

# Centrifugal Twin Disc Precision Broadcaster

## **AMAZONE ZA-U**

### Instruction Book



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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Factories for: Fertilizer-spreaders, -storage halls, -handling systems. Seed drills. Soil cultivation machines. Field sprayers. Potato-graders, -sorters.

# 1 On receipt of the broadcaster

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, oil, etc. before use (e. g. universal joints)!

## 2 Before commencing work

### 2.1 Matching of the p.t.o.-shaft to the tractor

When first mounting the machine to the tractor, the p.t.o.-shaft should be assembled and the front half of the p.t.o. should be fixed to the tractor's p.t.o. but not inserted in the half later to be joined to the spreader.

The spreader should be mounted on the tractor in the correct position with the correct discs to give the required bout width which can be found from the calibration chart supplied. The implement half of the p.t.o.-shaft should be attached to the machine and thereafter the two halves of the p.t.o. should be held side by side. It is now to be ascertained

that in the farthest position of the machine the p.t.o.-shaft as well as the p.t.o.-tube overlap in minimum by 6 cm (2½") and that in the closest position the ends of the yokes do not meet. If they meet **both** ends must be shortened (Fig. 1) by the same amount. (Please check also the various angled positions of the broadcaster according to the setting chart.) The two halves of the p.t.o.-shaft are now ready for joining together. Make sure that under all working conditions the angle of the shaft must not exceed 25°. (Lubricate p.t.o.-shaft and -tube!) The p.t.o.-guard is detachable.

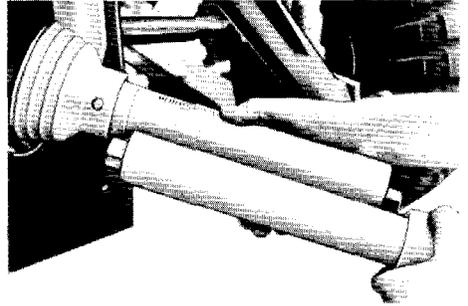


Fig. 1

### 2.2 Setting of the tractor's hydraulic

**Attention!** For lowering of the ZA-U in 3 pt. linkage use always only the tractor's hydraulic "position-control" lever. **The lowering speed may never be faster than 2 seconds.** If existing and possible, set hydr. throttle valve (response-control) accordingly.

### 2.3 Setting up your spreader

Carefully adhere to this "hints for setting of the machine" of the ZA-U setting chart. If these points are not adhered to, no responsibility is assumed by the manufacturer. Setting of the machine is done in accordance with the setting chart. Deviations from its spread rates are possible due to varying conditions of fertilizers. The bout width varies and is depending on the kind of fertilizer and its surface treatment. The required bout width should be taken from the setting chart. It ought to be noted, that the necessary overlapping has already been considered for the effective bout width in the setting chart.

The fertilizer supply is hydraulically switched on and off. For this the hydraulic hose must be connected to the tractor's hydraulic socket.

Before the setting of the machine is done, connect the hydraulic hose to the tractor. The levers may only be re-set when the shutters are in closed position.

Setting the spread rate is done by the setting levers at the rear of the machine. Before changing the lever position the clamp nuts need to be loosened and the pointers on the levers are to be set in line with the desired position according to the setting chart. The clamp nuts must then be retightened.

### 2.4 Calibrating the effective spread rate (CESR)

For calibrating the spread rate the spreader must be attached to the tractor and the left hand spinner disc has to be removed. The right hand setting lever is to be shut (pos. 0). Then the

Working Bout Width	Forward Distance Required	Area Covered	For total spread rate multiply collected weight by
10.00 m	50.00 m	1/40 ha	40
12.00 m	41.60 m	1/40 ha	40
16.00 m	31.25 m	1/40 ha	40
18.00 m	27.70 m	1/40 ha	40
20.00 m	25.00 m	1/40 ha	40
21.00 m	23.81 m	1/40 ha	40
24.00 m	20.80 m	1/40 ha	40

calibration bucket should be hooked onto the 2 hooks provided at the frame's left side and to be secured by spring clip pins in order that the fertilizer may be collected one sided during a determined distance to be driven, as shown in the table below, left.

