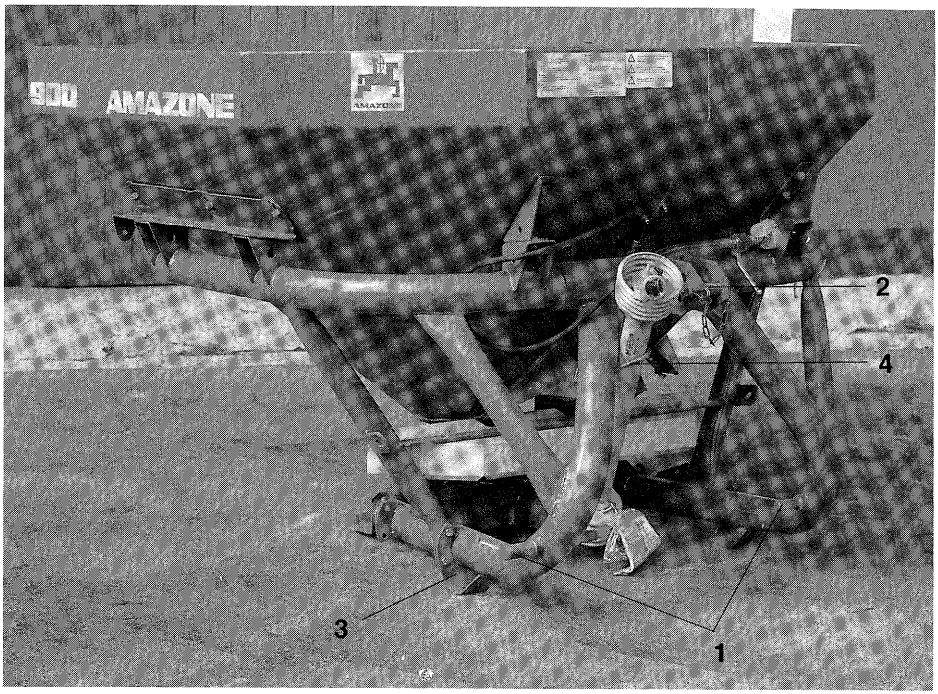


Fig. 5.1

5.0 Mounting to the three-point-linkage

Mount the centrifugal broadcaster to the tractor's rear hydraulic three-point-linkage (note para. 3.1). Fit the tractor's lower links hitch arms to the lower link pins (cat. I or II) (Fig. 5.1/1) and secure with clip pins. Fit the tractor's top link to the top link take up of the machine (cat. I or II) (Fig. 5.1/2) and secure. **Bolt parking supports (Fig. 5 .1/3) into the position as illustrated.**

Keep clear of spreader when lifting or lowering. Never work under an unsupported machine.

The lowering speed of a filled broadcaster should take at least two seconds. If provided, set hydraulic throttle accordingly.

In a lifted position the lower link arms of the tractor should only have little play so that the machine during operation cannot swing to and fro. If possible stabilize the tractor's lower link arms with stabilizing brackets or chains.

5.1 Fitting and matching the pto-shaft

Always use the pto-shaft as prescribed by the manufacturer.

Should the shear bolt fitted between the implement side pto-yoke and the gearbox input shaft flange shear off frequently and on tractor's with hydraulically actuated pto-clutch it is recommended to use the friction clutch K94/1 (option) on the pto-shaft.

5.1.1 Fitting and matching the pto shaft

Fitting the pto-shaft

Before fitting clean the implement's gearbox input shaft and supply grease onto it before fitting the pto-shaft to the input shaft to prevent corrosion there!

- Slacken tapered grease nipple in the link-up yoke.
- Slide the link-up yoke onto the gearbox input shaft below the metal universal joint guard.
- Connect the flange plate of the yoke and the flange plate at the gearbox input shaft with a shear bolt.
- Retighten tapered grease nipple

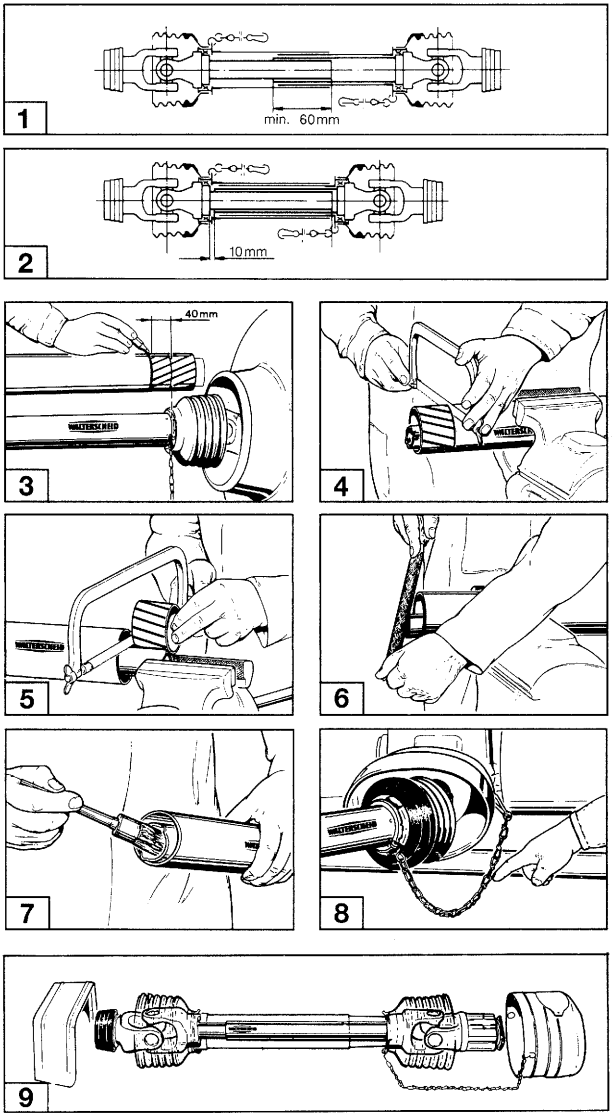


Fig. 5.2

Matching the pto shaft to the tractor

When first mounting the machine to the tractor match the pto shaft according to Fig. 5.2. As this matching refers only to the one tractor type this matching procedure should be repeated and checked whenever a different tractor is used.

When first mounting the machine to the tractor, the pto shaft half should be separated and the front half should be fixed to the tractor's pto but not inserted in the implement half which remains on the implement.

1. By holding the two pto shaft halves side by side check whether a minimum overlap of 60 mm of the two pto profile tubes is ensured when the broadcaster is lowered to the ground as well as when it is lifted to the operational height.
2. Ensure that the shaft halves do not „bottom" against the universal yokes. A safety spacing of at least 10 mm should be attained.
3. For the length determination of the two pto shaft halves they should be held side by side in the shortest operational position and marked.
4. Shorten both inner and outer guard tube by the same amount.
5. Shorten inner and outer sliding profile tubes by the same amount as the guard tubes.
6. Make safe edges and remove carefully all cutting dust.
7. Grease sliding profile tubes and slide one into the other.
8. Hook in fixing chains in such a way into the hole of the bracing of the upper link bracket that a sufficient swivelling possibility of the pto shaft in all operational positions is ensured and the pto shaft guard is kept from spinning.
9. Operate only with completely guarded drive shafts.
   - Pto shaft with complete guard tubes, guarding bellows and additional guards on the tractor and implement gearbox side. Replace any damaged guards immediately.

Do not exceed the maximum pto shaft angling of a universal kit being 25º.

Also adhere to the pto shaft manufacturer's fitting and maintenance advice fitted to the pto shaft.

To avoid any damage to the pto shaft engage slowly at a low tractor engine speed.

When parking the fertilizer spreader the pto shaft should be placed into the catching hook (Fig. 5.1/4).

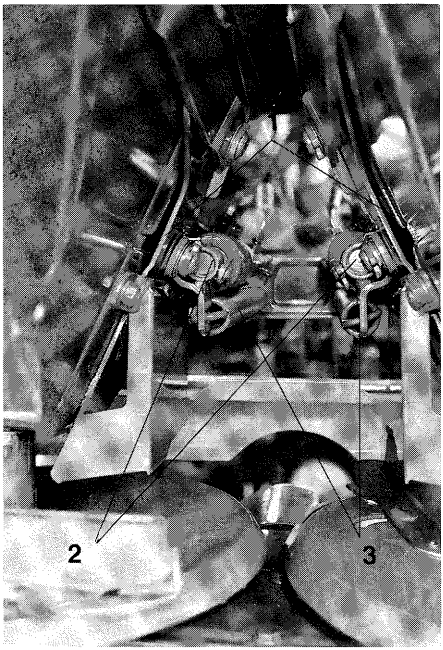


Fig. 5.3

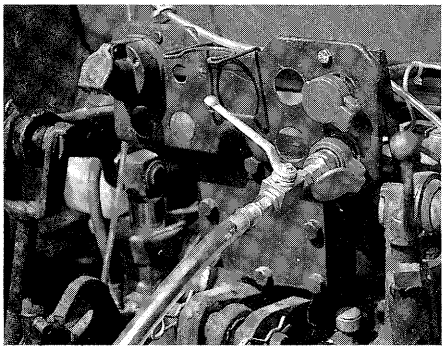


Fig. 5.4

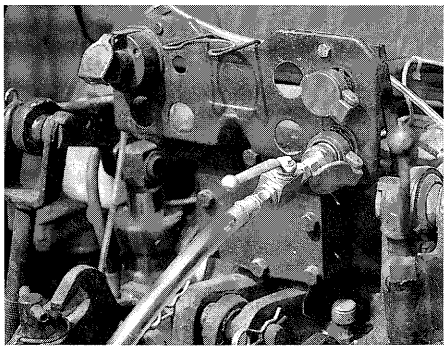


Fig. 5.5

5.2 Hydraulic shutter control

To avoid any damage to the broadcaster the pressure in the tractor's hydraulic should not exceed 230 bar (3220 lbs/sq").

The hydraulic hoses are connected to a single acting control valve on the tractor. For shutting the control valve lever at the tractor should be pushed in direction of **„lifting"** and for opening towards **„lowering"**.

The broadcaster's two openings are controlled by shutter slides (Fig. 5.3/1) whereby hydraulic rams (Fig. 5.3/2) shut the opening and a coil spring (Fig. 5.3/3) opens it.

