

Operator's manual

TL Deep Loosener



MG 1022
B 312 GB 09.04
Printed in Germany



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



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D-49202 Hasbergen-Gaste

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The **AMAZONE TL deep loosener** is yet another quality product from the comprehensive range of **AMAZONE** farm machinery.

Before starting any operation, get acquainted with the correct handling of the deep loosener and with its operational devices. Never ever allow untrained personnel to operate the deep loosener.

Keep your deep loosener in good operational condition. Arbitrary changes on the deep loosener may affect its function and/or safety. Claims for damage resulting from operational errors will be rejected.



Please carefully read and adhere to all safety advice given in this operator's manual and on the safety signs on the deep loosener. Please always keep all signs clean and in an easily readable condition. Please ask for replacement of damaged or missing decals from your dealer.

Please enter the serial number below on this page. You will find this number on the type plate (Fig. 1/1), on the front frame of the implement.

When ordering options or spare parts or in case of any queries, please always quote the type of your deep loosener and the serial number.

<p>AMAZONE-TL deep loosener</p> <p>Serial No.:</p>
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Claims under warranty will only be accepted when in case of repair, original **AMAZONE** spare parts and wearing parts have been used.

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This symbol indicates dangerous points on the deep loosener. Not adhering to the instruction manual and the safety advice given therein means danger of injury.

Please strictly observe all safety advice!

Please make available all safety advice also to other users.



Important hints

1. The AMAZONE-TL deep loosener has been designed for the exclusive use in usual agricultural operation (intended use).
2. Any use beyond this is no longer considered as intended use. The manufacturer does not accept any responsibility for damage resulting from non-compliance and therefore, the operator himself carries the full risk.
3. Under “intended use” also the manufacturer's prescribed operation, maintenance and repair conditions must be adhered to.
4. The AMAZONE-deep loosener may only be operated, maintained and repaired by persons, who are acquainted with it and have been informed of the relevant danger.
5. Always adhere to the relevant accident prevention advice and all applicable generally accepted safety-, working-, medical- and road-traffic regulations.
6. Any damage resulting from arbitrary changes on the machine rule out the responsibility of the manufacturer.

Hints concerning the receipt of the machine

When receiving the machine check that no damage has been caused in transit and all parts are present. Only with the immediate reporting of damage towards the forwarder will be considered for compensation.



Fig.1



Fig.2

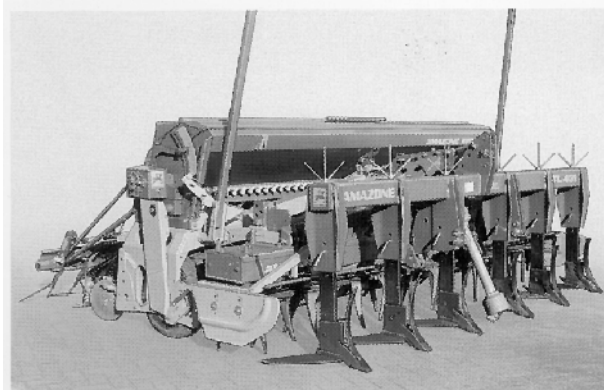


Fig.3

1.0 Details about the machine

1.1 Manufacturer

AMAZONEN-Werke H. Dreyer GmbH & Co.KG, P. O. Box 51, D-49205 Hasbergen

1.2 Implement types and technical data

AMAZONE Deep loosener	TL 251	TL 301	TL 401
Working width	2,5 m	3,0 m	4,0 m
Wing shear (pieces)	4	4	6
Line spacing	75 cm	75 cm	67 cm
Width of wing shares	2 x 60 cm	4 x 60 cm	6 x 60 cm
	2 x 30 cm		
Net weight	330 kg	365 kg	525 kg

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please also refer to:

Fig. 1: AMAZONE-TL 251 deep loosener

Fig. 2: AMAZONE-TL 301 deep loosener

Fig. 3: AMAZONE-TL 401 deep loosener

1.3 Range of application AMAZONE-deep loosener

Deep loosening and stubble tillage for the seed bed preparation

1.4 Standard execution

- Wing share, bolt-on share tip and soil guide share
- Spring steel share legs
- Spindle height adjustment on every share
- Strong square tube frame
- Extremely large frame height for a superb straw passage

1.5 Optional equipment

- Extensions with longer upper link arms for the increase of clearing
- Long PTO shaft to drive the
AMAZONE-rotary cultivator,
in combination with the deep loosener.



Safety advice

1. Before starting to operate check the implement and the tractor for traffic and operational safety.
2. The fitted warning- and advising decals give important hints for a safe operation; adhering to them protects your own safety.
3. Put implement or combination into operation only when all guards are fixed in position.
4. Become acquainted with the machines controls and functions before beginning the operation. Doing this during operation would be too late.
5. Allow nobody to stand between tractor and implement if the tractor is not secured against rolling away by the parking brake and/or chocks.
6. Fit weights always to the fixing points provided and as advised for that purpose.
7. Before beginning to move, check surrounding area (children etc.). Ensure sufficient visibility.
8. Before leaving the tractor lower the machine to the ground, apply the parking brake, stop the engine and remove ignition key!
9. Wear tight clothing. Die Bekleidung des Benutzers soll eng anliegen. Avoid wearing any loose clothing that would possibly wrap or catch on moving machinery.



