

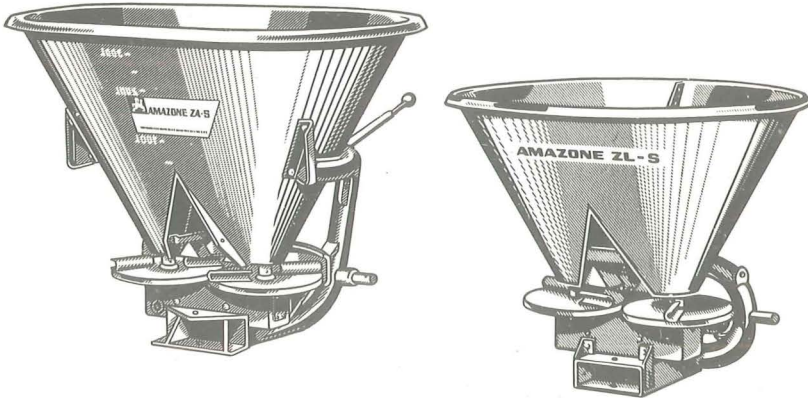
CENTRIFUGAL TWIN DISC PRECISION BROADCASTER

AMAZONE

ZA-S ZL-S ZW-S

(Incorporating the SUPERSPREAD-SYSTEM)

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 Broadcasters.

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

AMAZONEN-WERKE H.DREYER



FACTORIES AT:

4501 HASBERGEN-GASTE and 2872 HUDE/Oldenburg

FACTORIES FOR:

Mineral-fertilizer spreaders, seed drills, reciprocating harrows,
potato grading-machines, fertilizer silos, conveyors, universal
sprayers, fertilizer containers

A. ON RECEIPT OF THE BROADCASTER,

check that no damage has been caused in transit and that all parts are present. Claims must be made in writing within three days upon receipt, otherwise no responsibility can be accepted by us or the carriers.

B. COMMENCING WORK.

Before commencing to work with the machine grease the P.T.O. unit package nipples and ensure that the two halves of the P.T.O. shaft move freely.

FITTING:

Fig. 1. The AMAZONE Twin Disc Fertilizer Broadcasters have been designed for quick and easy attachment to all Tractors with either Category I or II linkage. When fitting to the Hydraulic Linkage of a category II Tractor the three bushes (3) available as optional for the hitch points (1 and 2) should be fitted. Ensure that the machine is level, that the P.T.O. guards are fitted and the P.T.O. shaft DOES NOT RUN AT AN ACUTE ANGLE. (See E.-1.)

C. SETTING AND WORKING METHOD OF THE MACHINE.

To set the distribution rate, select the amount of fertilizer required per acre and find this reading on the distribution table. In all probability the amount per acre required will be listed two or three times at different speeds; select the required speed and read off the setting at the left of the table. The quantities of fertilizer given in the distribution table are those obtained when inserting the thick end of the control rod (Fig. 2/1 or 2/3).

As 540 revolutions on the P.T.O. Shaft **must** be maintained for correct spreading width and the forward speed must only be altered by gear change there may be occasions when the tractor speed is not as required and the quantity shown is not that which is being applied, or when intermediate quantities may be required, alternative quantities may be determined by applying the following formula:

Insert the thin control rod (Fig. 2/2 or 2/4) and the extra fertilizer in pounds applied between any calibration hole chosen is half the difference between that and the next higher calibration hole No. added to the poundage shown for the hole chosen.

NOTE: Adjustments can only be made in this way by calculating in the same speed column.

Example: When spreading granular compound at 331 lbs. per acre, setting B 3 or C 4 can be used at 2½ or 5 m.p.h. respectively. Note: To obtain correct overlappings always watch that the working width given in the spreading table for the relative type of fertilizer will exactly be observed.

When spreading powdery/damp fertilizer no other adjustments are necessary other than, if owing to its condition too little fertilizer is being spread behind the tractor, the two curved blades on the spreading disc should be moved forward to the alternative holes drilled in the disc (Fig. 12/1) with the aid of the control rod, the square hole of which functions as a spanner. **Please note: Do not forget to return the blades to the normal position (N) before spreading dry fertilizer.**

When turning at headlands shut the feed mechanism by pulling the shut-off of lever(s) upward completely.

One side spreading (see Fig. 3):

Also headlands can be worked exactly by "one-side-spreading". This is done as follows: After removing the "R" type spring clip (2) pull the rod (1) out of the shut-off lever at that side, at which spreading is not wanted. Hereby the shut-off slide only at the spreading side can be opened or shut by the side lever. At the standard ZL-S, ZW-S only one lever needs to be pushed downward. (See opt. equipment D. No. 14.) If however long distances have to be travelled using one side only, the special shut-off device should be inserted in order to prevent clogging on the side of the hopper that is not working (see Optional Equipment D. No. 6).

