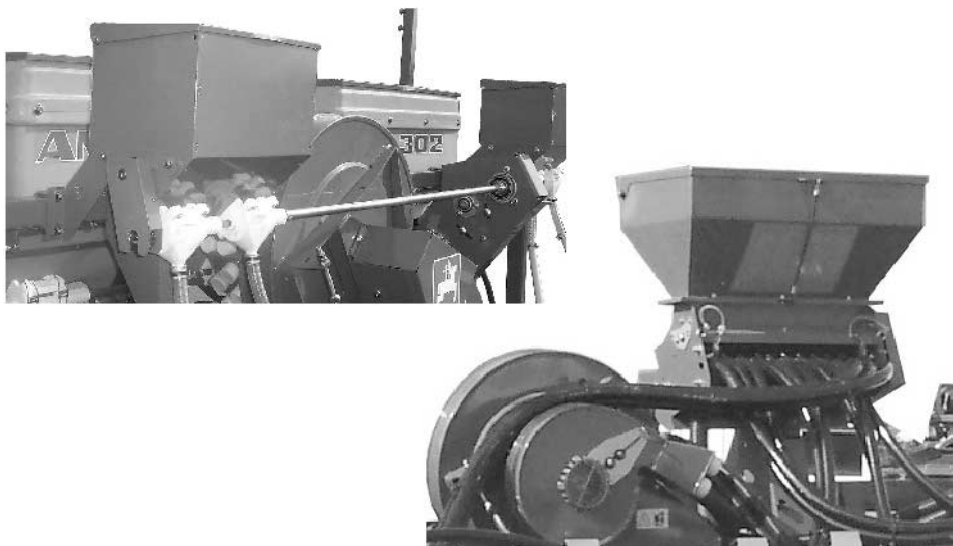


Operator's manual

AMAZONE

Micro granular-spreader pneumatic
Micro granular-spreader mechanic

for **ED 02**



MG1223
BAG0009.0 04.05
Printed in Germany



**Before starting operation
carefully read and adhere to
this operator's manual.
Keep for other users!**



Reading the instruction

manual and to adhere to it should not appear to be inconvenient and superfluous as it is not enough to hear from others and to realise that a machine is good, to buy it and to believe that now everything would work by itself. The person concerned would not only harm himself but also make the mistake of blaming the machine for the reason of a possible failure instead of himself. In order to ensure a good success one should go into the mind of a thing or make himself familiar with every part of the machine and to get acquainted with its handling. Only this way, you would be satisfied both with the machine as also with yourself. To achieve this is the purpose of this operator's manual.

Leipzig-Plagwitz 1872. Rud. Sark.



Identification data

Manufacturer: AMAZONEN-WERKE
H. DREYER GmbH & Co. KG

Machine-Ident-No.:
Type: **Mikrogranulat-Streuer
3001**

Permissible system pressure bar:
Year of construction :
Factory:
Power kW:
Basic weight kg:
Allowable total weight kg:

Address of manufacturer

AMAZONEN-WERKE
H. DREYER GmbH & Co. KG
P. O. Box 51
D-49202 Hasbergen
Tel.: + 49 (0) 5405 50 1-0
Fax.: + 49 (0) 5405 501-234
E-mail: amazone@amazone.de

Spare parts ordering

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Tel.: + 49 (0) 5405 501-290
Fax.: + 49 (0) 5405 501-106
E-mail: et@amazone.de
Spare parts online catalogue: www.amazone.de
When ordering spare parts please always state the serial number of your machine.

Formal remarks to this operator's manual

Document Number: MG1223
Date of edition 04.05
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AMAZONEN-WERKE H. DREYER GmbH & Co. KG.



Preface

Preface

Dear Customer,

You decided to purchase one of our high quality machines from the comprehensive range of farm machinery produced by AMAZONEN-WERKE, H. DREYER GmbH & Co. KG. Thank you for your confidence.

When receiving the machine, please check immediately that no damage has been caused in transit and that all parts are present. Please check whether all parts mentioned in the delivery note including the ordered optional equipment are present. Only the immediate reportage of damage will be considered for compensation.

Before the first operation, please read and adhere to this operator's manual and the safety advice. After having thoroughly read the operator's manual you can make fullest use of the advantages of your recently purchased machine.

Please ensure that this operator's manual is made available to any operator before he or she starts to operate the machine.

In case of any questions or problems, please refer to this operator's manual or just call us.

Maintenance and in regular intervals and the exchange of worn or damaged parts in time increases the life expectancy of your machine.

User's review

Dear reader,

Our operator's manuals are regularly updated. With your suggestions for improvement you will help to create an always user friendly operator's manual. Please send your suggestions by fax.

AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

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1 User advice

The chapter "User advice" provides information for dealing with the operator's manual

1.1 Purpose of the document

The present operator's manual

- describes the operation and the maintenance for the machine.
- gives important hints for a safety conscious and efficient operation with the machine.
- is part of the implement and should be kept so that it is always to hand on the machine or in the towing vehicle.
- should be kept for future use.

1.2 Information about directions in this operator's manual

All information about direction in this operator's manual are to be understood in direction of travel.

1.3 Illustrations used

Operational action and react

The steps of operation to be carried out by the operational staff are described in a numbered list. Adhere to the sequence of the steps. The reactions on the individual operational step are marked with an arrow. Example:

1. Operational action step 1
→ Reaction of the machine on operational action step 1
2. Operational action step 2

Enumerations

Enumerations without indispensable sequence are described as a list with enumeration items. Example:

- Item 1
- Item 2

Position figures in illustrations

Figures in round brackets refer to position figures in illustrations. The first figure refers to the illustration, the second figure refers to the item number in the illustration.

Example (Fig. 3/6)

- Figure 3
- Item 6



2 General safety advice

This chapter contains important hints for the safety conscious operation of the machine.

2.1 Obligations and liability

Observe the advice given in this operator's manual

The knowledge of the basic safety advice and safety regulations are the pre-condition for the safety conscious dealing with the machine and its trouble free operation.