Safety advice for road transport

1. When travelling on public roads observe the traffic regulations in force in your country.
2. Check and fit equipment for road transport, like e.g. traffic lights, warning plates and, if existing, guards!
3. Observe the permissible axle loads, total weights and transport dimensions.
4. When driving on public roads with lifted implement the control lever has to be locked against unintended lowering.
5. To avoid sideways swing during transport ensure a sufficient lateral stabilisation of the tractor three point linkage.
6. The release ropes for quick coupler should hang freely and in the low position must not release the quick coupling by themselves.
7. Sitting or standing on the implement during transport is not permissible.
8. Moving characteristics, steering and braking ability are affected by mounted implements, trailers or ballast weights. Therefore, take account to these effects and allow sufficient steering and braking.
9. When driving into bends mind the projection to the sides and the gyrating mass of the implement.
10. Do not stay in the operational range of the implement.



Safety advice regarding operation

1. Never stay within the operational range of the implement.
2. Sitting or standing on the implement during the operation or during transport is not permissible.
3. Never leave tractor seat during operation.

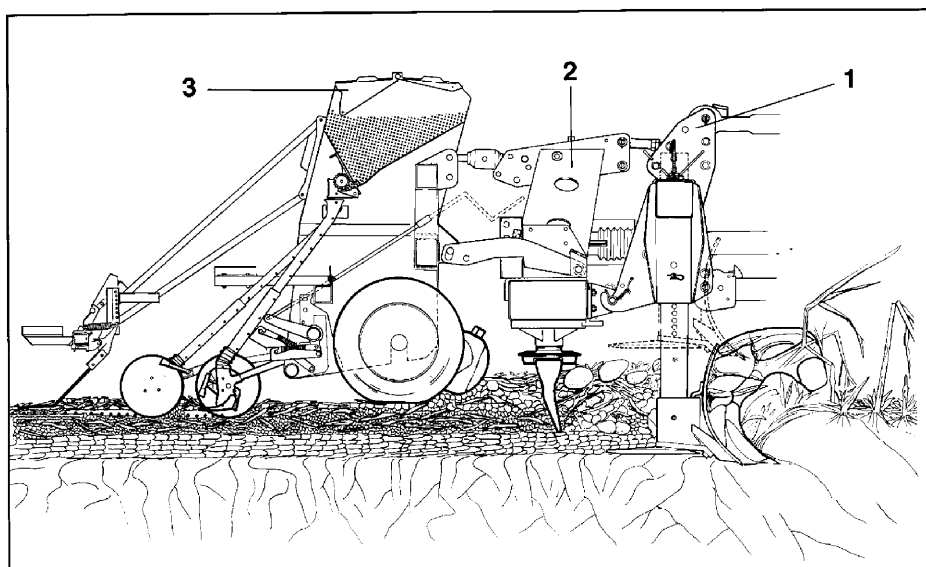


Fig.4

2.0 AMAZONE-till and drill combination

For the seed bed preparation and cultivation combinations of soil tillage implements with sowing machines are getting more and more common. Soil tillage and sowing operation in one path save operational time and fuel and substantially improve the sowing conditions resulting in higher yields.

AMAZONE provides the right soil tillage implement for any kind of soil and any plant life. Combinations of AMAZONE deep looseners and PTO driven soil tillage implements are available for the following ranges of operation:

- **AMAZONE-rotary cultivator (Fig. 4/2) with deep loosener (Fig. 4/1)** on all soils without prior ploughing even in heavy trash conditions. Figure 4 shows the combination of AMAZONE-tyre packer seed drill RPD-ER (Fig. 4/3) with roll disc coulters.
- **AMAZONE-rotary harrows** may also be combined with **the deep loosener**.

The AMAZONE-TL deep loosener is an extremely compact implement. The strong square tube frame is firmly fixed to the PTO driven soil tillage implement. The short design of the deep loosener results in a just slightly increased lifting power requirement for the entire combination.

The AMAZONE-TL deep loosener assists the work of the PTO driven soil tillage implement. Very hard soil and coarse clods are broken by the deep loosener. For mulch sowing winter wheat after late crop like, e.g. sugar beet or maize, the wide wing shares cut the roots (please see Fig. 4). For loosening deeper than 15 cm the 600 mm wide wing shares should be replaced by the 300 mm wide wing shares.

AMAZONE-rotary cultivators are equipped with “tines on grip”.

The “tines on grip” have a de-mixing effect. The coarse soil particles are thrown further than fine particles and thus the fine soil remains in the lower level of the worked soil profile, whereas the coarser clods remain on the surface. The larger particles on the surface protect the seedbed from capping.