Mixing of fertilizers:

Several kinds of dry fertilizers with the same spreading qualities (viz. basic slag and potash) can be spread at the same time without previous mixing. Both kinds of fertilizers are filled into the hopper either together or in layers. During the first filling the fertilizers are mixed by hand in the hopper bottoms. Fertilizer has to be refilled as soon as the hopper empties down to the roofplate during spreading.

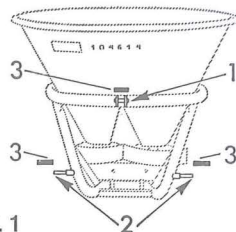
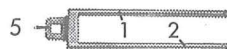
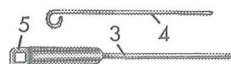


Fig. 1



Control Rod for ZA-S



Control Rods for
ZL-S, ZA-S 300, ZW-S

Fig. 2

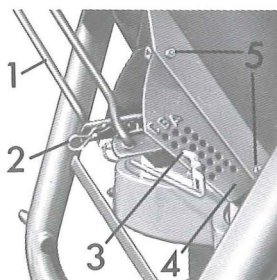


Fig. 3

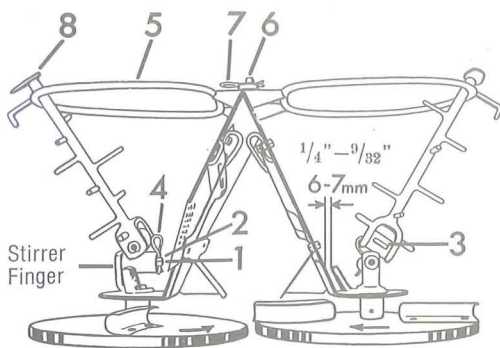


Fig. 4

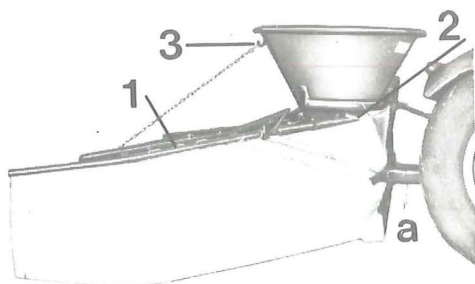
Assembly of the Agitators (see Fig. 4):

Fix both stirrer-shafts sideways onto the pivot (1) so that the pin-hole (2) will not be covered by the flat bar (3) and secure by spring cotters (4). Put both rings (5) on the roof-plate so that both flat bars (6) on the roof-plate are fixed into the slit of the ring-connection and then secure both sides also with spring cotters (7). Of course both stirrer shafts (8) have to run within the rings (5).

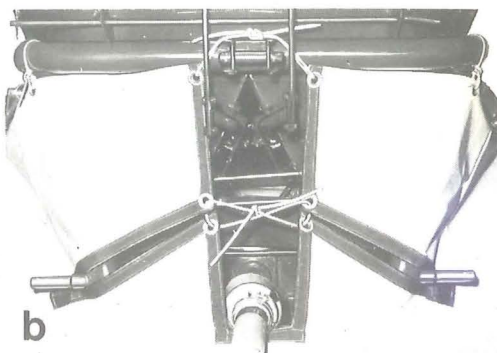
2. Dust Cover (see Fig. 5). When ordering a dust cover always state for which model.

The Dust Cover enables all types of powdery and dry fertilizers (such as Basic Slag) to be spread, no matter what weather conditions prevail. Working width: 4 m = 13 feet.

Fitting Instructions. Secure bolts (2) then fix chain, attaching to hook (3). The dust cover is laid around the front part of the Broadcaster, and can be fitted to the frame by being fastened and tied as illustrated in Diagram 5 below. See that the machine is kept in a level position, so that the height of the discs from the top of the crop should be 21" (55 cm). It should be noted that the sides of the dust protection cover should just clear the ground, and that the rear of the dust sheet should drag on the ground.