Obligation of the user

The user commits himself to have the machine only operated by persons who

- are acquainted with the basic prescriptions regarding the operational safety and accident prevention.
- have been introduced to the machine.
- have read and understood this operator's manual.

The owner commits himself

- to keep all warning signs on the machine in well readable condition.
- to replace damaged warning signs.

Obligation of the operator

Before commencing any operation all persons who are instructed to operate the machine commit themselves to

- observe the basic regulations regarding the operational safety and accident prevention.
- to read and to adhere to the chapter "Safety".
- to read and to adhere to the chapter "Warning signs and other signs on the machine" (Page 14).
- In case of queries, please contact the manufacturer.

Danger when dealing with the machine

The machine has been manufactured according to the state of the art and the certified safety regulations. Nevertheless, the operation of the machine could cause danger and adverse effects on

- body and life of the operator or third parties,
- the machine itself,
- other tangible assets.

Only use the machine

- for the purpose it has been designed for.
- in a perfect safety engineering condition.

Immediately remedy all failures affecting the safety.

Warranty and liability

As a matter of principle our "General terms of sale and delivery" prevail. These will be made available to the user on the date of conclusion of contract at the latest. Warranty and liability claims for injury to life or property are rejected when they have been put down to one or several of the following causes:

- not designed use of the machine.
- improper fitting, taking into operation, operating and maintenance of the machine.
- operating the machine with defect safety facilities or not properly fitted or not functioning safety devices and guards.
- not adhering to the operator's manual regarding putting into operation, operation and maintenance.
- arbitrary changes on the machine.
- poor monitoring of the wearing parts of the machine.
- improper repair work.
- in an emergency due to alien elements and force majeure.

2.2 Illustration of safety advice

The safety advice is identified by a symbol and a warning. The warning describes the seriousness of the threatened danger. The individual symbols have the following meaning:



Danger!

Immediately imminent danger for life and health of persons (severe injuries or death).

Not adhering to this advice will cause severe damage to health up to life threatening injuries.



Warning!

Possibly danger for life and health of persons.

Not adhering to these hints may cause severe adverse health effects up to life threatening injuries.



Caution!

Possibly dangerous situation (slight injuries, material damage).

Not adhering to these hints may cause slight injuries or material damage.



Caution!

Obligation of particular behaviour or action for the appropriate handling of the machine.

Not adhering to these hints may cause trouble on the machine or the environment.



Hint!

Hint for use and particularly useful information.

These hints will help you to optimally make use of the functions on your machine.

2.3 Organising measures

The operator must ensure the availability of the personal protective equipment, e.g.:

- safety glasses,
- safety shoes,
- protective clothing,
- skin protecting agent, etc..



Important!

The operator's manual

- **should always be kept at the place where the machine is operated!**
- **should always be available for the operator and the servicing staff!**

Regularly check all existing safety devices!

2.4 Safety device and guards

Only operate the machine with all safety devices and guards fitted and properly functioning. Regularly check all safety devices and guards.

Defective safety devices

Defective or missing safety device and guards will cause dangerous situations.

2.5 Informal safety measures

Besides the safety advice in this operator's manual observe and adhere to the national, local and generally valid advice for operational safety, accident prevention and environmental care.

Please particularly observe the accident prevention prescriptions of your national authorised trade association.

2.6 Training of the staff

Only people who are trained and familiarised may operate with/on the machine. The responsibility of persons for operation and maintenance should clearly be prescribed.

A trainee may only operate the machine under the supervision of a skilled person.

Action \ Personnel	Particularly trained persons	Instructed operator	Persons with specialist training (authorised workshop)
Loading/Transport	X	X	X
Putting into operation	--	X	--
Installation, setting up	--	--	X
Operation	--	X	--
Maintenance	--	--	X
Searching for faults and remedy	X	--	X
Disposal	X	--	--

Legend: X allowed --..not allowed

2.7 Safety measures and normal operation

Operate the machine only with all safety devices and guards properly functioning.

Check the machine at least once a day for externally recognisable damage and for function of the safety devices and guards.

2.8 Danger from residual power

Observe the incidence of mechanic, hydraulic, pneumatic, and electric/electronic residual power on the machine.

Undertake appropriate measures when instructing the operating staff. Detailed hints are again given in the relevant chapters of this operator's manual.

2.9 Maintenance and repair, remedy of faults

Carry out all prescribed setting-, maintenance and servicing work in due time.

Secure all operating systems like compressed air and hydraulics against unintended starting.

When exchanging larger components carefully affix them to the hoisting implement.

Check slackened screw joints for firm seating. After having finished maintenance work, carefully check all safety devices for proper function.

2.10 Constructional changes

Never carry out any alterations or fittings or changes on the machine without approval of the AMAZONEN-WERKE. This also applies for welding work on bearing parts.

All fitting or alteration measures require the written approval of AMAZONEN-WERKE. Only use the conversion and optional parts approved by Messrs. AMAZONEN-WERKEN so that the operating permit remains valid according to national and international regulations.

Vehicles and devices and implements, connected with a vehicle with an official operating permit for road traffic according to the traffic law should correspond to the condition as stipulated by the relevant permit.



Important!

Prohibited on principle is

- boring on the frame or the chassis.
- re-boring existing holes on the frame or the chassis.
- welding on bearing parts.

2.10.1 Spare parts and wearing parts and auxiliary parts

Only use original-**AMAZONE**-spare- and wearing parts or the parts approved by Messrs. AMAZONEN-WERKEN so that the operating permit remains valid according to the national and international regulations. When using spare and wearing parts from other manufacturers it is not ensured that they have been designed and manufactured to fulfil the operational stress and safety demands.

The AMAZONEN-WERKE do not accept any liability for damage by using not approved spare or wearing parts or auxiliary parts.

2.11 Cleaning and disposal

Utilise agents and materials and dispose them in the appropriate manner particularly

- when working with greasing systems and devices and
- when cleaning with solvent agents..