The rotary cultivator tines throw the soil along in front of the cultivator helping to level all undulations providing ideal conditions for an even depth placement of the seed.



Fig.5

3.0 Mounting to the tractor

Mount the deep loosener directly behind the tractor. In case the deep loosening legs (Fig. 5/1) protrude so far that a coupling to the tractor is not possible, re-adjust the legs as described under para. 4 in their retainers. For this, briefly lift the deep loosener, e.g. with the aid of a front end loader.

Fit lower and upper link of the tractor according to Fig. 5. Secure the pins of the upper and lower link by using clip pins. As standard the deep loosener is provided with upper and lower link pins of the cat. II. In operational position the lower link arms of the tractor (Fig. 5/2) should be about level to the ground. When linking up observe sufficient space for movement of the lower links.

Set the upper link (Fig. 5/3) so that the deep loosener when in operational position is about level to the ground and the upper link is parallel with the lower link or drops in direction of the tractor.

If the tractor is not able to lift the whole combination consisting of deep loosener and till and drill combination it is recommended to mount the upper link as low as possible on the deep loosener and as high as possible on the tractor. This way the combination does not tilt so much to the front when being lifted, possibly slightly to the rear. The combination can then be lifted with less lifting power. Check whether the lifting height will then be sufficient.



Safety advice when mounting the implement to the tractor

1. Mount the spreader as prescribed to the and only to the correct tools.
2. Take special care when mounting and dismounting implements to and off the tractor.
3. Before mounting and dismounting implements to the three-point-linkage bring all control levers in such a position that an unintended lifting or lowering is impossible.
4. When fitting to the three-point linkage the mounting categories on the tractor and the spreader must coincide or matched if necessary.
5. Danger of injury within the range of the three point linkage by squeezing and shearing..
6. When actuating the control levers for the three-point linkage never step between tractor and implement.



Fig.6

4.0 Setting the length of the deep loosening legs

The deep loosening legs (Fig. 6/1) of the deep loosener can be individually adjusted in their retainers, e.g. for setting the working depth. Prior to any setting slightly lift the deep loosener. Never ever adjust the deep loosening legs if the deep loosener – when coupled off till- and drill combination - is resting on its shares.

The deep loosening legs (Fig. 6/1) are fixed with the aid of pins (Fig. 6/2) and clip pins (Fig. 6/3) in the pockets of the deep loosener. With the aid of a spindle (Fig. 6/4) the deep loosening legs can be individually adjusted in the pockets. Remove clip pins and pins and with the aid of the spindle wind up the individual deep loosening legs into the desired position. After the individual setting reinsert the pin and secure by using the clip pin.