For broadcasting to one side only, e. g. left hand boundary spreading with boundary spread deflector (option):

- Close shutter slide.
- Set corresponding shutter slide (here left hand) to scale fig. **„0"**. Due to this when opening the shutter slided for the next time only the right hand shutter slide is opened (please refer also to para. 7.29:

When the control valves are leaking and/or after longer pauses, e. g. transport travel, shutting the block

6.0 Transport on public roads and ways

When travelling on public roads and ways the tractor and the machine must correspond to the traffic rules and regulations. According to the traffic rules and regulations rear lights and warning plates are required on agricultural and forestry mounted implements. Vehicle owner as well as the operator are responsible for adhering to the legal advice.

- If the rear lights and direction indicators or the registration number plate pulling vehicle are covered by the mounted broadcaster they must be repeated on the mounted implement. If mounted implements are exceeding the rear or side limiting lights of the pulling vehicle for more than 400 mm such lights must be put in front of the mounted implement including warning plates. If the mounted implement reaches for more than 1 m behind the tail lights of the pulling vehicle then warning plates, rear light units and rear reflectors are required. These rear light kits and possibly required warning plates and reflectorss can be obtained directly from the manufacturer or in the trade. Nevertheless the national legal advice valid on the date of use should be checked and adhered to. (Please also check para 10.7).
- During road transport the broadcaster may only be lifted to such an extent that the upper edge of the rear reflectors are in maximum 900 mm above the ground.
- Check always the rear light kit's function.
- Always adhere to the maximum permissible payload (please refer to para. 3.0, item 29).

Depending on the tractor type and size the front axle load will be differently releaved when lifting the broadcaster. Make sure that the required tractor front axle load (20 % of the tractor's net weight) is attained!

- The pulling eye of the broadcaster must only be used for towing suitable implements or twin axle trailers if:
  - the forward speed of 25 k.p.h. is not exceeded,
  - the trailer is equipped with a run-on brake or a brake which can be controlled by the operator,
  - the total permissible weight of the trailer is not more than **1.25 times** of the total weight of the towing vehicle, but in maximum **5 tons**.

Pulling single axle trailers by the pulling of the broadcaster is strictly prohibited.

- The application of excessive vertical load on the towing jaw is very dangerous and will damage the spreader.
- The transport width must not exceed 3 m, e. g. when the row spreading device (option) for maize fertilizing it attached.

When driving on public roads all control levers whould be locked against unintentional lowering..

In case of leaking control valved and/or longer pauses, e. g. road transport travel, shutting the block tap prevents a self opening of closed shutter slides (please see para. 5.2)..

Please adhere to these advice. They help to prevent accidents in public road traffic.

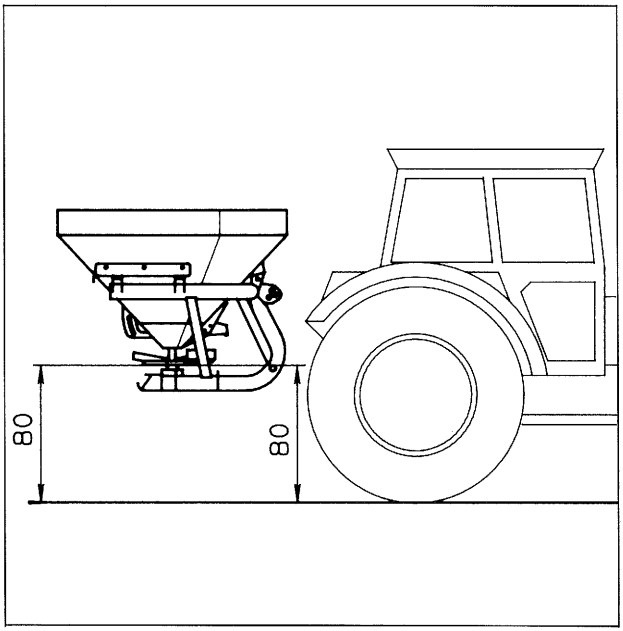


Fig. 7.1

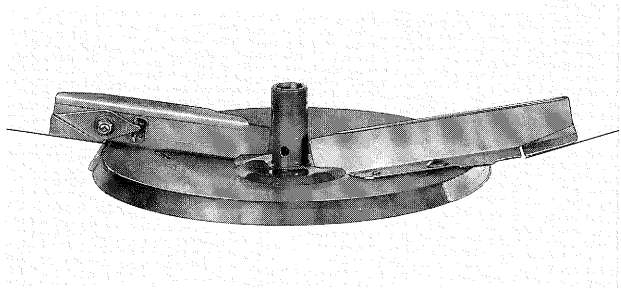


Fig. 7.2

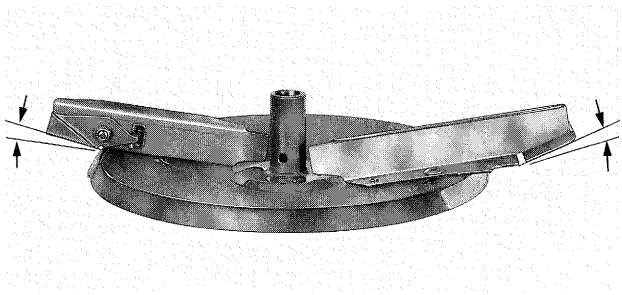


Fig. 7.3

7.0 Setting up broadcaster for operation

All kinds of commercially available fertilisers are repeatedly test-run in the **AMAZONE-test hall** and the setting data and special hints determined are included in the **AMAZONE ZA-OC-setting chart.** The kinds of fertilisers mentioned in the setting chart were in perfect condition at the time of determination of their setting data.
Fertilisers even from the same brand and kind may be of different condition as a result of influences by weather and/or unfavourable storing conditions, variations of the physical fertiliser properties which may result in the change of the fertiliser's spreading properties which may make it necessary to deviate from the figures given in the setting chart for finding the proper setting to obtain the desired spread rate or the desired working width. A guarantee that your fertiliser even with the same name and from the same manufacturer will have the same spreading properties as the fertiliser tested by us cannot be assumed.

Figures stated in the setting chart may only be used as guide lines. We recommend to determine the required shutter settings by the calibration kit (option*) before every spreading start.

Should there be any doubt as to the fertiliser's identity the effective working width can be checked with the mobile test kit (option*)..

For a trouble-free operation of the broadcaster the use of standard supplied foldable sieves is recommended to prevent foreign particles blocking the hopper outlets.

7.1 Setting the mounting height

When setting the mounting height ensure that no one will be in the danger area behind or under the machine as the machine may tip over to the rear when the top link halves are accidently driven out or when they are torn apart.

The machine's mounting height should be set with a filled hopper in the field according to the details of the setting chart. The measurements are conducted at the spinner disc front and rear edge down to the ground surface (Fig. 7.1).

7.1.1 Normal fertilising

The stated mounting heights, usually horizontal 80/80, are to be understood in cm for normal fertilising. **For normal fertilising the swivel blades of the spreading vanes are usually in the „down" position** (Fig. 7.2) (Adhere to the advice in the setting chart.)

* options may vary from country to country

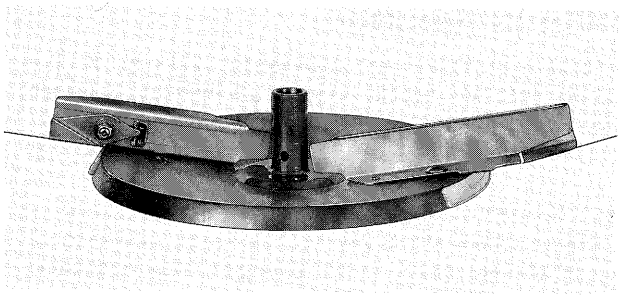


Fig. 7.2

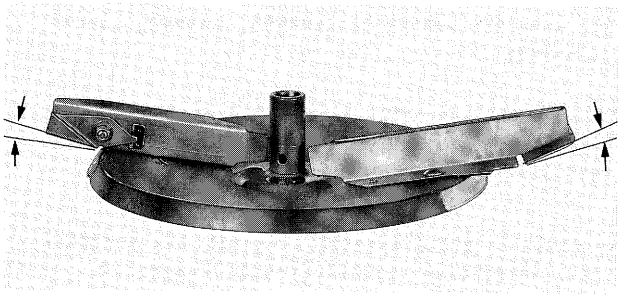


Fig. 7.3

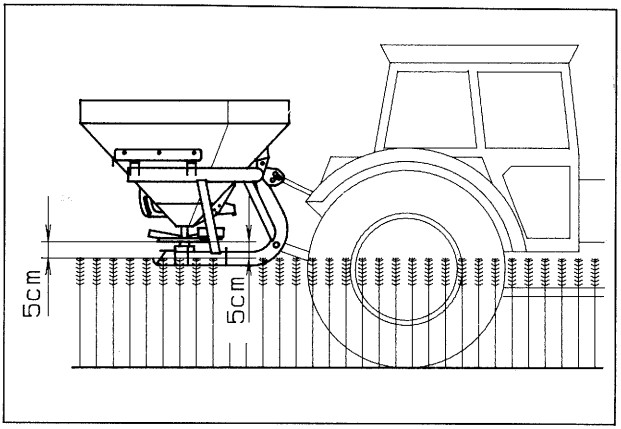


Fig. 7.4

In the course of spring fertilising when the crop has grown to a height of **10 - 40 cm**, **half the crop's height should be added to the stated mounting heights (e. g. 80/80,** i. e. at a **crop height of 30 cm the mounting height of 95/95** should be set. In case the crop has grown taller the machine should be set according to the advice for late top dressing (Para. 7.1.2). In dense crops (rape) set the broadcaster with the stated mounting height (e. g. 80/80) **above** the top of the crop. If crop has grown to such a height where this is not possible the machine should be set according to the advice for late top dressing (Para. 7.1.2).

7.1.2 Late top dressing

The spreading discs are as standard equipped with vanes which allow besides normal fertilising also late top dressing of crops to a height of up to 1 m **without** any further optional equipment

For late top dressing push the swivel blades of the vanes upwards (Fig. 7.3) without slackening the nuts (without tools). Hereby the ballistic curve of the fertiliser is raised.