2.12 Workplace of the operator

The machine may only be operated by one single person from the seat in the tractor cab.

2.13 Safety symbols and other identifications on the machine



Important!

Always keep all safety symbols on the machine clean and in well readable condition! Replace not readable safety symbols. Ask your dealer for warning signs stating the relevant order number (e.g. MD 075).

Warning signs - composition

Warning signs indicate dangerous points on the machine and warn about danger. At these points permanently existing or unexpectedly occurring danger prevail.

The warning sign consists of 2 fields:



Field 1

Gives a vivid description of the danger and is surrounded by a triangle safety symbol.

Field 2

Gives the vivid instruction to avoid these dangers.

Warning sign - Explanation

The column **Order Number and explanation** provides the description to the opposite warning sign. The description of the warning sign is always the same and states in the sequence indicated:

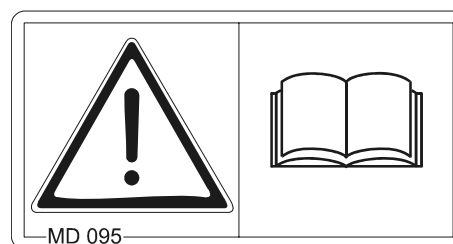
1. Description of danger.
For example: Danger from cutting or cutting off!
2. Consequences when not adhering to the given advice how to avoid dangers.
For example: will cause severe injury on finger or hand.
3. The advice to avoid danger.
For example: Touch machine parts only then when they have come to a full standstill.

Picture No. and Explanation

Safety symbol

MD 095

Before commencing operation read thoroughly operators manual and safety advice!

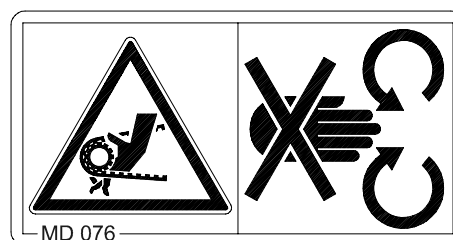


MD 076

Only start to operate with the implement with guards fitted.

Do not remove guards when the engine is running.

Switch off the PTO shaft before removing the guard. Stop engine and pull off ignition key!



2.14 Danger when not adhering to the safety advice

Not adhering to the safety advice

- may result in endangering persons, also the environment and also the machine itself.
- may result in the rejection of any claim for damage.

Not paying attention to the safety advice may cause the following risks:

- Danger to persons not excluded from operational areas.
- Failure of important functions within the machine.
- Failure of carrying out prescribed measures of maintenance and repair.
- Danger to persons through physical or chemical contact.
- Danger to persons, or the environment by leaking hydraulic oil.

2.15 Safety conscious operation

Besides the safety advice in this operator's manual additionally, the national, and generally valid operation safety and accident prevention advice of the authorised trade association are binding.

Adhere to the advice given on the warning signs to avoid danger.

When travelling on public roads observe the traffic regulations in force in your country.

2.16 Safety advice for the operator



Warning!

Always check traffic and operational safety before putting the machine to operation!

2.16.1 General safety and accident prevention advice

- Adhere to the general rules of health- and safety precautions besides the advice in this operator's manual!
- The fitted warning- and advising decals give important hints for a safe operation. Adhering to them protects your own safety!
- Before beginning to move, check surrounding area (children etc.)! Ensure sufficient visibility!
- Riding or any transport on the machine is prohibited.

Operation of the machine

- Become acquainted with the machine controls and functions before beginning the operation. Doing this during operation would be too late.
- Wear close-fitting clothes. Wearing loose-fitting clothes would increase the danger of getting caught by the drive shafts.
- Only start the machine with all guards fitted and in serviceable condition.
- Observe the maximum payload of the mounted / trailed machine and the permissible axle and support loads of the tractor. If necessary, only travel with partly filled hopper.
- The standing of persons within the operational range of the machine is prohibited.
- Standing of persons within the pivot and swivel area of the machine is prohibited.
- On all hydraulically actuated pivoting parts exists danger of injury by bruising and trapping.
- Machine parts may only be hydraulically actuated when persons observe sufficient clearance to the machine.
- Before leaving the tractor
 - lower the machine to the ground
 - stop the tractor engine
 - remove the ignition key
- Always park the uncoupled machine safely.

2.16.2 Maintenance, repair- and care-work

- Repair-, maintenance- and cleaning operations as well as the remedy of function faults should principally be conducted with
 - drive stopped
 - engine stopped
 - remove ignition key
 - implement plugs removed from the on-board computer
- Check nuts and bolts for tightness and retighten if necessary!
- Before carrying out any maintenance-, repair- and cleaning work ensure the lifted implement or lifted implement parts against unintended lowering.
- When exchanging operational tools with cutting edges use appropriate tools and wear gloves.
- Dispose of oil, grease and filters in the appropriate manner.
- Before conducting any electric welding on the tractor and the mounted implements remove the cable from generator and tractor battery.
- Any spare parts fitted must, as a minimum meet with the implement manufacturers' fixed technical standards! Using original - **AMAZONE**- spare parts for example ensures this!

2.16.3 Crop protective equipment in agriculture

Adhere to the recommendations of the crop agent manufacturer!

- Protective clothing!
- Warning hints!
- Metering, using- and cleaning advice!

Adhere to advice of the crop protection law!

When filling the hopper do not exceed nominal volume.

When filling the hopper do not exceed the nominal volume

Danger!



When handling crop protective agents always wear the correct protective clothing as e. g. gloves, overall, protective glasses etc.

3 Pneumatic micro granular spreaders

3.1 Product description

This chapter

- provides you with a comprehensive survey about the design of the machine.
- provides the descriptions of the individual components and parts.

Read this chapter when standing at the machine. In this way you will get optimally acquainted to the machine.