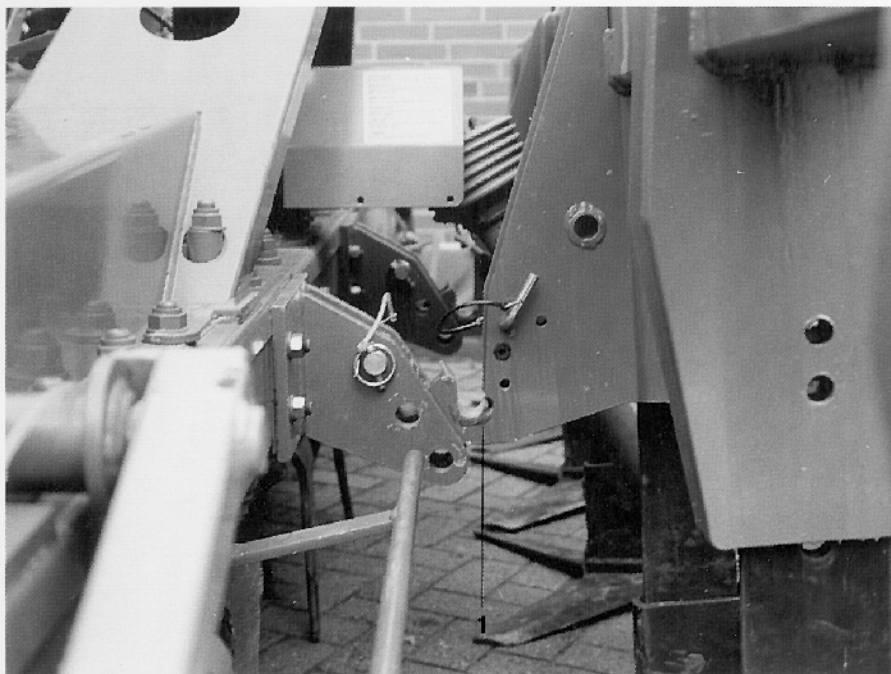


Fig.7

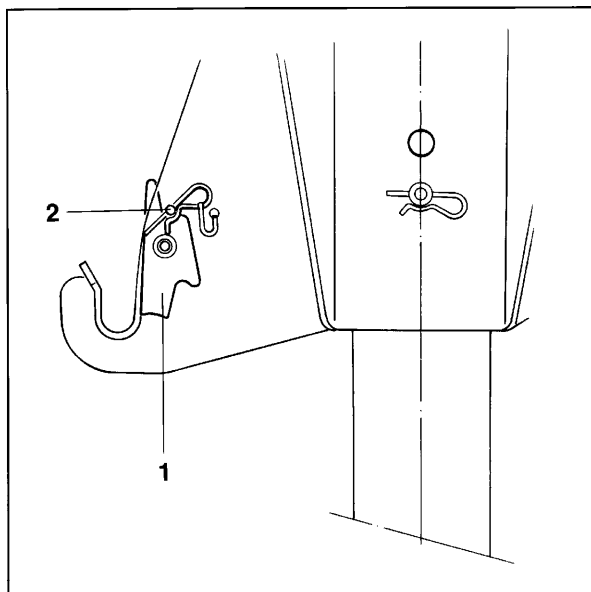


Fig.8

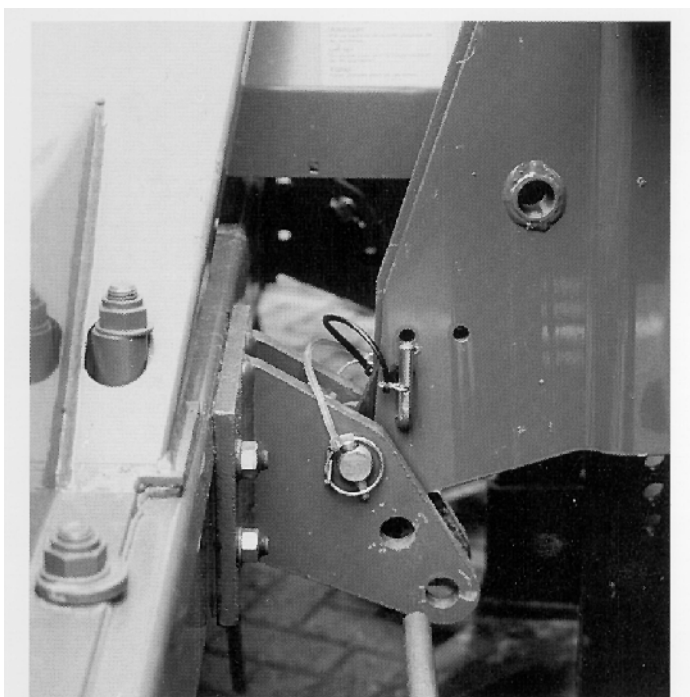


Fig.9

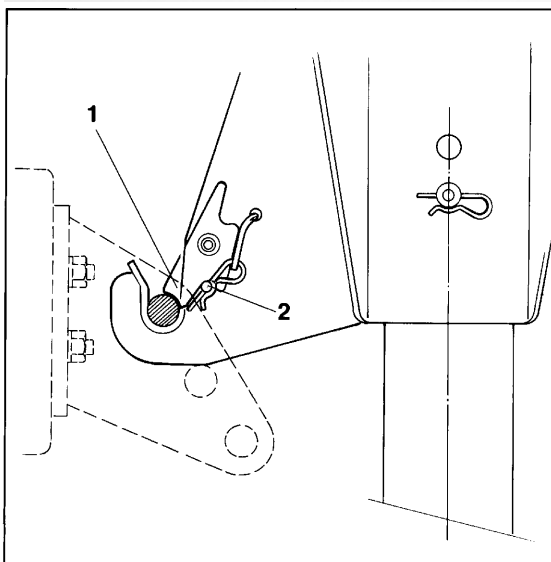


Fig.10

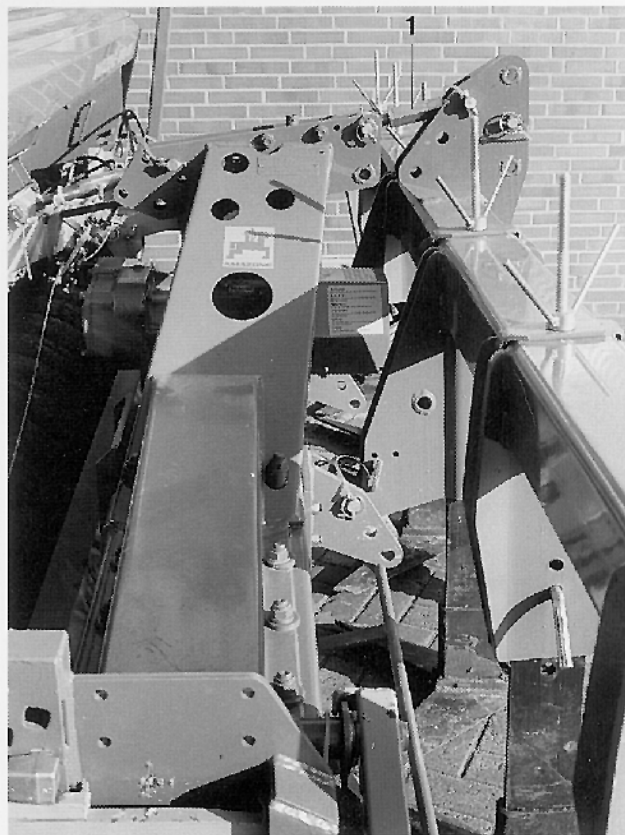


Fig. 11

5.0 Attaching the deep loosener on to a PTO driven AMAZONE soil tillage implement

The tools of the deep loosener (Fig. 4/1) and PTO driven soil tillage implement (Fig. 4/2) are usually set in such a way that they operate in different depths in the soil. Before coupling both implements set the tools of both machines to approximately the same height. For this set the deep loosening legs of the deep loosener with the aid of the spindle as described under para. 4, so that the coupling is possible.

In addition both locking pieces (Fig. 8/1) on the rear lower linking points (Fig. 7/1) of the deep loosener must be locked with the pin (Fig. 8/2).

For coupling the PTO driven soil tillage implement lift the deep loosener by using the tractors' hydraulic and back up to the soil tillage implement. Bring together the catching pockets of the deep loosener and the lower link pins of the PTO driven soil tillage implement (see Fig. 9). Then secure the connection as shown in Fig. 10 with each one locking piece (Fig. 10/1). For this pull out the pin (Fig. 8/2), lock as shown in Fig. 10/2 and secure by using a clip pin.

Lock turnbuckle (Fig. 11/1) on the deep loosener and on the soil tillage implement by using a pin and secure with the aid of a clip pin. Set the upper link arm length (Fig. 11/1) in such a way, that the soil tillage implement is in about horizontal operational position.

The combination of deep loosener and AMAZONE rotary cultivator or rotary harrow requires a 760 mm long PTO shaft. Please only use the PTO shaft W 2500. The PTO shaft is equipped with an overload clutch. This overload clutch is available in two executions:

a) as friction clutch EK 96/4

b) as ratchet clutch EK 64/2

Attention!

Please also adhere to the advice for the PTO shaft given in the operator's manuals of your soil tillage implement.