Set the mounting height of the spreader on the tractor's three-point-linkage hydraulics to such a height that the gap between the top of the crop and the spreading discs is set **about 5 cm** (Fig. 7.4). If the lifting height of the tractor's hydraulic is insufficient a grain lowerer (option) should be installed which pushed the grain in the area of the spreading discs downwards.

If during late top dressing the universal joint of the pto shaft exceeds 25º use a wide angle universal joing shaft (option).

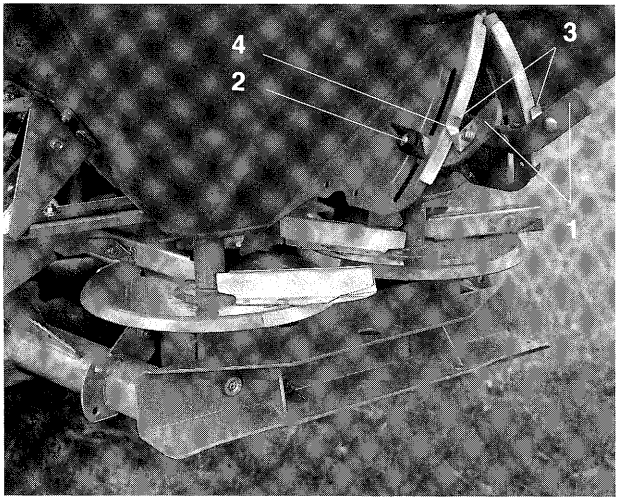


Fig. 7.5

7.2 Setting the spread rate

The spread rate is set on the mounted machine with the connected hydraulic shutter control. Spread rate settings or adjustments should only be conducted with closed shutter slides.
For achieving the required spread rate the necessary shutter position is set by the two setting levers (fig. 7.5/1). The setting levers are a stop for the shutter slides so that it is possible to set varying opening sizes of the outlet openings. The required shutter slide position can either be determined **with** the standard supplied setting chart or with the calibration device (option*).

7.2.1 Determining the desired shutter position according to the setting chart (standard equipment)

The shutter slide position for the shutter levers may be taken directly from the setting chart - by considering the kind of fertiliser to be spread, working width, intended working speed and required spread rate.

The required shutter slide position is set by the setting lever as follows:

- Close shutter.
- Slacken thumb nut (Fig. 7.5/2).
- Set the read-off edge (Fig. 7.5/3) of the setting lever pointer (fig. 7.5/4) onto the figures taken from the setting chart (shutter slide position).
- Retighten thumb nut.

Example:

Kind of fertiliser:	CAN 27 % BASF (white)
Working width:	12 m
Operation speed:	8 kph
Desired spread rate:	350 kg/ha

For the spread rate of 350 kg/ha the setting chart shows the required shutter lever position: **"19".**

- Set the shutter slide position by the shutter lever as described to the scale figure **"19".**

The setting figures of the setting chart may only be taken as guide lines as the spreading properties of the fertiliser kinds may change and thus may result in changes of the spread rates to be set. Therefore it is recommended to determine the desired shutter slide position for the wanted spread rate with the calibration device (option*).

*Options may vary from country to country.

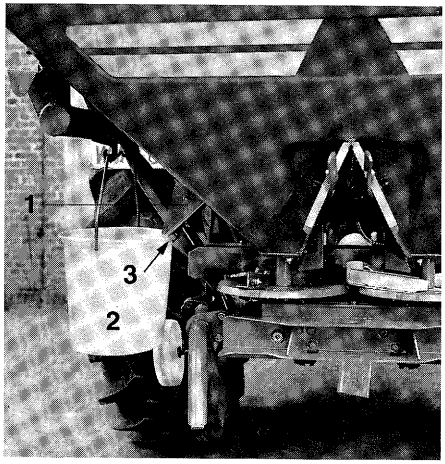


Fig. 7.6

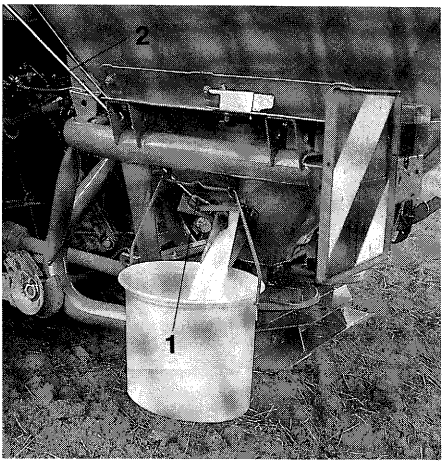


Fig. 7.7

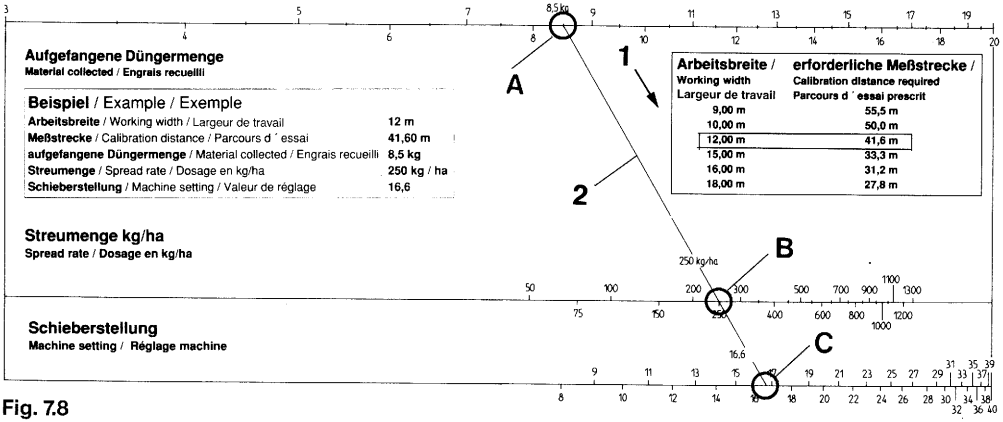


Fig. 7.8

7.2.2 Determination of the required shutter position by Quantrol (calibration kit, option*)

With the calibration kit „Quantrol" (Fig. 7.6/1) the shutter position for the desired spread rate can be determined **without setting chart** but with the **Nomogram** or the **disc rule**. Hereby the changeable spreading properties of the fertiliser kinds are already considered during the determination of the shutter slide setting position.

Determine the shutter slide position as follows:

Example:

Desired working width:	12 m
Desired spread rate:	250 kg/ha
Intended operational speed:	8 kph

When determining the shutter slide position both shutters of the hopper outlets remain closed and the pto shaft is stopped.

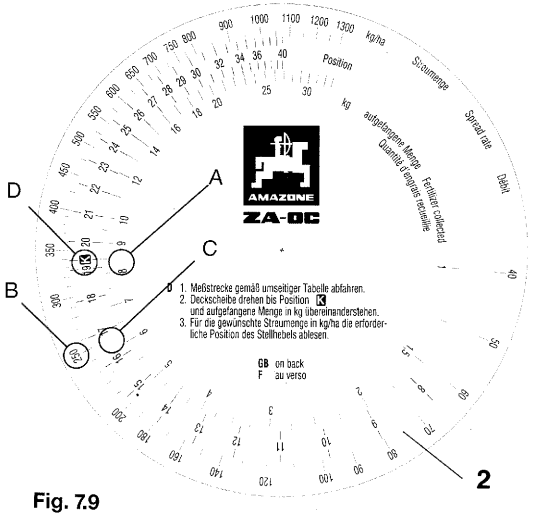
- Hang the collecting bucket (Fig. 7.6/2) to the hooks provided on the main frame. The bucket should lock with its clamping device (Fig. 7.6/3).
- To ensure an even flow of fertilizer completely open the side shutter slide (Fig. 7.7/1) of the guide chute for approx. 5 seconds by means of the rope provided (Fig. 7.2/2). Thereafter pour the collected fertiliser back into the broadcaster.
- For the desired working width **(12 m)** read off the table (Fig. 7.8/1) of the Nomogram (Fig. 7.8) or from the table (Fig. 7.9/1) on the back of the disc rule (Fig. 7.9/2) the required calibration distance **(41,6 m)**. Measure accurately the test distance in the field and mark starting and end point.
- **Drive accurately the test distance from the start till the end point under field conditions, i. e. with the intended constant operational speed**. Then **open the side shutter slide of the guide chute by means of rope accurately at the test distance starting point completely** (pull against stop) and **shut it at the finish point.**
- Weigh the amount of fertiliser collected in the bucket. At the driven test distance **(41.6 m)** at a constant working speed **(8 kph)** the collected fertiliser weighs **8.5** kgs.

a) Determe the shutter slide position with the aid of the Nomogram (Fig. 7.8)

The Nomogram consists of:

1. an upper scale **„A"** for the amount of fertiliser between „3 and 20" kgs collected during the spread rate check.
2. a central scale **„B"** for the desired spread rate between „50 and 1300" kg/ha.
3. a lower scale **„C"** for the shutter slide position of „8 up to 40".

* options may vary from country to country



Arbeitsbreite Working bout width Largeur de travail	Erforderliche Meßstrecke Required forward distance Parcours d'étalonnage
9,00 m	55,50 m
10,00 m	50,00 m
12,00 m	41,60 m
15,00 m	33,30 m
16,00 m	31,25 m
18,00 m	27,75 m

GB
1. Start machine and drive distance according to table above.
2. Turn position figure chosen K above kg figure of collected material.
3. Now look for wanted spread rate below of which the corresponding
4. position is found.

F
1. Parcourir le trajet d'étalonnage selon le tableau ci-dessus.
2. Faire correspondre la quantité d'engrais recueillie en kg avec le point K de l'échelle.
3. Lire alors la position du levier de réglage nécessaire correspondant au débit souhaité en kg/ha.