3.1.1 Overview – components

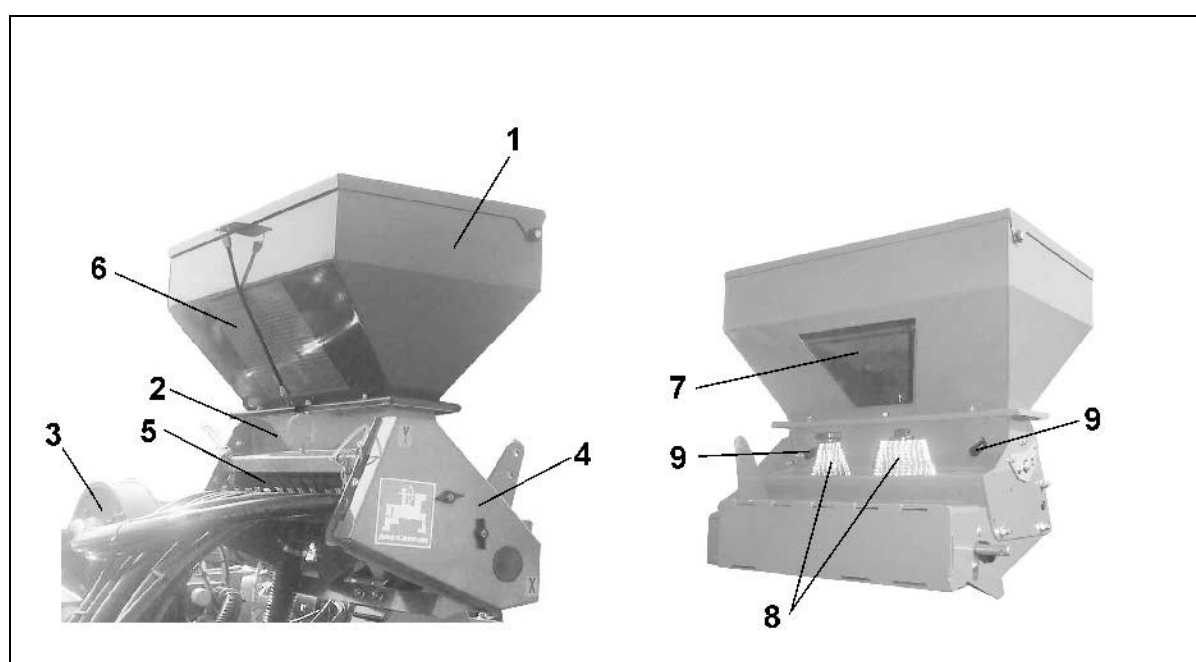


Fig. 1

- | | |
|---|-----------------------------|
| (1) Micro granular hopper with sieve and fill level indicator | (6) Setting table |
| (2) Metering unit with metering roller | (7) Sight window |
| (3) Conveyor blower fan | (8) Exchange chain wheels |
| (4) Chain drive with exchangeable chain wheels | (9) Shutter slide actuation |
| (5) Injectors | |

3.1.2 Designated use of the machine

The pneumatic micro granular spreader

- is a component of the **AMAZONE** Airplanters **ED 301**, **ED 451** as well as **ED 451-k** and has exclusively been designed for the usual operation in agriculture.
- is suited for spreading plant protective agents such as Insekticides, Helicides (slug pellets) und micro fertiliser.



Hint!

The pneumatic micro granular spreader has been designed in such a way that its dedicated and appropriate use when applying plant protective agents will not have any harmful effects on the health of human beings, animals and on ground water.

AMAZONE machines have been manufactured with great care, however, even in case of declined use, certain deviations from the application rate or even a total failure cannot totally be excluded. These deviations may be caused e. g. by:

- Varying composition of the plant protective agent (e. g. grain size distribution, specific density, humidity, geometrical shapes, dressing, sealing).
- Blocking or bridging (e.g. by foreign particles, bag residue, etc.).
- Undulated terrain.
- Wear of wearing parts (e.g. metering unit . . .).
- Damage by external influence.
- Incorrect drive RPM and travelling speed.
- Incorrect setting of the machine (incorrect mounting).

Therefore, check before any use and also during operation your machine for the proper function and sufficient application rate accuracy.

Claims regarding damage not having occurred on the pneumatic micro granular spreader PM itself would be rejected. This also applies to damage due to spreading errors. Modifications made to the pneumatic micro granular spreader by the owner/user may result in consecutive damage and the manufacturer does not accept liability for such damage.

The declined use also includes:

- The declined use also includes:
- observing all hints in this operator's manual.
- adhering the service and maintenance work.
- the exclusive use of original **-AMAZONE-** spare parts.

Other use than that stipulated is prohibited and is no longer considered as designed use.

For damage resulting from not designed use

- the operator himself will carry the full risk,
- the manufacturer will not accept any responsibility.

3.1.3 Declined equipment of the plant protective implement

The declined equipment of the pneumatic micro granular spreader PM results from the combination of

- Base implement including metering device with drive unit,
- Metering shaft consisting of individual metering wheels, placed side by side,
- Switching off for micro granular spreader,
- granular placement and
- loading board.

3.1.4 Danger zones

Within these zones permanently existing danger or unexpectedly arising danger exist. Safety symbols identify these danger zones. Here particular safety advices are valid. Please refer to chapter "General safety advice", page 14.

Danger zones prevail:

- in general, when dealing with micro granular.
- within the operational range of the chain drives

3.1.5 Conformity

The machine fulfils the:

Guide lines- / Standard terms

- Machine guide line 98/37/EG
- EMV- guide line 89/336/EWG

3.2 Assembly and function

The following chapter informs you about the assembly of the machine and the functions of the individual components.