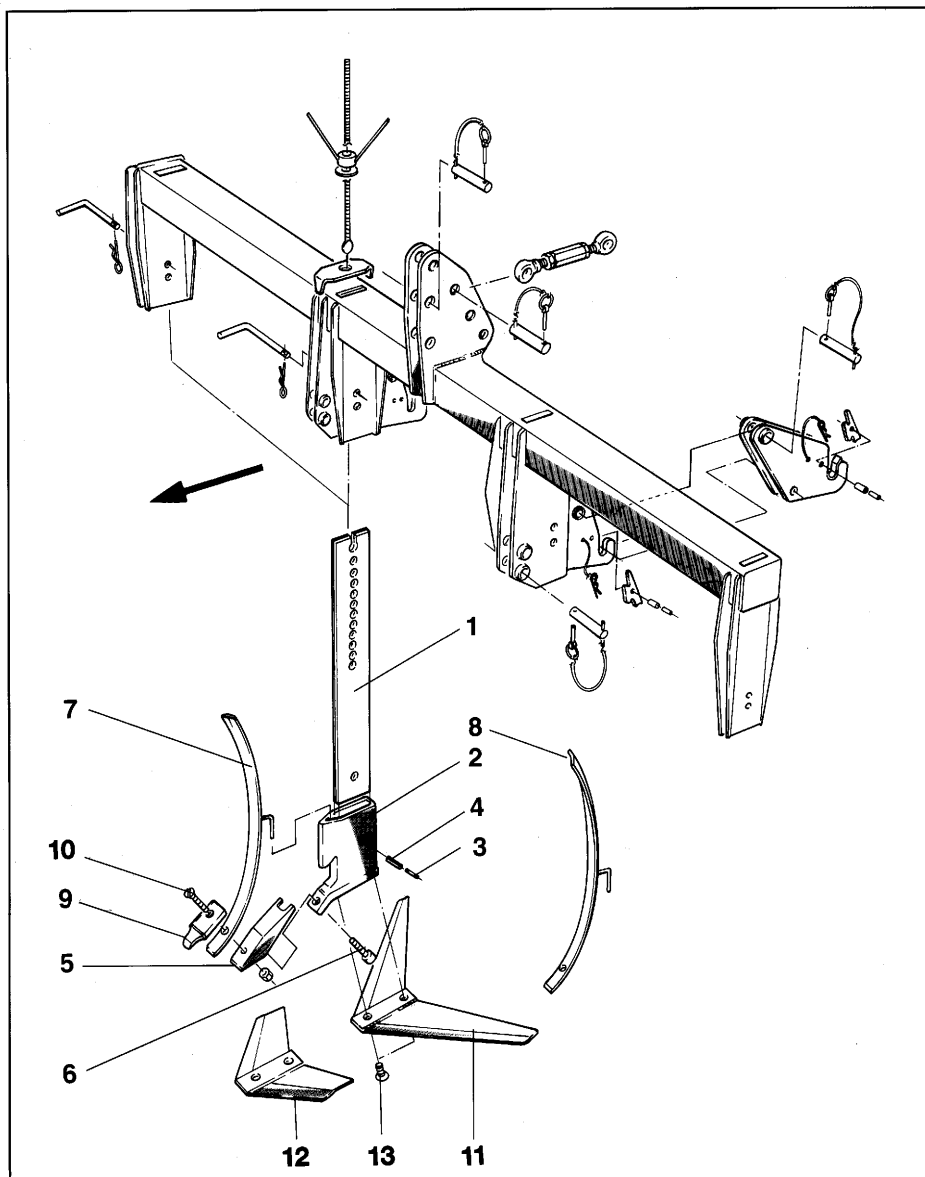


Fig. 12

6.0 The share

Each share consists of several individual parts. In this way, wearing parts can be quickly exchanged. The shares consist of:

Figure 12 No.:	Description
1	Spring steel deep loosening leg (2 pieces)
2	Leg shoe
3	Expansion pin DIN 1481, 12 x 45
4	Expansion pin DIN 1481, 20 x 45
5	Share tip
6	Fillister head bolt DIN 912 M 20 X 60 12.9
7	Soil guide share right hand
or	
8	Soil guide share left hand
9	Wearing tip
10	Countersunk bolt M 12 x 70 with nut
11	Wing share 600 mm wide
or	
12	Wing share 300 mm wide
13	Countersunk bolt DIN 7991, M 20 x 35 10.9

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Wing share and share tip can be individually replaced.

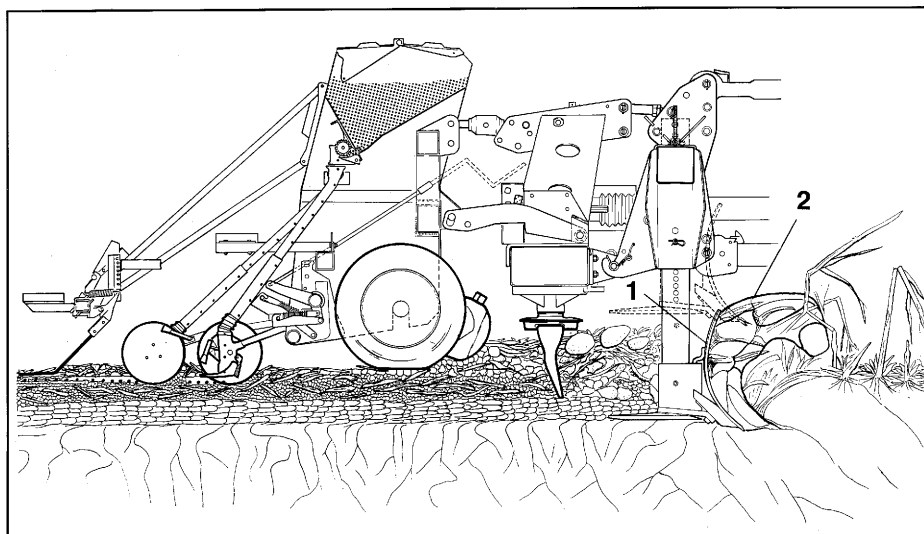


Fig. 13

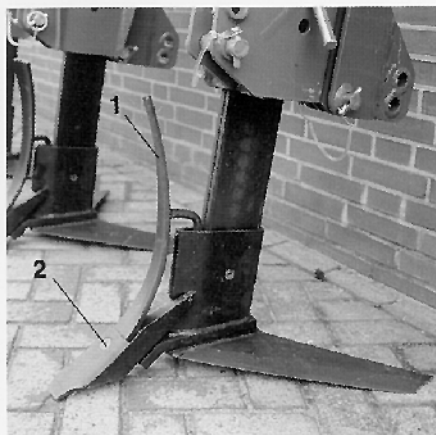


Fig. 14

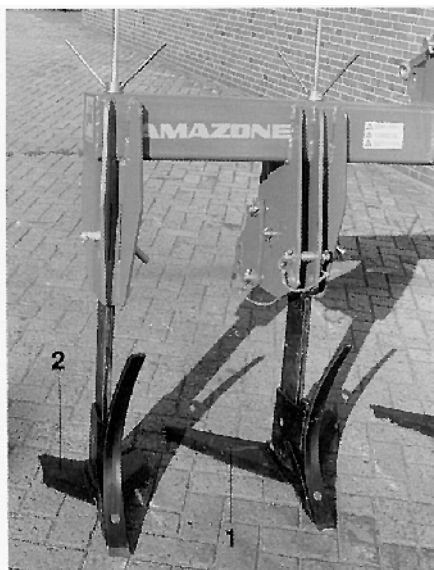


Fig. 15

6.1 Soil guide share

The shares of the deep loosener are, among others, equipped with soil guide shares (Fig. 14/1). The soil guide shares (Fig. 13/1) throw up a wall of soil (Fig. 13/2) in diagonal forward direction towards the implement's centre. In this way the soil is prevented from being thrown beyond the worked area.