MH 084
D-GB-F

Fig. 7.9

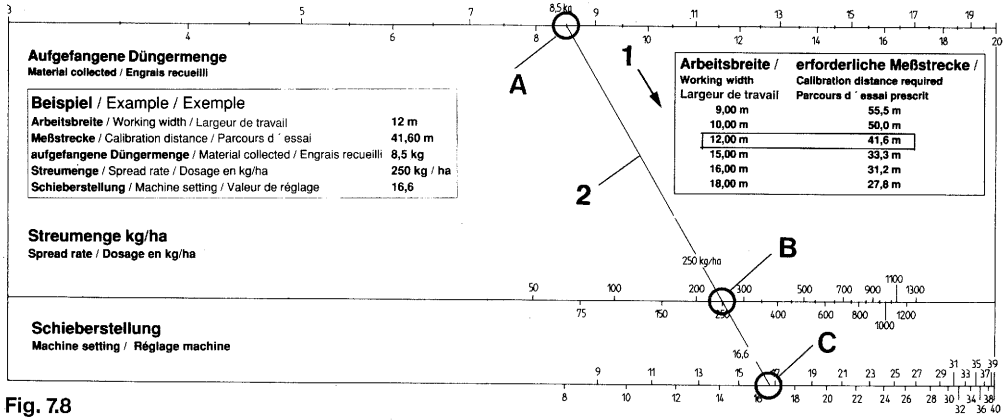


Fig. 7.8

- For the collected weight of fertiliser (8.5 kg) find the figure on the upper scale (Fig. 7.8/**A**) and for the desired spread rate (250 kg/ha) find the figure on the central scale (Fig. 7.8/**B**). Draw a straight connecting line (Fig. 7.8/2) to both points (e. g. with a rule, thread). Extending the linking line to the lower scale (Fig. 7.8/**C**) indicates the required shutter slide position **„16.6“.**

b. Determining the shutter slide position by the disc rule

The disc rule consists of:

1. the inner scale circle **„A“** for the weight of fertiliser between „1 and 30“ kg collected at the spread rate test.
2. an outer scale circle **„B“** for the desired spread rate between „40“ and „1300“ kg/ha.
3. a middle scale circle **„C“** for the shutter slide position of „8“ up to „40“.

- For the collected weight of fertiliser (8.5 kg) find the figure on the inner scale (Fig. 7.9/**A**) and align with the shutter slide position **„K“** (Fig. 7.9/**D**) of the middle scale „C“.
- Look for the desired spread rate (250 kg/ha) on the outer scale (Fig. 7.9/**B**) and read off the required shutter slide position „16.6“ on the middle scale (Fig. 7.9/**C**).

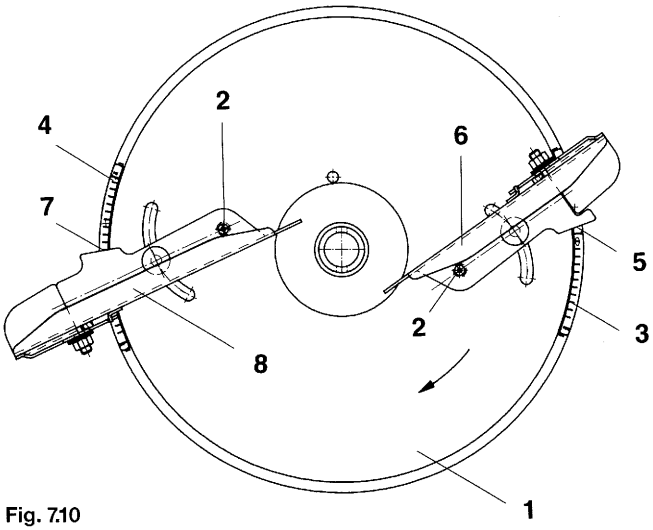


Fig. 7.10

7.3 Setting the working width

The working width is influenced by the individual spreading properties of the fertiliser. The most important parameter of the spreading properties are, as you may be aware, the granule size, bulk density, surface texture and humidity. In dependence of the individual kind of fertiliser the **„Omnia-Set“** (Fig. 7.10/1) spreading discs allow the setting of varying working widths between **10** and **18 m**, e. g. for matching the existing tramline spacings. For setting different working width the angle of the spreading vanes can steplessly be changed around the pivoting point (Fig. 7.10/2).

By Swivelling the spreading vanes in spinning direction of the discs (to a higher figure value of the scale) the working width will be increased. When swivelling the vanes against the spinning direction of the disc the working width is reduced.

7.3.1 Swivelling the spreading vanes.

Take from the **ZA-OC setting chart** the required vane positon related to the particular fertiliser to be spread and to the desired working width. If it is impossible to correlate the fertiliser clearly to a certain type mentioned in the **ZA-OC setting chart** the **AMAZONE fertilising advisory service** may be contacted by phone through your dealer or the correct setting can be determined after having sent in a small fertiliser sample (3 kgs). Soon after arrival of the fertiliser sample the **AMAZONE fertilising advisory service** will be in a position to provide setting recommendations.

For an exact tool-less setting of the individual spreading vane positions different unmistakable scales (Fig. 7.10/3 and fig. 7.10/4) are placed on the spreading discs.

Example:
Kind of fertiliser: CAN 27 % N, granular, BASF (white); Hydro DSM, Kermira
Desired working width: 12 m

Vane position for this type of fertiliser and the working width from the setting chart: „8/41“.

Kind of fertiliser		vane position at working width:				
		10 m	12 m	15 m	16 m	18 m
CAN 27 % N, granular	Omnia-Set	8/41	8/41	9/43	9/43	10/43
BASF (white)	Tele-Quick	A/47	B/47	D/47	E/47	F/47

Extract of the setting chart.

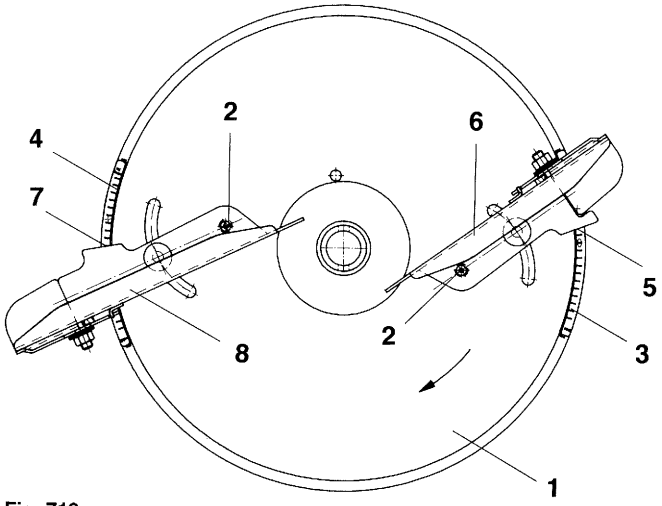


Fig. 7.10

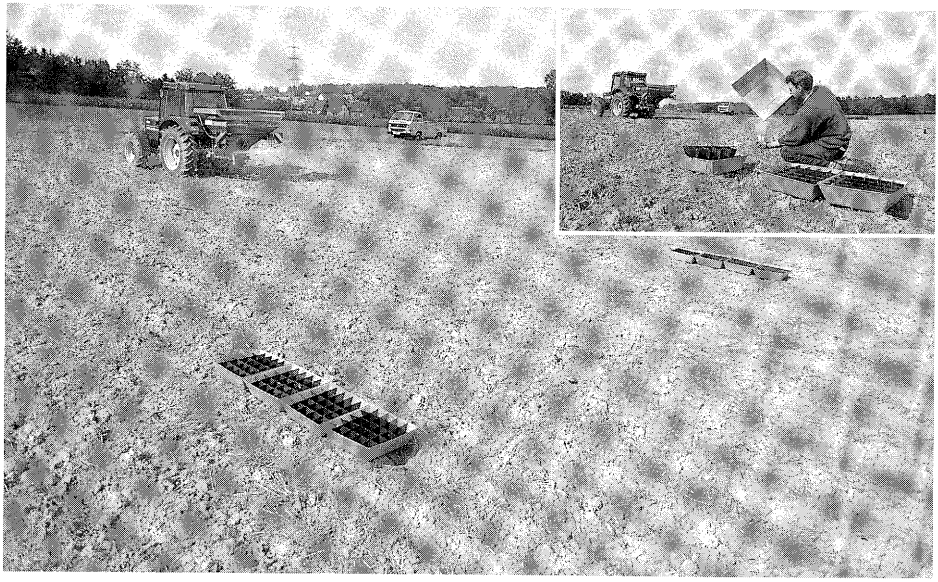


Fig. 7.11

Set the spreading vanes on the spreading discs as follows:

- Slacken thumb nut under the spreading disc.
- Slide read off edge (Fig. 7.10/5) of the short vane (Fig. 7.10/6) on Fig. „8" of scale (Fig. 7.10/3) and retighten thumb nut.
- Slide read off edge (Fig. 7.17/7) of the long vane (Fig. 7.01/8) on Fig. 41 of scale (Fig. 7.10/4) and retighten thumb nut.

7.3.2 Checking the working width by the mobile test kit (option*)

The setting figures in the setting chart should only be taken as **guide figures** as the spreading properties of the various kinds of fertiliser change and thus may result in spreading errors (not achieving the desired working width). In case of any doubt or when having unknown fertilisers it is recommended to check the set working width of the broadcaster with the **mobile test kit** (Fig. 7.11).

* options may vary from country to country

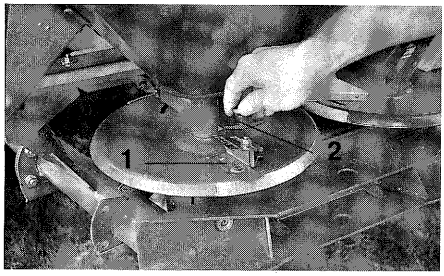


Fig. 7.12

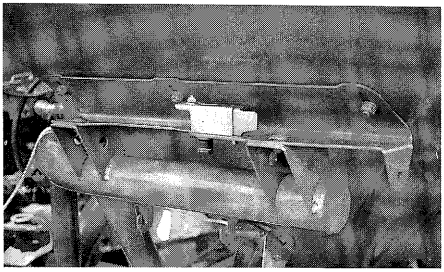
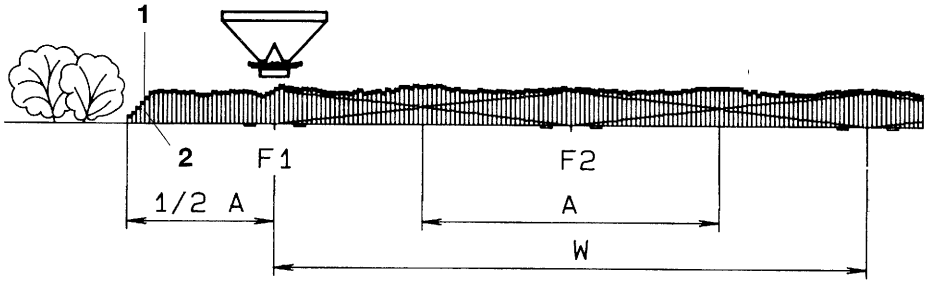


Fig. 7.13



	F1 F2	A	W
D	Fahrgassen	Arbeitsbreite	Wurfweite
GB	Tramlines	Working width	Total throwing width
F	Voies jalonees	Largeur de travail	Portee de la projection

Fig. 7.14

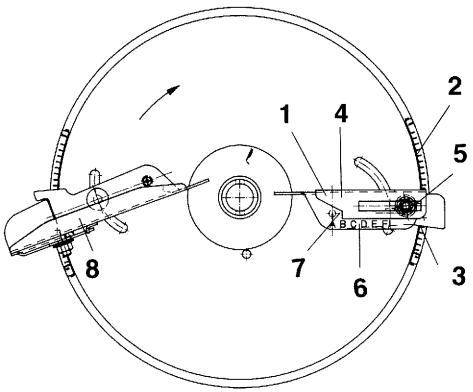


Fig. 7.15

7.4 Spreading along the field sides

For spreading along field sides or field boundaries the boundary spread vane **„Tele-Quick“** (Fig. 7.12/1) (standard“) for spreading the **left hand field boundary** or the border spread deflector (Fig. 7.17) (option*) is used.