The forward distance chosen must be driven exactly as under field conditions (with operational speed and p.t.o.-rev's of 540 r.p.m. etc.). The collected weight (i. e. kg) in the calibration bucket is to be multiplied by the multiplier 40 to determine the correct spread rate in kg/ha.

Example:

Required effective working width: 12 metres.

The fertilizer collected from a forward distance of 41.6 m at the normal forward speed = 10 kg. Quantity spread per ha = 10 kg x 40 = 400 kg/ha.

If the calibration bucket is too small for the higher rates required, halve the travelling distance and double the multiplier. If the calibrated spread rate does not coincide with the desired spread rate change the position of the setting levers on the broadcaster.

After the correct rate has been achieved the right-hand setting lever must then be set according to the left one.

The standard supplied spinner discs type N (red) allow with the common fertilizer types a bout width of 10–24 m. For particular fertilizers and for larger bout widths wide spread discs "B" (white), special discs S/1 (orange), S/2 (grey), S/3 (yellow), S/4 (brown) (all available as optional) may be used. Please look up chapter "Co-relations between disc types and fertilizers" of the ZA-U setting chart or ask your dealer for recommendations.

## 2.5 Late top dressing

The ZA-U broadcaster has been supplied as standard with so-called "swivel-blades", which besides being used for normal broadcasting can be used for late top dressing in corn which is up to 1 m in height. To achieve this the outer wings are to be swivelled upwards so that the fertilizer receives the corresponding throwing curve.

For details please see the ZA-U setting chart, paragraph 6.

For late top dressing the spinner discs ought to be lifted slightly above the tips of the corns-ears. If it is impossible to raise the broadcaster to this mounting height, the lower link pins may be mounted into the lower holes provided on the broadcaster. Should this still be not enough, a down keeper (special optional) is necessary.



Fig. 2 a  
Normal broadcasting: Swivel blades in downward position "A"

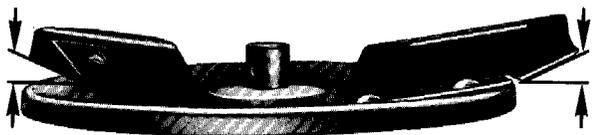


Fig. 2 b  
Late top dressing: Swivel blades in lifted position "B"

## 2.6 Broadcasting to one side only (centre of 1st tramline being 1.5–2 m from field side)

For accurate one sided broadcasting the corresponding setting lever at the back of the broadcaster must be put pos. 0 and the broadcasting limiter (special optional) should be installed. The fertilizer will thereafter be thrown only 1.5–2 m towards the closed side depending on the kind of fertilizer used.

From the figures 3 and 4 the way of fitting can be seen. For the operational position swivel down the deflector plate. The shutter responsible for the spinner disc near the fields' side should be closed. For spreading to both sides swivel upwards the deflector plate and secure by "R"-clip or remove plate entirely.

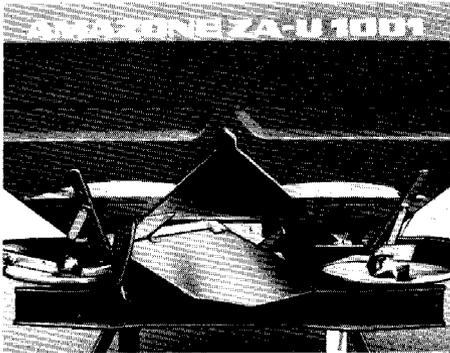


Fig. 3

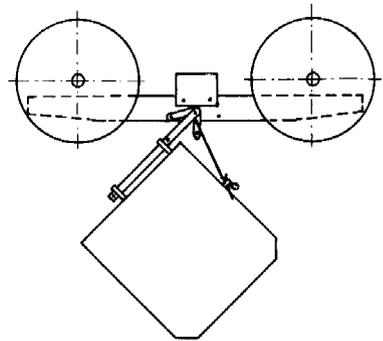


Fig. 4

## 2.7 Broadcasting round the field borders (centre of 1st tramline being from 6 m to 12 m from field side)

In order to broadcast the field edges precisely, one of the red standard discs with a shallow spread pattern ought to be exchanged by the boundary spread disc (green) giving a more rectangular spread pattern. The bout width at the border side is, depending on the boundary spread disc used, as follows: G 6 = 6 m (order No. 109 501), G 8 = 8 m (order No. 110 501), G 9 = 9 m (order No. 111 501), G 10 = 10 m (order No. 112 501), G 12 = 12 m (order No. 113 501).