In addition the ascending wall of soil cleans the shares from long straw. This way the soil guide shares considerably reduce danger of blockage in prevailing straw and improve mixing in stubble tillage.

If it is intended to just break up the soil without mixing, the soil guide shares should be removed. The soil guide shares are fixed with only one bolt (Fig. 14/2) and a retainer which is simply inserted into the leg's shoe.

7.0 Operating the deep loosener with 300 mm wide wing shares

As standard the deep loosener is equipped with 600 mm wide wing shares (Fig. 15/1). Exception: the TL 251. Its outer shares are equipped with 300 mm wide wing shares. (Fig. 15/2).

For stubble tillage or shallow working depth within a range of 5 and 10 cm the use of the 600 mm wide wing shares is recommended. Across the total working width the roots are cut and the soil is broken up.

In large working depth between 15 and 25 cm, however, a loosening effect across the entire working width can also be achieved with the narrower 300 mm wing shares (Fig. 15/2). Between the wing shares the soil is broken up in diagonal upward direction and loosened at the same time. In addition the use of the 300 mm wide wing shares offers the following advantages:

- the pulling power requirement is considerably reduced
- the spring steel share legs can negotiate stones better and the danger of a wing share deformation when hitting large stones is remedied.
- possibly prevailing bottoms on too wet spots in the field are avoided.

We therefore recommend to use the deep loosener with 300 mm wide wing shares for mulch sowing of winter wheat after late crop like sugar beet or maize.