7.4.1 Broadcasting to the field's edge with the boundary spread vane „Tele-Quick“ (Centre of the tramline off the field's edge)

- Exchange the long spreading vane of the left hand **„Omnia-Set“** spreading disc (seen in driving direction) for a boundary spread vane „Tele-Quick“ (Fig. 7.12/1). **When not in use the boundary spread vane „Tele-Quick“ or the long spreading vane can be bolted to the side of the machine (Fig. 7.13).**

With the swivellable, telescoping boundary spread vane „Tele-Quick“ the throwing width of the fertiliser towards the field's edge can be matched with the distance of the first tramline towards the field's edge (Fig. 7.14).

7.4.1.1 Setting the boundary spread vane to varying tramle spacings

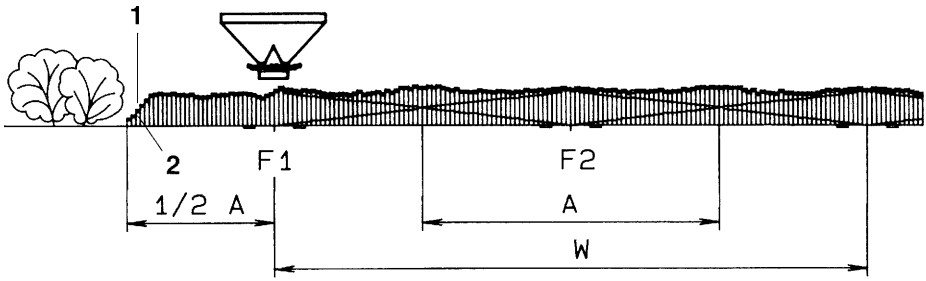
Depending on the type of fertiliser to be spread and the distance of the first tramline to the field's edge the boundary spread vane „Tele-Quick“ should be set according to the setting chart as follows:

a) Swivel the boundary spread vane (Fig. 7.15/1) after slackening the thumb nut horizontally within the range of the scale (Fig. 7.15/2) on the spreading disc. Read off scale setting figure at the read-off edge (Fig. 7.15/3).

   Operation:
   When swivelling the boundary spread vane to a higher setting figure on the scale: **Throwing width larger, drop off the one side (Fig. 7.14/1) steeper**.

b) The outer vane part (Fig. 7.15/4) can, after slackening the nut (Fig. 7.15/5), e. g. with the inner hexagon hole of the thumb nut (Fig. 7.12/2), is extendable gradually along the scale (Fig. 7.15/6) to positions **„A to F“.** The individual position of the outer vane part can be read off at the read-off edge (Fig. 7.15/7) of the scale.

   Operation:
   Moving the vane outer part on the scale in direction „F“: **Throwing width increased to one side, drop off to the other side becomes shallower (Fig. 7.14/1).**



	F1 F2	A	W
D	Fahrgassen	Arbeitsbreite	Wurfweite
GB	Tramlines	Working width	Total throwing width
F	Voies jalonees	Largeur de travail	Portee de la projection

Fig. 7.14

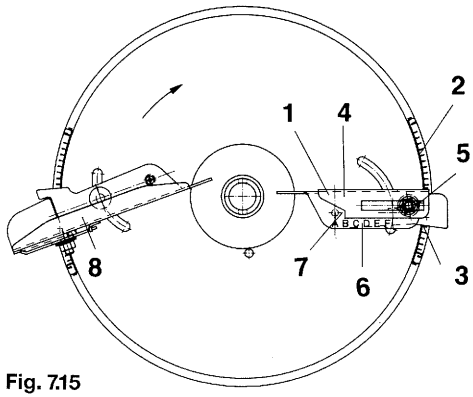


Fig. 7.15

For differing working widths and fertiliser kinds take the necessary vane positions from the setting chart.

Type of fertiliser		vane position at working width:				
		10 m	12 m	15 m	16 m	18 m
CAN 27 % N, granular	Omnia-Set	8/41	8/41	9/43	9/43	10/43
BASF (white)	Tele-Quick	A/47	B/47	D/47	E/47	F/47

Extract from the setting chart.

For the best possible distribution of fertiliser to the field's boundary it is recommended - when using the boundary spread vane - to set the spread rate setting lever at the left hand machine side strictly by 2 lines backwards..

This measure is recommended because with spinner disc fertiliser broadcasters it is impossible to produce spread patterns with a vertical drop off at the side but only spread patterns with a steep angled drop off (Fig. 7.14/1) (the spread rate is increasing towards the side of the spread pattern). The lateral fertiliser distribution cannot be ensured 100 % to the field's side. The outer distribution area (Fig. 7.14/2) by the left hand spinner disc equipped with the boundary spread vane (towards the field's side) will be covered with a lower spread rate (slight under-supply of fertiliser), whereby the remaining amount of fertiliser is being distributed to the middle area of the spread pattern.

After termination of a boundary spreading return the spread rate setting lever into the initial position and fix it there..

The spread patterns may deviate from those shown herein..

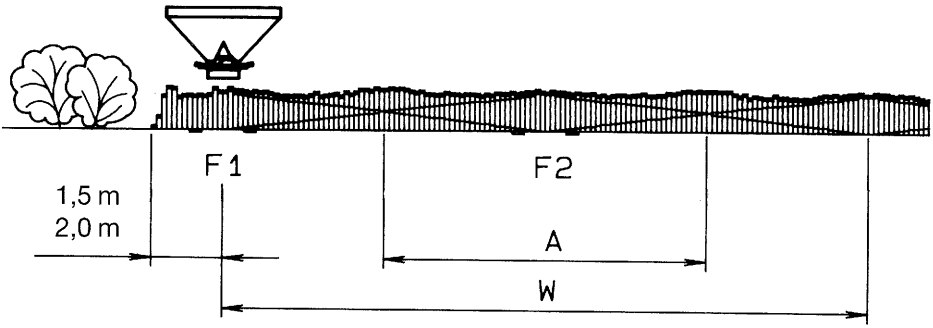
Example:

Distance of the first tramline towards the field's boundary:: 6 m (12 m working width)
Type of fertiliser: CAN 27 % N, granular, BASF (white)
Setting from the setting chart: Tele-Quick **„B/47"**

- Set read off edge (Fig. 7.15/7) to **„B"** and read off edge (fig. 7.15/3) to **„47"** and affix.

Special case:

At 10 m working width it may happen that with some types of fertilisers they will be thrown beyond the field's boundary. If this amount appears to be too high set backwards spreading vane (Fig. 7/15/8) of the spinner disc on the side of the field's boundary to the scale figure **„0".**



	F1 F2	A	W
D	Fahrgassen	Arbeitsbreite	Wurfweite
GB	Tramlines	Working width	Total throwing width
F	Voies jalonees	Largeur de travail	Portee de la projection

Fig. 7.16

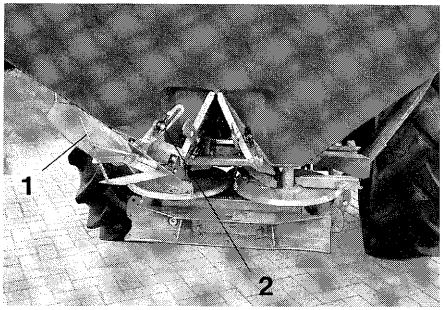


Fig. 7.17

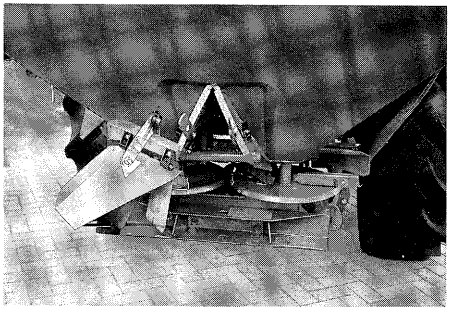


Fig. 7.18

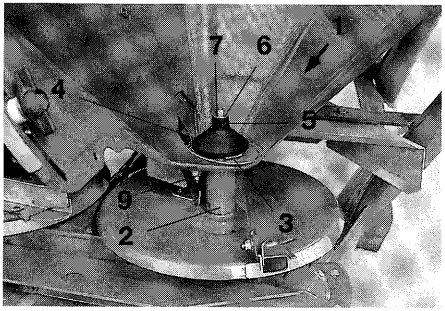


Fig. 7.19

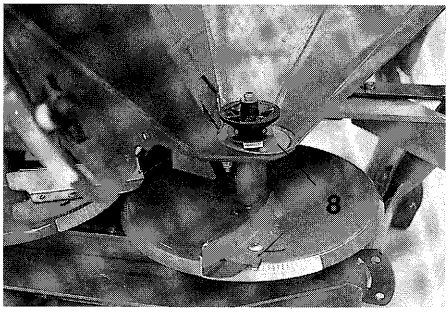


Fig. 7.20

7.4.2 Half sided boundary spreading with boundary spread deflector (option*) (Tramline centre 1.5 to 2.0 m from the field's boundary

When the first tramline has been laid down by the first seed drill's bout (Fig. 7.16) (at a 3 m wide seed drill the distance of the first tramline towards the field's side is 1.5 m) operate with the boundary spread deflector (Fig. 7.17/1) as follows:

- **Close left hand rate setting lever**
- Swivel the boundary spread deflector (Fig. 7.17/1) after slackening the thumb nut (Fig. 7.17/2) from the out of operation-(Fig. 7.17) into the operation position (Fig. 7.18).
- Lock the boundary spread deflector into its position by tightening the thumb nut.