3.2.1 Function

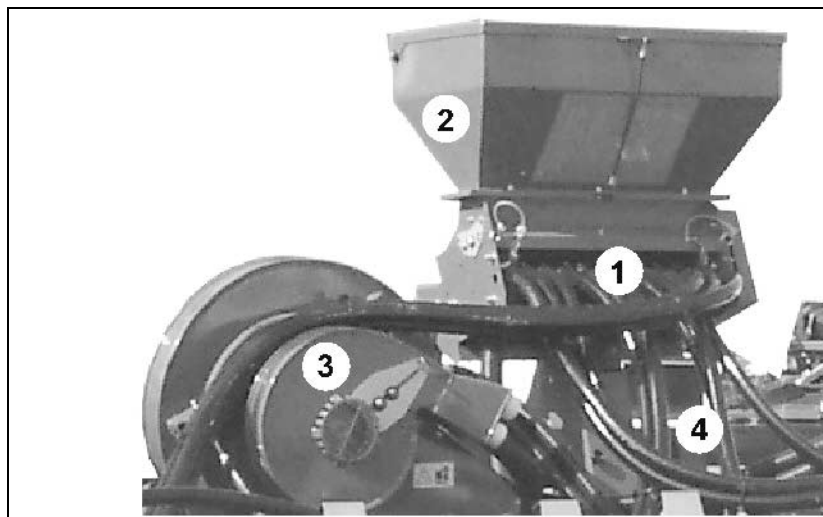


Fig. 2

The pneumatic micro granular spreader is suited for the transport and the application of plant protective agents, e.g. insecticides, herbicides and helicides (slug pellet), and micro fertiliser.

For the **AMAZONE** Airplanter **ED 02** are available

- pneumatic micro granular spreaders PM for 4-, 5- row implements
- pneumatic micro granular spreaders PM for 6-row implements.

The metering unit (Fig. 2/2) meters the plant protective agents from the storage hopper (Fig. 2/3) into the individual injector sluices which are arranged side by side. Here the air flow created by the blower fan (Fig. 2/3) takes up the metered plant protective agents and delivers them via the hoses (Fig. 2/4) to the relevant location in the sowing coulter. Insecticides are metered into the coulter from the front and helicides from the rear.

3.2.2 Crop protective agent metering

- **Metering unit**

The metering unit (Fig. 3/1) consists of individual metering wheels arranged side by side and provides the plant protective agent metering. The drive of this metering unit, consisting of one metering roller, is carried out via the transmission (Fig. 3/3) consisting of exchange chain wheels (Fig. 4/1).

The transmission adjusts the ratio for setting the various metering rates by exchanging the exchange chain wheels (Fig. 4/1). 72 different ratios can be set.

Slacken the lynch pin, pull out to the rear the metering unit from the metering position and transfer it to the emptying and calibration position.

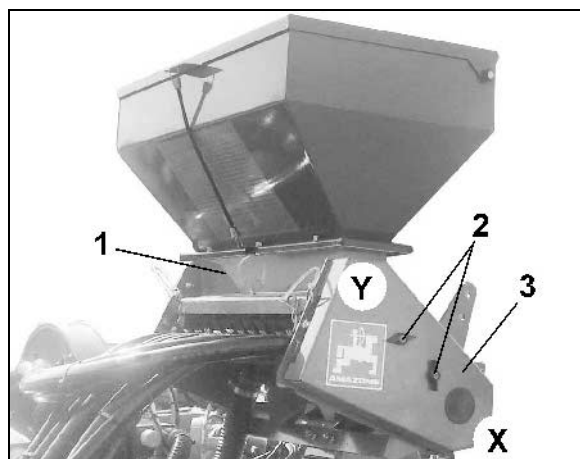


Fig. 3

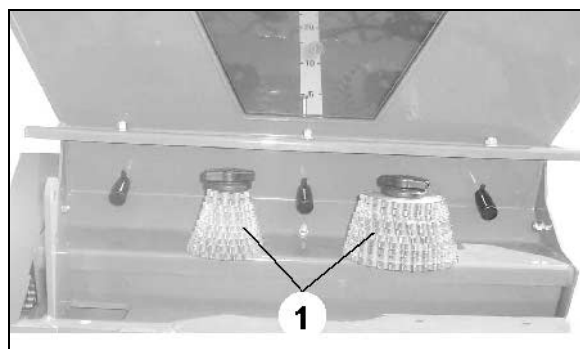


Fig. 4

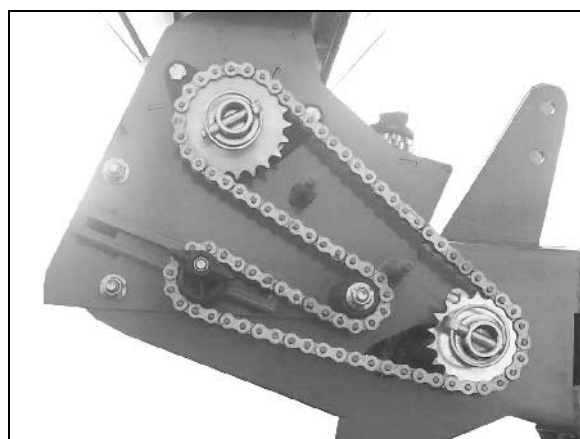


Fig. 5

• Metering shaft

For the application of different micro granular 3 different metering shafts (Fig. 6) are available.

- Metering shaft blue
– application rate < 5 kg/ha
- Metering shaft green
– application rate 5 – 15 kg/ha
- Metering shaft orange
– application rate > 15 kg/ha

The number of metering discs (Fig. 7/1) corresponds to the number of sowing units.

Inserting places for metering discs not used should be equipped with a blank wheel (Fig. 7/2).