At model ZA-S



At model:
ZL-S
ZW-S
ZA-S 300

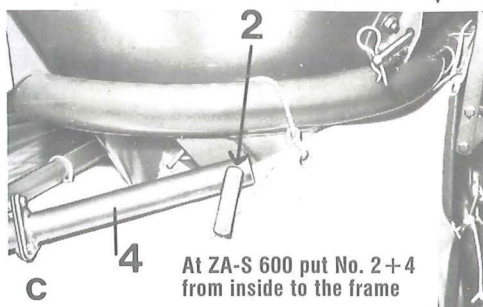
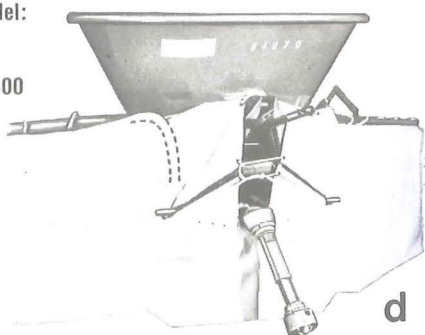


Fig. 5 a-d

D. OPTIONAL EQUIPMENT.

1. Agitators (Ring-Type) for damp and powdery Fertilizer (see Fig. 4) should **only** be installed if the fertilizer is damp or moistened purposely and therefore does not have an even flow onto the spreading discs.

All Fertilizers tend to "cake" when damp and form heavy solid lumps. Powdery and "sticky" types of Fertilizers frequently form a bridge, leaving an empty hollow in the centre. With our ring-type agitators several types of moistened fertilizers can be mixed in the hopper while spreading after being filled in layers.



3. Detachable stirrer heads (Order No. 1.4.03-35-00-08)

Are standard on all AMAZONE broadcaster types sold in Great Britain from Nov. 1970. The stirrer head (incl. the finger, Fig. 6) may be detached for broadcasting **prilled** fertilizers and such which have **soft granulates** (like Hyperphos etc.).

Note: When broadcasting with this new type of head it is important to refer to the **special prilled calibration table** when using uncovered prilled's. When using covered prilled's use the **standard compound granular setting table**.

4. Sighting device

The sighting device reduces the need for markers on fields, if your previous wheel marks can be clearly seen. The device is fitted to the main frame of the broadcaster, utilising the two brackets which hold the shutter lever (Fig. 8).

5. High Lift frame for top dressing high crops,

such as grains, corn, beans, Brussels prouts and Blackcurrants, enabling the machine to be lifted up 5 to 6 ft. and ensuring maximum width of spread. (Ask for special instructions and-chart).

6. Special shut-off device of one side,

enabling long distances to be travelled, using one side of the hopper only,
a) along headlands, b) orchard cultivations, c) road maintenance.

7. Row crop devices.

These latest additions to the AMAZONE optional equipment make fertilizing in 4 or 2 "lanes" of variable widths possible, necessitated in orchards or soft fruit cultivations, for applying both insecticides, herbicides and fertilizer. (See special assembly instructions.)

8. Subsoil fertilizer injector.

Placing the fertilizer down to a depth of 40 cm = 16" near to the roots of fruit bushes or trees, for targeted fertilizing with a minimum on loss by the way of erosion etc.

9. Small 2-lane spreading attachment.

Is used when no fertilizer shall be thrown in the tractors track but only to both sides. For use in orchards etc.

10. Working width eliminator.

Adjustable spreading width between 1,5 and 2,5 m = 5 and 8 feet.

11. Longer universal joint shafts.

With special Length of 52 cm = 20,5" for ZA-S 400, and of 62 cm = 24,4" for ZA-S 600.

12. Small sack opener to be bolted to the inside of the hopper (opposite to Fig. 5a-3).

13. Large Sack opening device to be layed on the hopper. (The sack will be cut into two halves.)

14. Combi-lever facilitates broadcasting to one side only where frequent turns at irregular shaped fields have to be made. Allows control of both openings from tractor seat.

15. PVC-hopper cover available for all broadcaster models.



Fig. 6

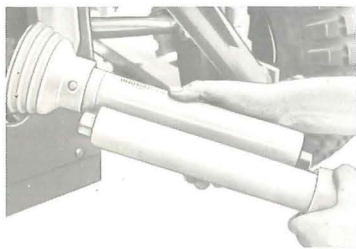


Fig. 7

E. SPECIAL POINTS TO NOTE.

1. Ensure that at least 2 1/2" (6 cm) of the male half of the P.T.O. shaft is inserted into the female half, and that also under all working conditions the angle of the shaft is not more than 25°. Grease universal joints daily!

2. Stabilizer bars should be fitted to the tractors lower links to avoid swinging to and fro of the Broadcaster during work.

3. At the headlands both shut-off levers of the ZL-S, ZW-S must be shut off. With the ZA-S this can be done simultaneously by pulling the side lever upward.

The shut off slide handle should be greased frequently where it comes in contact with the hopper and guides. Watch that both shutters open equally. See paragraph E-13 if shutter-corrections are necessary.