This way fertiliser is only be spread towards the field's boundary in a width of 1.5 to 2 m from the centre of the broadcaster.

7.5 Cone stirrer head

Fig. /7.19/ . . or resp. 7.20/ . .

1- Cone stirrer head cpl.
2- Stirrer base.
3- Ejector; from non-corrosive material.
4- Stirrer cone. When spreading dull or damp fertilisers the ejecting effect of the ejector can be improved by changing the mounting of the stirrer cone according to Fig. 7.20 (exceptional case).
5- Spring element; functions as overload safety device and allows the ejectors to give way upwards or against the spinning direction , e. g. solid foreign particles get inside the machine.
6- Washer.
7- Self-locking nut M 8 DUZN.
8- „Floating" hopper bottom; made from non corrosive steel. In case of wear the hopper bottom can easily be exchanged after removal of the stirrer head. The hopper bottom with its hole for the stirrer head's drive shaft is horizontally movably mounted. This ensures that the hopper bottom can centre itself towards the rotating drive shaft. This helps to prevent a too big a friction between the hopper bottom and the drive shaft which otherwise could - due to heat development - lead to a caking of the fertiliser.

When exchanging the hopper bottom only tighten the nuts (Fig. 7.19/9) so that its movability (in horizontal direction) is ensured. (Hint: first tighten the nut and then slacken it by half a turn.).

* options may vary from country to country

7.6 Hints for spreading slug pellets (e. g. Mesurol)

1. The broadcaster **AMAZONE ZA-OC** in its standard supplied execution is also suited for broadcasting slug pellets. The slug pellets (e. g. Mesurol) are supplied in a pellet shape or similar grains and will be spread in relatively small rates (e. g. 3 kg/ha).
2. When filling the broadcaster avoid inhaling dust of the products and direct contact with your skin (wear protective gloves). After the operation wash thoroughly hands and all exposed skin areas with water and soap.
   Furthermore when handling slug pellets we draw your attention to the advice of the manufacturers and to the general safety and care advice for handling plant protective agents by the Health and Safety Executive.
3. When spreading slug pellets please ensure that the hopper outlets are always covered with spreading material and that the machine is operated with a constant pto-speed of 540 R.P.M. A surplus amount of approx. 0.7 kg in each hopper tip can no longer be spread accurately. For emptying the broadcaster open the shutter slides and collect the material running out on a sheet.
4. The settings of the broadcaster can be taken from the setting chart. These statements should be used as guide lines. Before the operation a spread rate check (Para. 7.2.2) should be conducted. Due to the small spread rate it is recommended to at least triple the measuring distance.
5. Slug pellets may **never** be mixed with fertiliser or other materials to perhaps be in a position to operate the broadcaster in another setting range.

7.6.1 Combination Matrix for broadcasters for spreading slug pellets (Draza, Mesurol)

	Type of Machine						Choice at random				
	Hopper										
	ZA-OC 700	ZA-OC N 1007	ZA-OC L 1207	ZA-OC 900	ZA-OC N 1209	ZA-OC L 1409	Calibration device	Mobile test kit	Boundary spread deflect.	Border spread vane	Hydr. single shutter control
1	x						x	x	x	x	x
2		x					x	x	x	x	x
3			x				x	x	x	x	x
4				x			x	x	x	x	x
5					x		x	x	x	x	x
6						x	x	x	x	x	x

8.0 Spedical advice for the operation

1. Mind the maximum payload (please see para. 3.0, point 29).
2. Engage pto shaft only at low tractor engine speed.

   In case of frequent shearing off the shear bolt, exchange the universal joint shaft for a pto shaft with friction clutch (option) (pleae refer to para. 10.13).
3. The pulling eye of the broadcaster may only be used for suitable following tools and two-axle trailers, when:
   - The forward speed does not exceed **25 k.p.h.,**
   - The trailer has a run-on brake or a braking device which can be operated by the operator of the pulling vehicle,
   - The permissible total weight of the trailer does not exceed **1.25 times** the permissible total weight of the pulling vehicle, however, is in maximum **5 tons**.
4. When lifting the broadcaster the front axle load of the tractor will be decreased. Always mind the necessary front axle load (**20 %** of the tractor net weight).
5. **Never get near spinning spreading discs, danger of injury! Also danger by fertiliser granules thrown off, order persons away from the danger area!**
6. Check all nuts and bolts for tightness after **3 - 4** hopper fillings, retighten if necessary.
7. With some spreading materials such as Kieserite, Excello-Granular and Magnesia Sulphate increased wear on the vanes must be taken into consideration.
8. In case of leaking control valves and/or after longer pauses, e. g. road transport, locking the block tap helps to prevent a self-opening of the shutter slide (please refer also to para. 5.2).
9. Open shutter slide only after the recommended pto-speed (e. g. 540 R.P.M.) is reached.

At some kinds of fertiliser a different pto-speed is required. Consult with your setting chart.

10. Always operate at a constant pto speed and operational speed.

11. **If the machine is driven for longer distances with a filled hopper, ensure free flow of material by opening and closing shutters before field operation. Now only start operating after having set the required spread rate.**

12. When spreading Super Phosphate, Lime Marl and damp. granular fertilisers (inproperly stored) it may be necessary before every refilling to remove any caking fertiliser in the hopper tips. Also remove any fertiliser stain from the vanes and deflectors.

13. In case of dull or damp fertilisers the delivery action of the ejectors can be improved by changing the position of the stirrer cone (please refer to para. 7.5).

14. If uneven emptying of two hopper tips is noticed despite a uniform shutter slide position check the shutter base setting (please refer to para. 9.0, point 6).

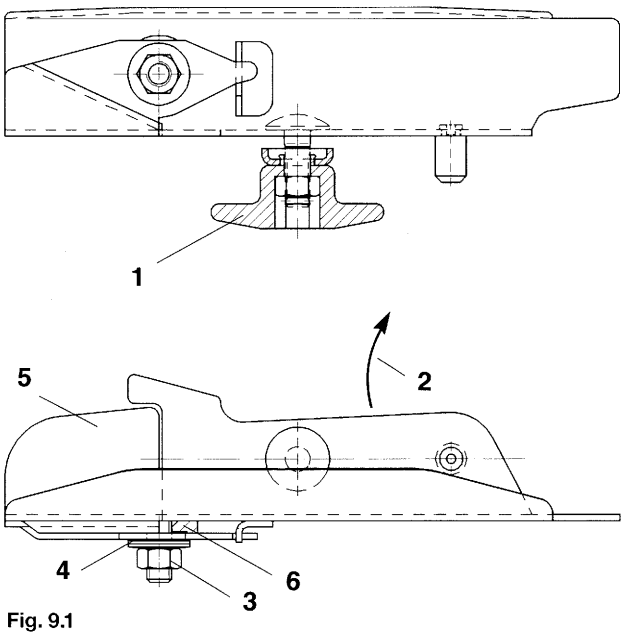


Fig. 9.1

9.0 Cleaning and maintenance

For cleaning, greasing or setting up the broadcaster or its pto-shaft always switch off the pto shaft, tractor engine and remove ignition key.

Even after having switched off the pto shaft moving parts such as discs of pto-shaft may continue spinning for a while! Therefore, before conducting any servicing work, always wait that all moving parts have come to a complete standstill..

Apply grease to the shutter slide guides after every operation.

1. After the operation clean the broadcaster thoroughly with water, apply grease to the dried machine and store with **opened** shutter slides.

Apply lubricant to the threads of the thumb nuts and bolts for the setting lever stops as well as its washers to ensure functionality of the clamping device..

2. Hang up pto shaft into the catching hooks when parking the machine.

3. Supplied 8 mm Ø bolts are spare shear bolts for fixing the splined yoke of the pto shaft to the flange of the machine's gearbox input shaft. Always apply grease onto the gearbox input shaft before fitting the pto shaft.

4. The condition of the spreading vanes including its swivel blades has a considerable effect on the uniform lateral distribution of fertiliser onto the field (striping). The spreading vanes are made from specially wear resistant stainless steel. nevertheless it should be mentioned that spreading vanes and swivel blades must be considered as wearing parts. Exchange spreading vanes as soon as wearing holes can be recognised. Exchange swivel blades as soon as in the upper area a slit is noticed. The longevity of the spreading vanes and swivel blades depends on the types of fertilisers used, operation times and the amount of fertiliser spread.

   Exchanging the spreading vanes:

   - Undo the bolts (fig. 9.1/1) and exchange vane.

Ensure correct mounting of the vanes, open side of the U-shaped vane shows into spinning direction (Fig. 9.1/2).