As standard available:

- Metering shaft 4-row
- Metering shaft 6-row
- Metering shaft 8-row
- Metering shaft 12-row

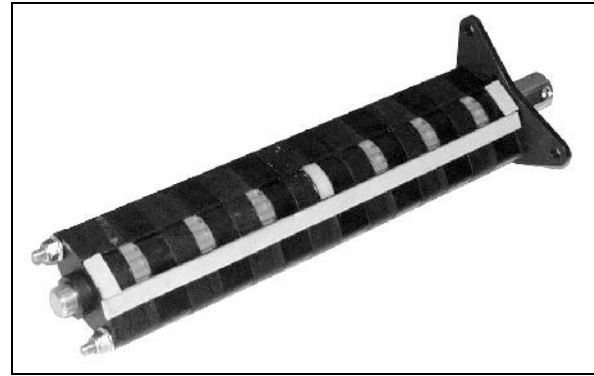


Fig. 6

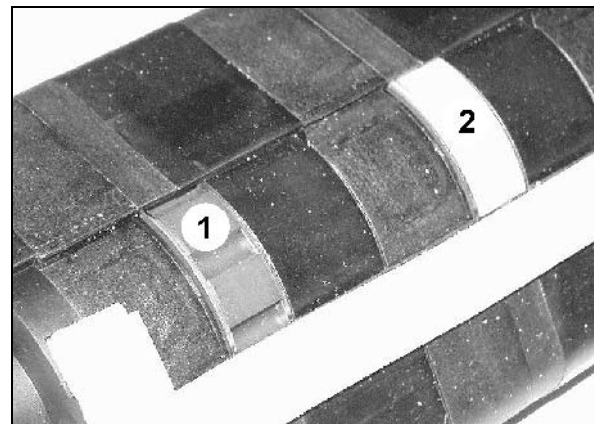


Fig. 7

3.2.3 Micro granular hopper

Hopper (Fig. 8/1) with

- sight window (Fig. 8/2)
- sieve against foreign particles
- fill level indicator
- Hopper content
 - 80 l (4 – 7 –row),
 - 90 l (8 – 12 –row).

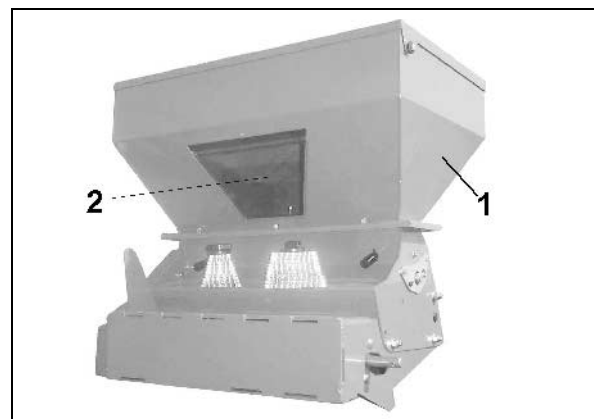


Fig. 8

3.2.4 Placement in the sowing coulter

- **Front mounting unit**

The front mounting unit

- is used for spreading
 - **insekticides**
 - **micro fertiliser**.
- consists of one hose with hose clamp, which is inserted into the front side of the sowing coulter.

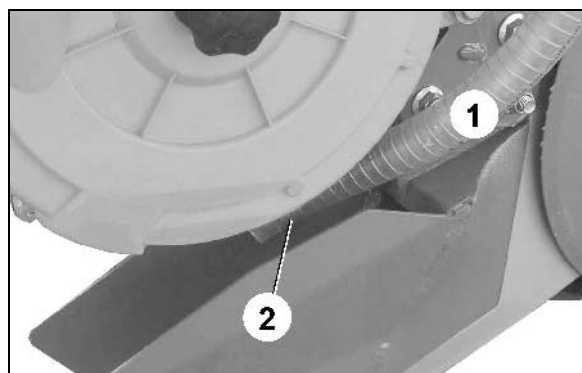


Fig. 9

- **Rear mounting unit**

The rear mounting unit

- is used for spreading **herbicides**.
- consists of the guide tube which is fitted behind the sowing coulter .

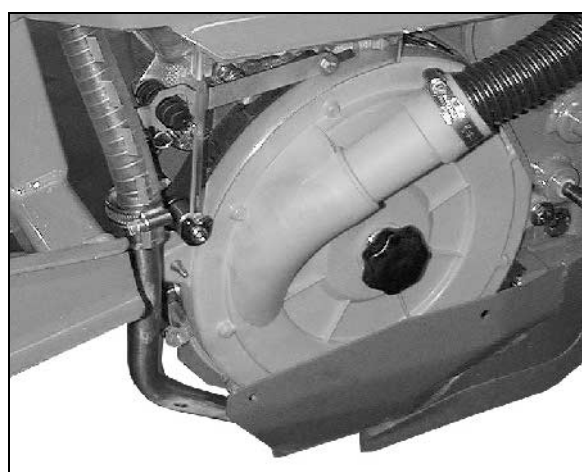


Fig. 10

- **Cyclone**

In order to prevent the plant protective agents to be blown off their location the plant protective agent/air mixture is separated inside the cyclone (Fig. 11/1).

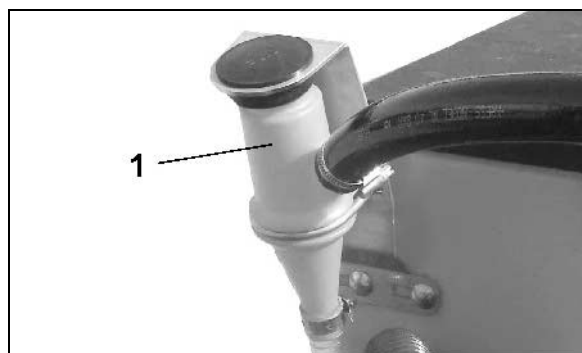


Fig. 11

3.2.5 Ground wheel drive

The drive of the metering unit is carried out by the running wheel (Fig. 12/1) of the precision Airplanter via 2 chain gearboxes - (Fig. 12/2) to the micro granular spreader.