4. Careful use of the clutch preserves both the tractor and broadcaster.

5. If possible sift bulk fertilizer before broadcasting.

6. When spreading damp and not well-stored fertilizer it is advisable to remove all excess fertilizer

which is clinging to the bottom of the hopper, to the deflector plates, to the spreading blades and the hopper opening, by using the extension of the side lever (Fig. 8). At ZL-S, ZW-S Broadcasters the control-rod (Fig. 2) may be used for this purpose.

7. When spreading soft materials the P.T.O. shaft should be stopped immediately the shut off levers are closed to prevent the grinding of granulates to dust and compaction.

8. The clearance between the hopper wall and upper stirrer finger should be checked periodically, and, if necessary, bent until correct distance of 6-7 mm ($1/4''-9/32''$) is obtained. Replace excessively worn stirrer heads (see Fig. 4).

9. The 8 mm ($5/16''$) tapered safety shear pins supplied with the machine serve to replace broken shear pins at the implement end of the P.T.O. shaft. IT IS ESSENTIAL that ONLY GENUINE SHEAR PINS ARE USED. When replacing put shear pin only through the smaller diameter hole of the yoke. The larger hole has only been made to facilitate the removing of sheared pin parts inside the inputshaft. Always grease the end of the inputshaft before replacing the shear pin to avoid rusting of the yoke to the shaft.

10. Wash broadcaster with water and put grease to all places where paint has been worn off, before storing for longer periods.

11. Periodically check oil level and replace when necessary with 1,5 liters (3 pints) of SAE 60-90!

12. The hopper should not be used for transporting fertilizer over long distances from the barn to the field as this compresses the fertilizer and bridging also shearing of the shearpin can occur.

13. Check occasionally the correct position of the aperture openings. To obtain a symmetrical cast, both aperture openings should be identical. This can easily be checked by inserting the thick control rod into the position C 3 (Fig. 3/3) of the quadrant-plate (Fig. 3/4). Then push downward the side-lever, so that both shutter levers are touching the control rod. In this position the aperture should be opened exactly the way as is shown in Fig. 9, i. e. the lower edge of the shutter (Fig. 9/1) should point exactly into the lower corner of the aperture opening (Fig. 9/2). Should in position C 3 the aperture opening not be as described adjust the quadrant-plates (Fig. 3/4) by slightly undoing the nuts (Fig. 3/5), adjust and re-tighten.

14. After re-adjusting of the quadrant-plate (Fig. 3/4) check whether both shutter arms (Fig. 3/2) are leaning against the control rod (Fig. 3/3). If this is not the case, the one-hand side lever must be re-adjusted too. This is to be done at the lever adjustment-plate at the upper end of one of the lifting rods (Fig. 3/1). Should you wish to be certain that any adjustment made is expertly done it is suggested that you take your broadcaster to your nearest AMAZONE-dealer.



Fig. 8



Fig. 9

F. IMPORTANT SPARE PARTS

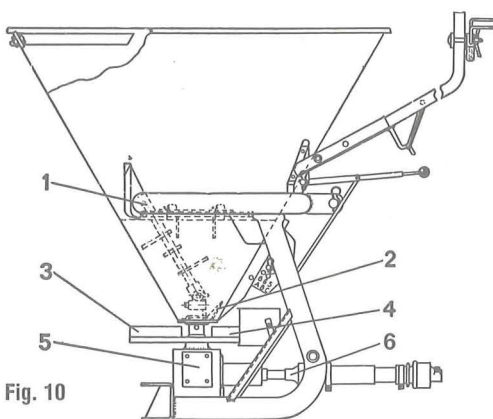


Fig. 10

Fig. 10 No.	Description	Spare Part No.
	FOR ZA-S AND ZL-S, ZW-S	
1	1 Ring-Agitator, complete	1.4.03-15-00.00-2
2	1 Stirrer Head, offside *	1.4.03-05-02.20-1
2	1 Stirrer Head, nearside *	1.4.03-05-02.10-1
3	2 straight spreader blades, offside and nearside	1.4.02-05-03.13-0
4	1 bent spreader blade, offside	1.4.02-05-03.14-0
	1 bent spreader blade, nearside	1.4.02-05-03.15-0
5	1 Gear-Box complete	1.4.02-03-00.00-3
6	1 Shear pin	8x50 DIN 1471
	2 Spring clips	1.4.02-01-03.02-0
	* See paragraph D-3.	
	ONLY FOR ZA-S	
Fig. 2 No. 1/2	1 Control Rod complete with spanner	1.4.02-05-04.80-2
	ONLY FOR ZL-S, ZW-S, ZA-S 300	
3	1 Control Rod complete with spanner	1.4.05-05-04.80-0
4	1 Control Rod, 6 mm ($1/4''$) dia.	1.4.05-05-04.90-0

For further spare parts see your local Agricultural Engineer for the comprehensive spare parts list. Mention always Machine-No. (punched into the upper frame-section) when ordering spare parts.