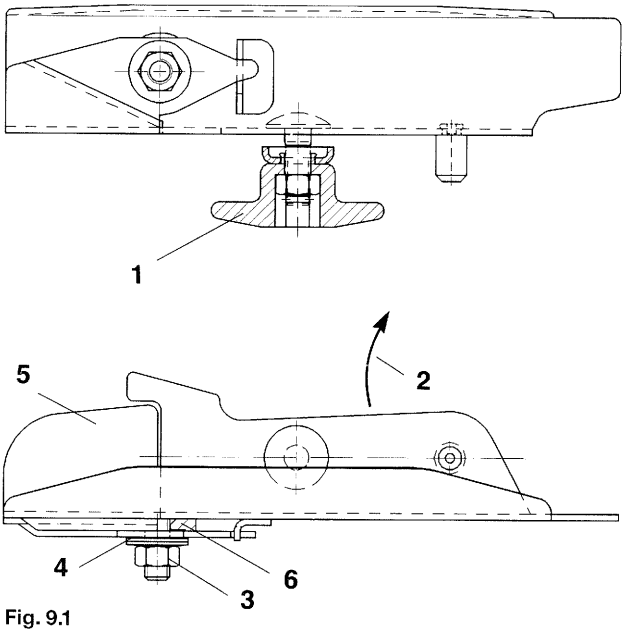


Fig. 9.1

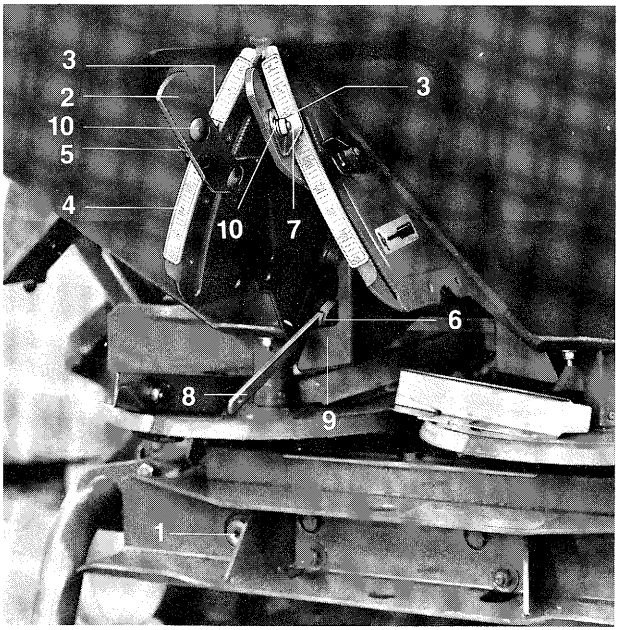


Fig. 9.2

Exchanging the swivel blades:

- Undo self securing nut (brass CuZn) (Fig. 9.1/3) and remove including dished washers (fig. 9.1/4).
- Exchange swivel blades (Fig. 9.1/5).
-

Mind the plastic washer (Fig. 9.1/6) between the main spreading vane and the swivel blade.

- Place dished washers **alternating one on top of the other.**
- Tighten the self securing brass nut with a torque of 6 - 7 Nm, so that the swivel blades can still be swivelled manually but would not move from their position to another in operation.

5. Under normal operation conditions the gearbox is free of maintenance. The gearbox is supplied by the manufacturer with a sufficient amount of gear oil. **The oil level must be visible at the oil level gauge window (Fig. 9.2/1).** Normally a refilling of oil is not necessary. Outside signs, e. g. fresh oil leaks on the parking area or on parts of the machine and/or an increased noise development, however, are a sign of an oil leakage of the gearbox housing. Try to find out cause, remedy the cause and refill with oil.
   Oil quantity for the gearbox: 1.6 l SAE 90

6. **Checking the shutter slide vane setting**

   If at a uniform shutter lever position the two hopper tips are emptying unevenly the shutter slide base position should be checked as follows:

   To ensure a uniform fertiliser supply to both spinner discs the hopper opening diameter has been set by the manufacturer with a setting gauge (26.5 mm Ø pin) with the shutter lever (Fig. 9.2/2) being set in position **„11“**. In case any faults are noticed check the hopper opening being exposed in the shutter lever position **„11“** as follows:

- Close the shutter slides.
- Set the pointer read off edge (Fig. 9.2/3) to the setting figure **„11“** of the scale (Fig. 9.2/4) and tighten the setting lever with the thumb nut (Fig. 9.2/5).
- Open shutter slide.
- At the now opened hopper outlet the setting gauge (Fig. 9.2/6) (option) should easily be pushed through.

If this is not the case (exposed hopper opening too small respectively too large) readjust the pointer (fig. 9.2/7) at the setting lever as follows:
- Shut shutter slide.
- Slacken thumb bolt of setting lever.
- Open shutter slide.

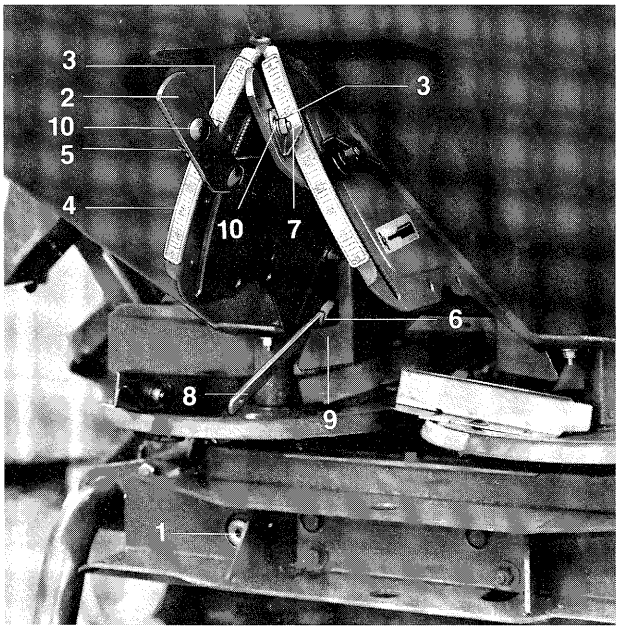


Fig. 9.2

- Insert setting gauge (option) into the hopper opening and clamp its handle (Fig. 9.2/8) behind the deflector (Fig. 9.2/9).
- Shut shutter slide.

Danger of bruizing when shutting the shutter slide..

- Swing shutter lever (Fig. 9.2/2) against the shutter slide and tighten with thumb bolt (Fig. 9.2/5).
- Slacken pointer fixing (Fig. 9.2/10).
- Set pointer read off edge (Fig. 9.2/3) to setting figure **„11“** of the scale and lock pointer (Fig. 9.2/7) in this position to the setting lever.

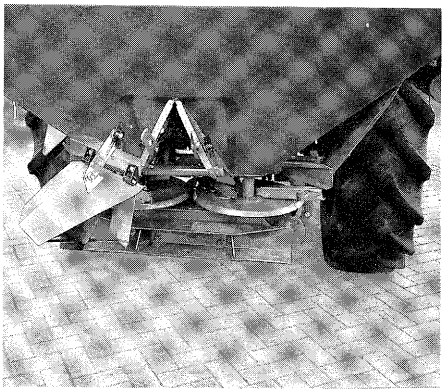


Fig. 10.1

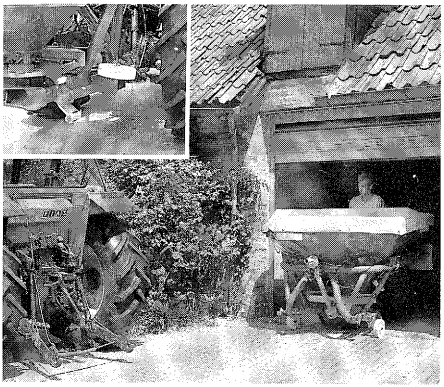


Fig. 10.2

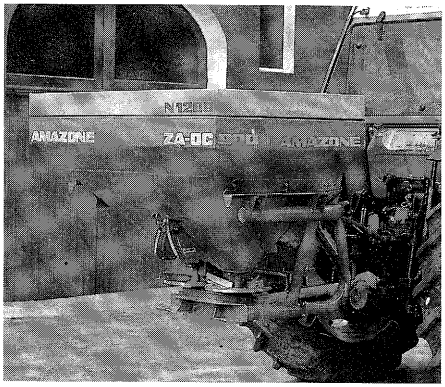


Fig. 10.3

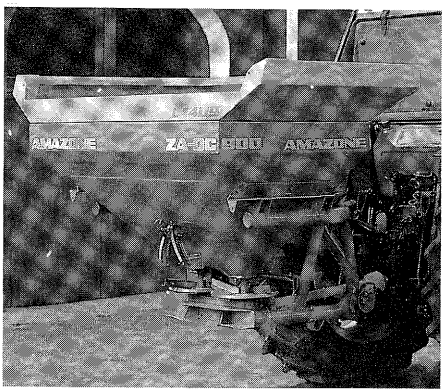


Fig. 10.4

10.0 Options

10.1 Boundary spread deflector - Order-No. 177 301 -

For one side boundary spreading when the first centre of tramline lies between 1.5 to 2.0 m off the field's boundary. Please also see para. 7.4.2 **(Fig. 10.1)**.

10.2 Trolley kit - Order-No. 133 201

The foldable trolley and parking kit facilitates the coupling to the tractor's three-point linkage and allows an easy manoeuvring on the farm yard and in buildings **(Fig. 10.2)**.

Never park or manoeuvre the unmounted broadcaster with a filled hopper.

For direct filling the broadcaster from tipping trailer fold the trolley kit sideways up.

10.3 Hopper extension for retrofitting

10.3.1 Hopper extension „N" (300 l)

The broadcaster types **AMAZONE ZA-OC 700 resp. ZA-OC 900** are retrofittable with the hopper extension type **„N"** for obtaining the broadcaster types **ZA-OC N 1007 resp. ZA-OC N 1209** (Fig. 10.3).

Hopper extension „N 1007", Order-No. 134 401
Hopper extension „N 1209", Order-No. 135 401

10.3.2 Hopper extension „L" (500 l)

The broadcaster type **AMAZONE ZA-OC 700 resp. ZA-OC 900** can be retrofitted with the hopper extension type **„L"** to obtain a broadcaster type **ZA-OC L 1207 resp. ZA-OC L 1409 (Fig. 10.4).**

Hopper extension „L 1207", Order-No. 137 401

Hopper extenion „L 1409", Order-No. 138 401

* The standard executions and options may vary from country to country.

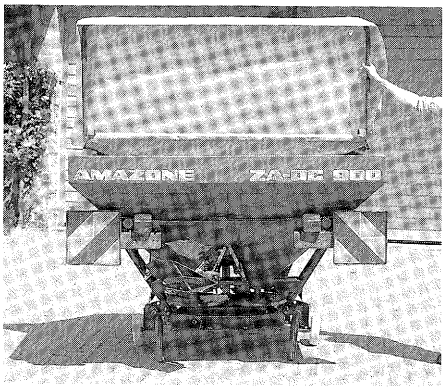


Fig. 10.6

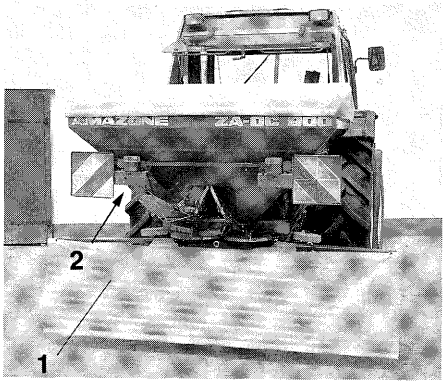


Fig. 10.7

10.4 Swivelable hopper cover

The swivellable hopper cover guarantees also in rainy weather a dry spreading material. For filling the broadcaster simply fold up the hopper cover.