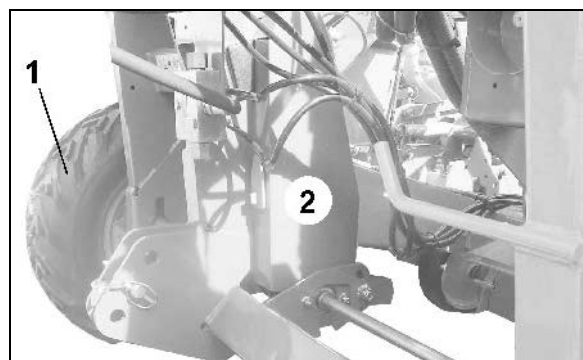


Fig. 12

If the transmission ratio is not sufficient, an additional ratio can be set in the upper chain gearbox (Fig. 13/1) by shifting the chain.

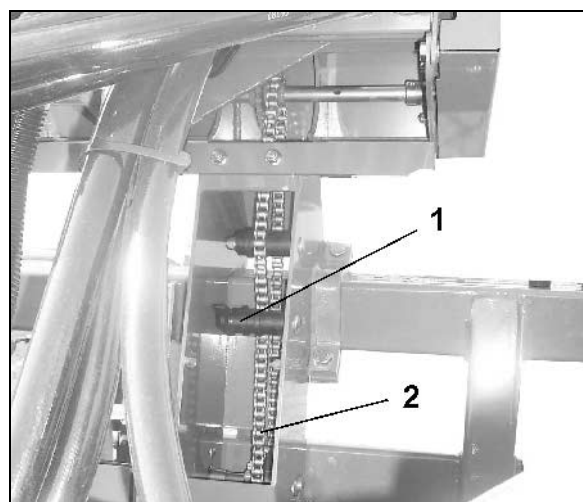


Fig. 13

- Slow ratio for normal amounts (Fig. 14/1).
- Fast ratio for large amounts (Fig. 14/2).

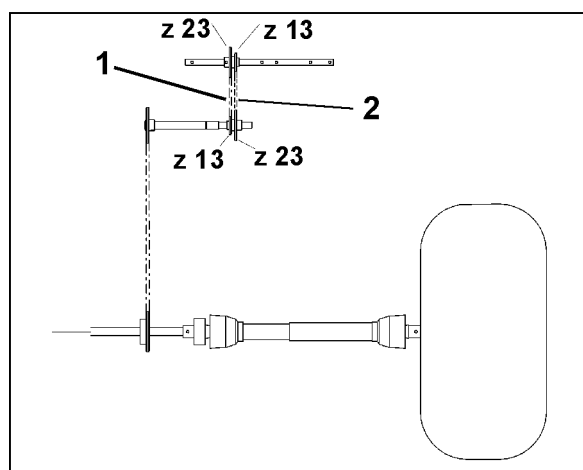


Fig. 14

3.2.6 Conveyor blower fan

The conveyor blower fan (Fig. 15/1) provides the necessary compressed air to deliver the micro granular from the micro granular spreader to the coulter.

The compressed air capacity can be adjusted via a reduction slide (Fig. 15/2).



Caution!

With the reduction slide the ED 452-K with row fertiliser spreader also affects the fertiliser delivery to the fertiliser coulters!

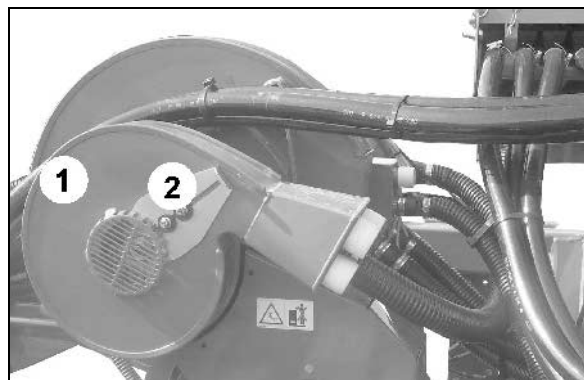


Fig. 15

3.2.7 Switching off the metering unit

(Option)

The micro granular spreader can be equipped with a switch off function (Fig. 16) for the metering unit. This switching off for the metering unit is coupled with the track marker folding and when the marker folding is actuated the drive of the metering unit is stopped, e. g. on the headlands, however also on any desired place in the field.

That means., 5 m before the Airplanter ED is lifted actuate the track marker folding to stop the drive for the metering unit. **This way, the crop protective metering is stopped and a not permitted crop protective agent placement on the soil surface is prevented.**

If the application of micro granular shall be stopped, i. e. the micro granular metering should be switched off entirely, first fold in both track markers and then shut the block tap (Fig. 17/1) for the metering unit switching off. Then actuate the track marker folding again in the known manner.

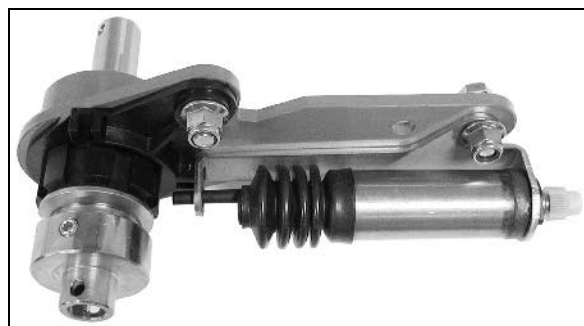


Fig. 16

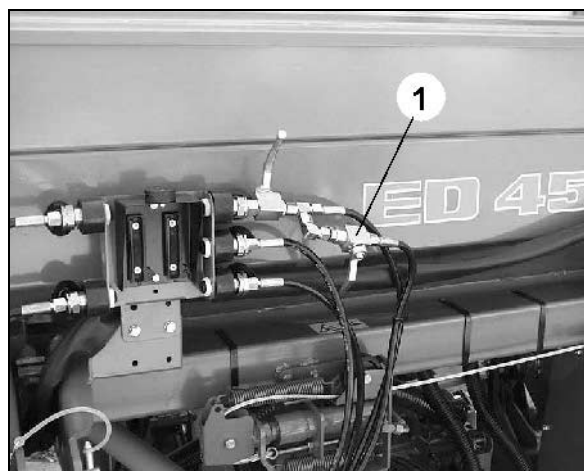


Fig. 17

3.3 Putting into operation

In this chapter you will find information for putting your machine into operation.