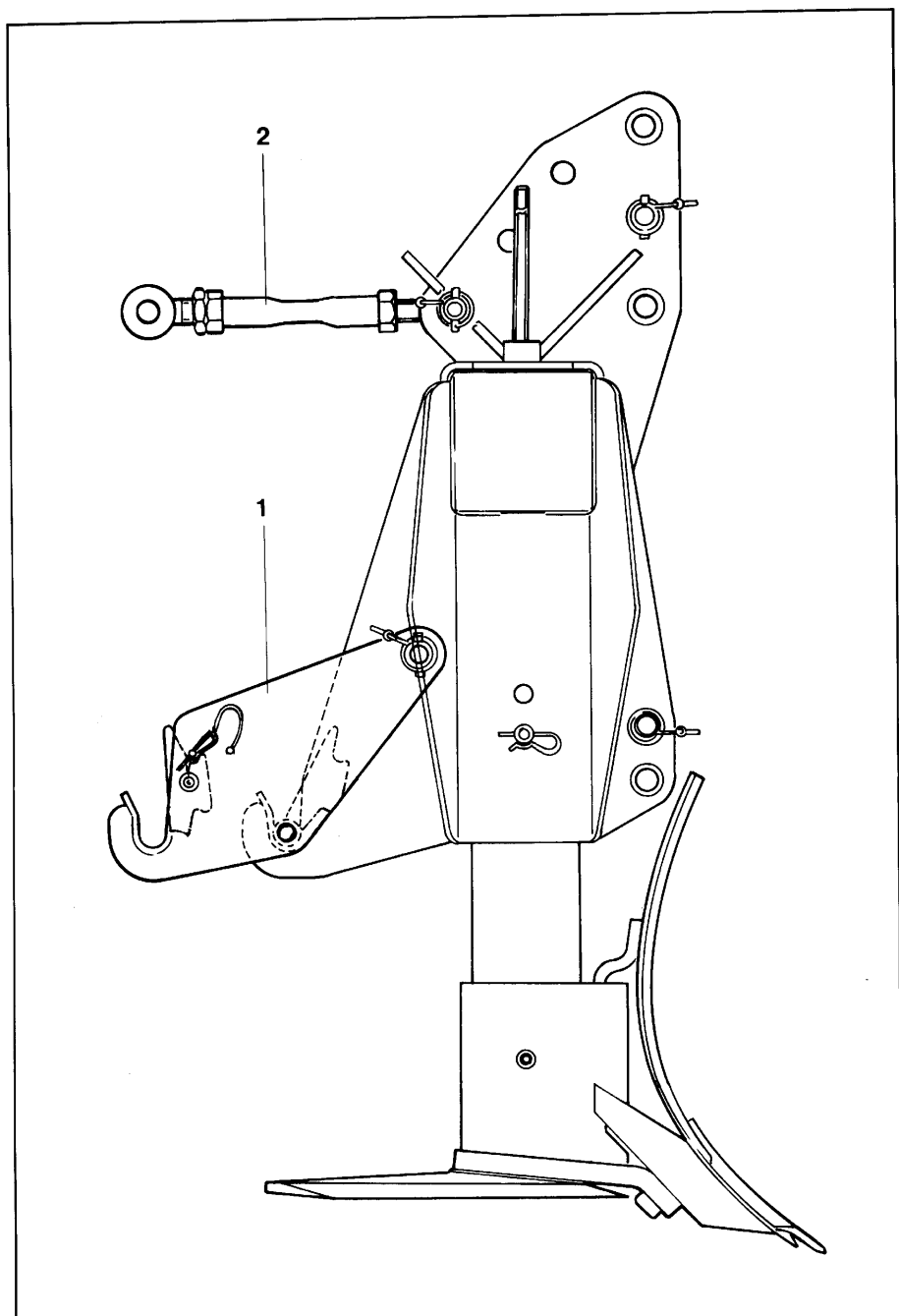


Fig. 16

8.0 Fields where much straw prevails on the surface

If normal amounts of straw prevail on the field's surface and with normal forward speed the deep loosener lifts and turns the straw-soil mixture with the aid of the soil guide shares (Fig. 13/1). The straw is mulched by the rotary cultivator near to the surface. With this compact and easy to lift combination of deep loosener and AMAZONE rotary harrow no blockage problems will occur.

With much straw, large working depths and high forward speeds, however, blockage problems in front of the rotary cultivator may arise. The soil-straw mixture has not yet settled enough and is lifted by the frame of the rotary cultivator.

This can be remedied by reducing the forward speed or by increasing the space between deep loosener and rotary cultivator.

For increasing the spacing between these two machines apply extension brackets (Fig. 16/1) on the lower link points of the deep loosener. Secure as shown in Fig. 10. These extension brackets are also provided with catching pockets. As described under para. 5 the deep loosener is attached to the soil tillage implement. The upper link points of both machines are connected with one longer upper link (Fig. 16/2). Lock extension brackets and upper link by using pins and secure with each one clip pin.

This way the deep loosener and the rotary cultivator are pulled apart for about 15 cm. This increased spacing, which requires a larger lifting power, allows operation also under difficult conditions without any danger of blockage.



Fig. 17



Fig. 18

9.0 Putting into operation

Before starting operation lower the till- and drill combination by using the tractor's hydraulic system until the rotary cultivator's tines are just over the soil but do not touch it. Bring the PTO shaft of the PTO driven soil tillage implement to the prescribed speed. While the tractor starts driving lower the till- and drill combination entirely.

When turning or lifting the till- and drill combination with running PTO shaft only lift the till- and drill combination so that the tines of the deep loosener are just above the soil. In this position the PTO shaft of the PTO shaft driven soil tillage implement is usually only slightly angled and a turning without damaging the PTO shaft is possible. If, however, the soil tillage implement runs noisily when it is raised, switch off the PTO shaft before turning.



Fig.19



Fig.20

10.0 When having finished the operation

The deep loosener can be parked together with the coupled till- and drill combination. Usually the tools of the deep loosener and the PTO driven soil tillage implement are set in such a way that they work in different depths in the soil. For parking the entire combination align the shares of the deep loosener with the tines of the soil tillage implement. For this briefly lift the entire combination with the aid of the tractor's hydraulics and pull out all deep loosener leg fixing pins (Fig. 19/1).

When lowering the entire combination to the ground the legs of the deep loosener are pushed into their retainers and the spindles (Fig. 19/2) move upwards through the frame of the deep loosener. Now the deep loosener rests on the till- and drill-combination.

Hint:

Before lowering the entire combination apply the provided supports of the seed drill, namely:

- insert the supports into the square tubes of the mounted seed drill
- Affix the wooden supports on the frame side parts of the tyre packer seed drill with each one belt.

When starting to operate with the deep loosener again, the shares automatically lower into the initially pre-set operational position when the deep loosener is lifted by the tractor. Never forget to lock the share legs of the deep loosener by using the pins (Fig. 19/1) and secure them with clip pins. Otherwise danger exists that the spindles will tear off.

If the deep loosener is not needed over a prolonged period, we recommend that you protect the shares from rust. Carefully clean and dry the shares. Then paint with peel off varnish (Fig. 20).

11.0 Maintenance and cleaning schedule

In general the deep loosener is maintenance free. When the deep loosener is not used for a prolonged period we recommend that you protect the shares from rust. For this carefully clean and dry the shares and paint with peel off varnish.



When carrying out maintenance work, e.g. when exchanging the shares, please observe the following advice:

1. Before any maintenance work on the lifted implement secure it with appropriate support elements
2. 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.
3. Use appropriate tools and wear gloves when exchanging tools with cutting edges
4. Before conducting electric welding operations on tractor or on the mounted implement, remove cable from generator and battery.
5. Any spare parts fitted must, in minimum, meet with the implement manufacturers' fixed technical standard. This is, for example, ensured by using original AMAZONE spare parts.



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