10.4.1 Swivelable hopper cover „N" - Order-No. 125 502

The swivelable hopper cover **„N" (Fig. 10.6)** is suitable for:
ZA-OC 700, ZA-OC 1007, ZA-OC 900, ZA-OC N 1209

10.4.2 Swivelable hopper cover „L - Order-No. 127 502

The swivelable hopper cover „L" is suitable for:
ZA-OC L 1207, ZA-OC L 1409

10.5 Grain down keeper ZA-OC - Order-No. 119 500

The down keeper **(Fig. 10.7/1)** is required for late top dressing of grain crop being higher than 1 m whenever the lifting capacity of the tractor's three-point hydraulic is insufficient to further lift the broadcaster. The down keeper bends the grain near the spinner discs downwards so that fertiliser granules cannot damage the ears of the grain.

10.6 Traffic lights for AMAZONE tractor mounted implements

The traffic lights **(Fig. 10.7/2)** can be retrofitted and can be adjusted to suit various implements (up to 3 m wide).
For the broadcaster type **AMAZONE ZA-OC** the following is required:

Traffic lights, rear, Order-No. 144 301

The traffic lights are bolted to the rear wall of the hopper. It consists of: Lamp combination right hand and left hand; parking warning plates according to DIN 11030; licence plate carrier and connecting cable.

10.7 Hydraulic hoses for hydraulic single shutter control, Order-No. 136 401

The hydraulic single shutter control allows a one-sided spreading independent from one another. For this at the tractor **two single acting** control valves are required. If the tractors are equipped with only **one** single acting control valve the link-up is possible with the aid of the **two-way unit** (option).

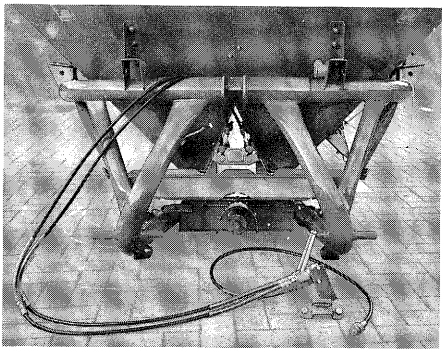


Fig. 10.8

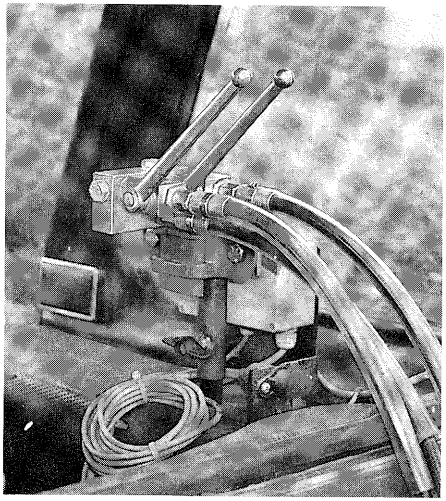


Fig. 10.9

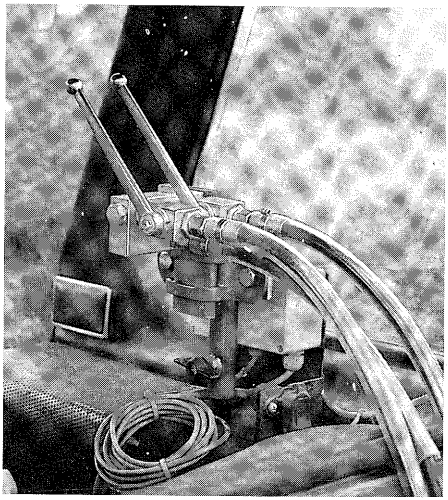


Fig. 10.10

10.8 Two-way unit (retrofit kit)

The two-way unit (Fig. 10.8) is required for the hydraulic single shutter control for tractors which are equipped with only one single acing hydraulic control valve.

Two-way units for tractors - Order-No. 176 600

Two-way unit with extended hoses for system tractors, forward controlled tractors,
Order-No. 177 600

Fig. 10.9 **Block taps shut**
Fig. 10.10 **Block taps opened**

One-sided spreading with two-way unit:

The following operations are necessary for one-sided spreading or when normally spreading onto the field and wanting to shut resp open the shutter slide independently.

a) One-sided opening of the r. h. shutter slide, e. g. at the left side boundary spreading with boundary spread deflector:

- Shut both shutter slides
- Shut block tap for hydraulic rams of the left hand hopper tip.

When actuating the control valve only the right hand shutter slide is opened resp. shut, the left hand shutter slide remains shut.

b) One-sided shutting of the right hand shutter slide during broadcasting:

- Both shutters opened.
- Shut block tap for the hydraulic ram of the left hand hopper tip.
- Set control valve to **„lift“** and thus shut the right hand shutter slide.

c) Changing from one-sided to both-sided broadcasting, e. g. switching on the left hand shutter slide:

- Right hand shutter slide opened (left hand shutter slide shut via block tap).
- Open block tap for hydraulic ran of the left hand hopper tip.
- Set control valve to **„lowering“** and thus open both shutter slides.

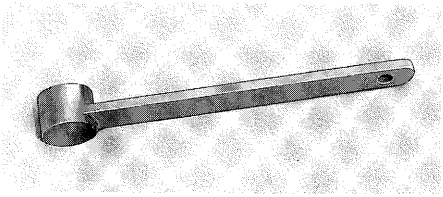


Fig. 10.11

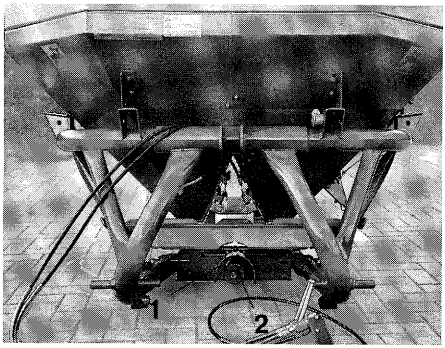


Fig. 10.12

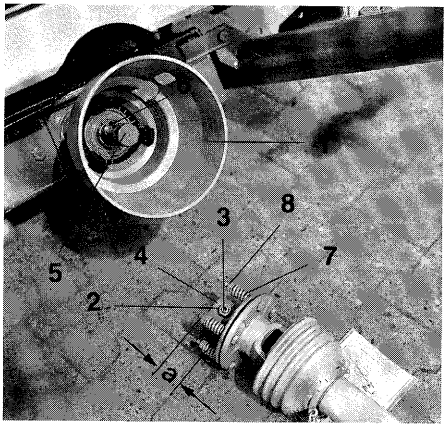


Fig. 10.13

10.9 Calibration device Quantrol - Order-No. 115 202

The calibration device is used for the **determination of the shutter slide position** (setting the spread rate) **with the aid of the Nomogram resp. disc rule, without the setting chart.** This way already during the determination of the shutter slide position the variable spreading properties of the fertiliser types are considered.

Please see also Para. 7.2.2.

10.10 Mobile test kit for checking the effective working width Order-No. 125 900

Please refer to Para. 7.3.2.

10.11 Setting gauge for checking the shutter slide base position Order-No. 175 600

Please refer to Para. 9.0, Point 6 (Fig. 10.11).

10.12 Pto-shaft with friction clutch K 94/1 - Order-No. 182 300

If the shear-bolt frequently shears off between the mounting yoke and the gear box input shaft flange and on tractors with hydraulically controlled pto-clutch the pto-shaft with friction clutch K 94/1 is recommended (Fig. 10.13).

When converting from standard pto to a pto with friction clutch the metal universal joint guard should be exchanged for a guarding hopper for universal joint (option) (acccident prevention).

Fitting

- Unbolt from gearbox neck the metal universal joint guard (fig. 10.12/1).
- Pull flange (Fig. 10.12/2) from the input shaft.
- Push onto the gearbox neck the guard hopper for the universal joint (Fig. 10.13/1 and let it snap in.
- Slacken counter nut (Fig. 10.13/2) and pull out the threaded pin (Fig. 10.13/3.
- Push on the connecting yoke (Fig. 10.13/4) after having applied grease to the gearbox input shaft (Fig. 10.13/5).

Please ensure that the key (Fig. 10.13/6) is completely guarded!

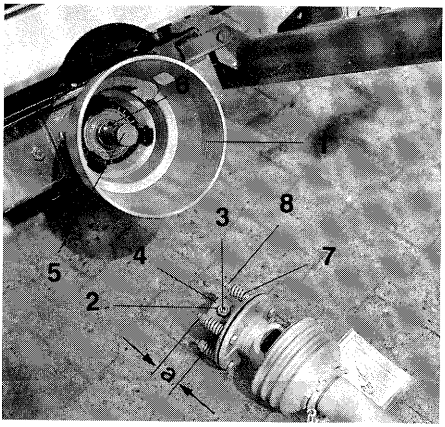


Fig. 10.13

- Secure the special pto shaft against axial movement. This is done by tightening firmly the threaded pin with an Allen key and secure with counter nut (Fig. 10.13/2).

Before first operation and after longer operational pauses free off friction clutch.

Function and maintenance of the friction clutch K 94/1

The friction clutch limits briefly occuring torque peaks of above approx. 40 k.p.m as they could occur e. g. when engaging the pto shaft. The friction clutch prevents damage to the pto shaft and gear box elements. Therefore the function of the friction clutch must always be ensured. A sticker „baking" of the friction linings prevent a reaction of the friction clutch. For this reason **free off friction clutch after longer periods of stand-still and before the first operation as follows**:

1. Dismantle friction clutch from the gearbox input shaft.
2. Relieve spring pressure (Fig. 10.13/7) by slackening the nuts (Fig. 10.13/8).
3. Spin clutch by hand to ensure free running of discs and plates.
4. Retighten nuts until the coil springs have a mounting length of **a = 26.5 mm**.
5. Push back friction clutch onto the gearbox input shaft and lock. Now the friction clutch is again ready for operation.

High humidity, dirt or cleaning the machine with a high pressure cleaner increase the danger of lining failure.

10.13 Guard cone for universal joint, cpl., - Order-No. 154 101

Please refer to Para. 10.13 (Fig. 10.13/1).