## 2.8 Agitating mechanism

For the normal use with granular or crystalline fertilizers 2 rotating agitator fingers on either agitator shaft end ensure a smooth flow of the fertilizer. If desirable the agitating effect may be reduced by simply removing the inner agitator fingers on either shaft end. In this case reinsert the 'R'-pins in such a way that the bow shows in driving direction, i. e. against the turning sense of the agitator shaft.

# 3 Special hints and safety

- 3.1 Maximum filling quantity: 1,800 kg. At model AMAZONE ZA-U 2001: 2,000 kg, but only if properly mounted on the original transport trailer AMAZONE FR 2000.
- 3.2 **Slowly engage the p.t.o.-clutch at low engine-speed (idling). Should the shearbolt still continue to fail, you may use the special p.t.o.-shaft (see 5.4).**
- 3.3 The trailer hitch provided must only be used for towing suitable implements or twin axle trailers up to max. of 25 km/hr. (Outside W.-Germany different laws may be in effect.)  
**Single axle trailers must not be towed under any circumstances.**
- 3.4 When lifting the broadcaster under full load, the weight loading on the tractor front axle is therefore reduced. The required front axle loading should be approx. 20% of the tractor weight!
- 3.5 **Attention! Keep away from moving spinner discs, danger of injury!**
- 3.6 To avoid sideways swing of the spreader during work, stabiliser bars or chains can be fitted to the tractor's lower arms of the 3-point linkage (see tractor accessory).

- 3.7 After 3–4 loads of fertilizer have been put through the machine, check all bolts and nuts on the spreader and retighten if necessary.
- 3.8 **When exchanging spinner discs never mix up “left” and “right”!**  
The right spinner shaft is equipped with a security pin so that only the right spinner disc with its two key ways must be fitted.
- 3.9 Spreading materials containing silicates, magnesia or excello may cause increased wear.

## 4 Maintenance

- 4.1 Apply grease to the **shutter guides after** every operation!
- 4.2 Wash out the hopper and free all working surfaces and mechanism from fertilizer **daily, and park it with shutters open.**
- 4.3 The supplied 8 mm  $\phi$ -bolts are to be used for replacement of the shear bolts (safety device) with which the universal joint shaft transmits the power to the gearbox input shaft. Always apply grease to the gearbox input shaft before putting on the universal joint shaft.
- 4.4 If gearbox damage is noticed, a replacement should be ordered immediately.
- 4.5 To prevent damage to the gearbox when storing, the p.t.o.-shaft should be tied to the upper frame member.
- 4.6 Grease universal joints daily.
- 4.7 Apply regularly oil or grease to p.t.o.-shaft and -tube, the p.t.o.-guard is detachable.
- 4.8 Oil capacities: Input gearbox = 0,4 litre, angle gear boxes each = 0,15 litre of SAE 90 grade gear oil.
- 4.9 Clean and lubricate agitator chain after longer pauses from use.