G. REPLACEMENT INSTRUCTIONS FOR STIRRER HEADS AND GEAR BOX

1. Stirrer Heads and Detachable Stirrer Heads

- Remove expansion pin out of the stirrer heads (between hopper and spreading disc Fig. 11/1).
- Pull off agitator heads and mark "offside" and "nearside".
- When replacing stirrer heads ensure that the agitator knife is immediately above the bent blade on the spreading disc and that the hardened surface on the cutting knife points in the direction of travel (see Fig. 12).
The cutting knife must have a clearance of 6-7 mm ($\frac{1}{4}$ " to $\frac{9}{32}$ ") and the agitator head must not bind against the hopper bottom (see Fig. 4). If this does occur, the bottom of the hopper should be pushed downward.
- Re-secure agitator heads and spreader discs by means of double heavy expansion pins!

2. ZA-S gear box

- Working method as 1 a), 1 b) above.
- Take off trailer coupling.
- Loosen and take off the fastening bolts of the gear box.
- Remove spreader discs and mark "offside" and "nearside" accordingly.
- Place spreader discs onto new gear box according to marking (see Fig. 12).

- Mount new gear box and screw down!
- Reinstall trailer coupling.
- Working method as 1 c) and 1 d) above!
- Check measurements for blades as illustrated in Fig. 11.

3. ZL-S, ZA-S 300, ZW-S gear box

- Working method as 1 a), 1 b) above.
- Loosen two front fastening bolts (see Fig. 13/1) and unscrew rear gearbox bracket (see Fig. 14/2). Take off gear box.
- Remove spreader discs and mark "offside" and "nearside" accordingly.
- Place spreader discs onto new gear box according to marking (see Fig. 12).
- Push the prepared gear box below the hopper mount stirrer heads as working method 1 c) and 1 d) above, and choose the height of the gear box so that the sealing rings of the stirrer heads just touch the bottom of the hopper.
- Secure gear box firmly!
- Working method as 1 c) and 1 d) above!
- Check measurements for blades as illustrated in Fig. 11.

Measurements for Screwing Down the Deflector Plate

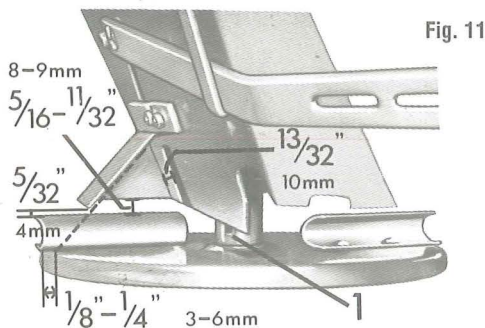


Fig. 11

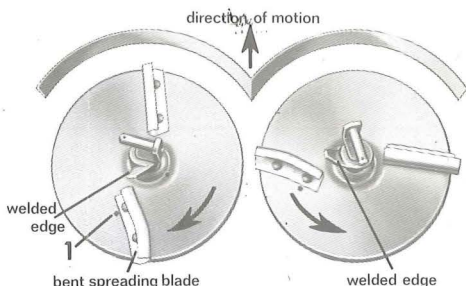


Fig. 12

For damp, pulverised fertilizer the bent spreading blades for each disc must be adjusted forward (see Fig. 12/1).

GEAR BOX ZL-S, ZA-S 300, ZW-S

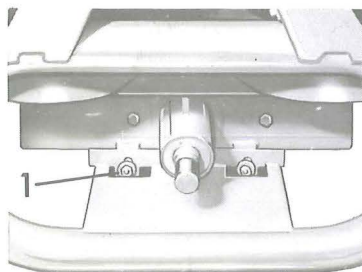


Fig. 13

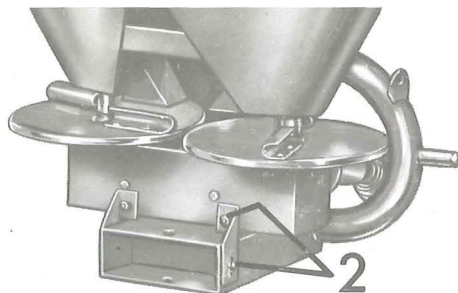


Fig. 14