## 5 Special optional equipment

- 5.1 If it is impossible to obtain the desired bout width with the standard spinner discs type "N" (red) further spinner discs for larger but widths are available.  
Please refer to the setting chart for the necessary type of spinner discs needed or consult with your AMAZONE-dealer.
- 5.2 Rear traffic lights (order No. 10 590)
- 5.3 Carrier for rear traffic lights (order No. 10 490)
- 5.4 Special universal joint shaft (ref. 3.2)
- 5.5 Hopper cover (order No. 17 440)
- 5.6 Splash guard (order No. 16 340)
- 5.7 Guide chutes for filling from UNIMOG-tipping tanks (order No. 15 740)
- 5.8 Category III lower link pins (2) (order No. 13 610)
- 5.9 Two-way hydraulic control (order No. 14 560)
- 5.10 Two-way hydraulic control with extended hoses for system tractors (order No. 14 660)
- 5.11 Downkeeper for late top dressing of corn according to para. 2.4 (order No. 14 160)
- 5.12 Boundary spread limiter, see para. 2.5 (order No. 14 060)
- 5.13 Boundary spread discs, ref. para. 2.7 for order No's.
- 5.14 Electronic shutter control w. AMATRON II (pls. see instructions AMATRON II) (order No. 120 800)
- 5.15 Electric plus/minus spread rate change (order No. 119 800)
- 5.16 Plus/minus control w. Bowden cable (sep. instructions) (order No. 159 501)
- 5.17 Plus/minus contro w. extended Bowden cable (sep. instructions) (order No. 160 501)
- 5.18 4 – 6 – 8 row spreading device (order No.'s 160 600, 161 600, 162 600)

## 6 Hints for repair

To guarantee the symmetrical spread of both spinner discs the shutter openings were set in pos. 8 with a 12 mm  $\phi$  gauge (drill). If an unsymmetrical shutter opening is noticed adjust accordingly by putting the shutter lever in pos. 8 and by inserting a 12 mm  $\phi$  gauge.

A special setting gauge can be purchased from your dealer.

## 7 Carrier for rear traffic lights (see 5.2)

For attaching the two carriers drill 9 mm dia. holes into the hoppers according to the measurements shown in fig. 5 below.

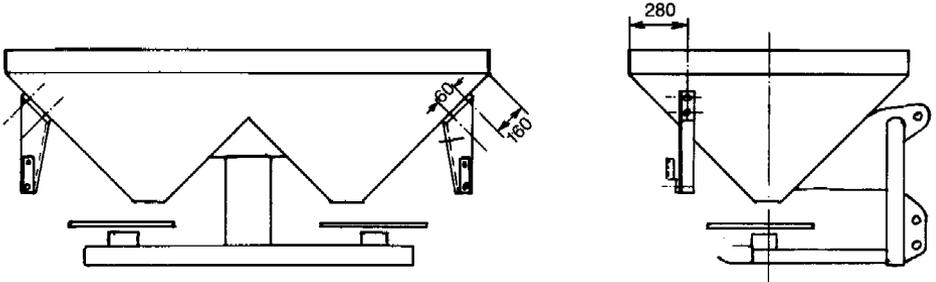
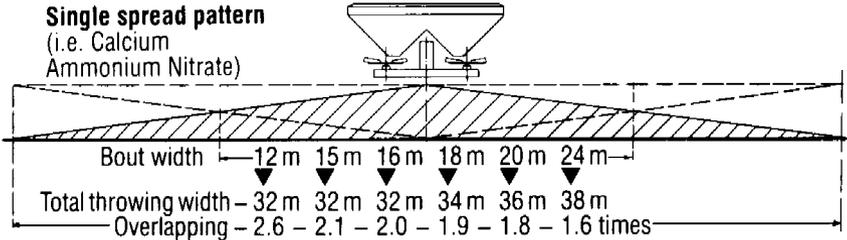


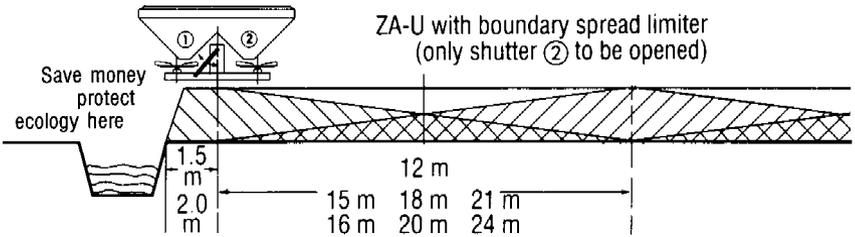
Fig. 5

## 8 Spread patterns

Relation between throwing widths and actual bout widths.



### Boundary spreading (1st tramline 1.5 m – 2.0 m off boundary)



### Boundary spreading (1st tramline 6 m – 12 m off boundary)