Danger!

- **Before putting the machine into operation ensure that the operator has read and understood the operator's manual.**
- **Before hitching the machine on or off read the chapter "Safety advice for the operator", page 7**
 - **Operation of the machine**
- **Take account to these effects and allow sufficient steering and braking of your tractor!**
- **If necessary use ballast weights!**
- **When mounting of machines at the front and/or in the rear do not exceed**
 - **the permissible tractor total weight**
 - **the permissible tractor axle loads**
 - **the permissible tyre carrying capacity of the tractor tyres**
- **The tractor must provide the prescribed brake lag for the laden combination according to the national legal traffic regulations.**
- **Tractor and machine must correspond to the local and national legal traffic regulations.**
- **Both, the vehicle owner and operator are responsible for adhering to the legal traffic rules.**
- **Observe the max. payload of the mounted or trailed machine and the axle loads of the tractor. If necessary travel with only partly filled hopper.**
- **Before any transport travel secure the control lever of the three point hydraulics against unintended lifting or lowering of the mounted or trailed machine.**

3.4 Settings



Danger!

Read the crop protective agent instructions and observe the precaution measures mentioned therein!

For a uniform crop protective agent metering ensure a minimum contents of 0.5 litres in the storage hopper.

The setting of the necessary metering rates for crop protective agents is carried out after the calibration test.

Precondition for an appropriate application of the crop protective agent is

- the proper function of the micro granular spreader and
- the correct determining and setting of the required application rates for the crop protective agents.

3.4.1 Selection of metering shaft

Selection of metering shaft:

- Metering shaft blue
– Application rate < 5 kg/ha
- Metering shaft green
– Application rate 5 – 15 kg/ha
- Metering shaft orange
– Application rate > 15 kg/ha



Caution!

The indications of quantity are only guide figures!

The necessary metering shaft also depends on

- grain shape,
- bulk density.

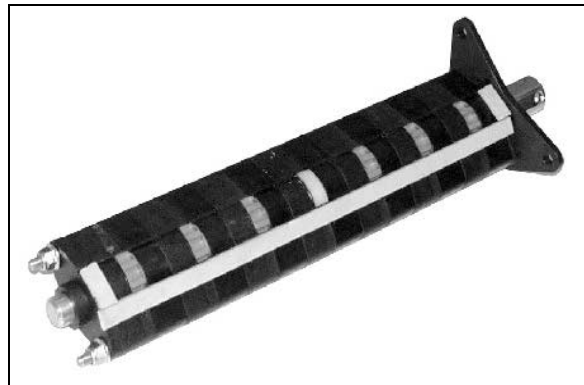


Fig. 18

Exchange of metering shafts

1. Slacken thumb nut (Fig. 19/2).
2. remove chain guard (Fig. 19/3).
3. Slacken chain tensioner (Fig. 20/2).
4. Remove chain.
5. Open shutter slide (Fig. 21/1):
 - 5.1 Slacken bolts (Fig. 21/2).
 - 5.2 Lift the shutter slide with the bolts.
 - 5.3 Tighten bolts.
6. Slacken the bolts on the metering shaft bearing (Fig. 20/3) only on the drive side.
7. Pull the metering shaft with bearing out of the metering unit.
8. Slide the new metering shaft into the metering unit and fit in the opposite way.
9. Close shutter slide (Fig. 21/1) again.

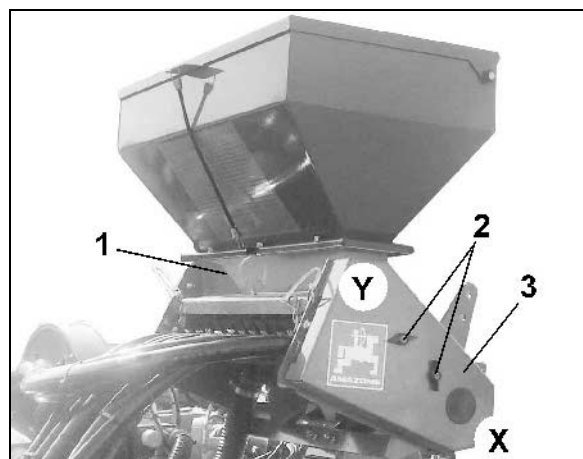


Fig. 19

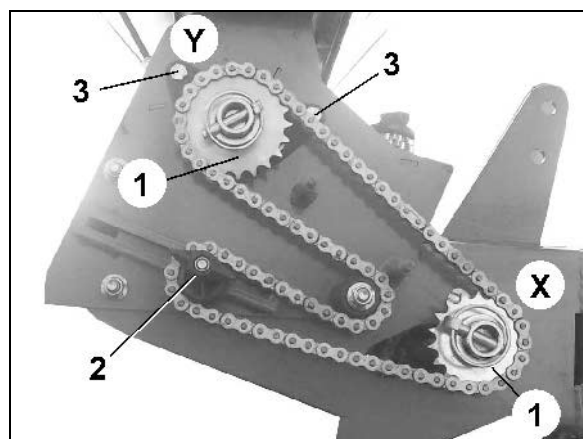


Fig. 20

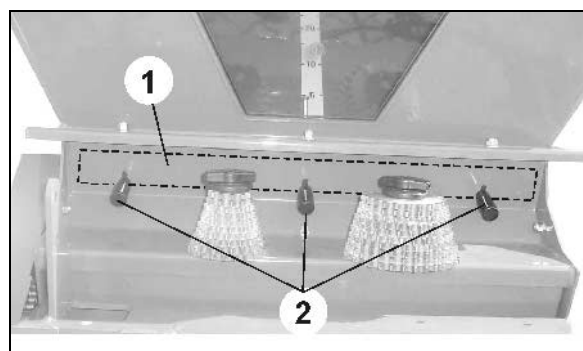


Fig. 21

3.4.2 Setting the application rate

The drive R.P.M. speed of the metering shaft determines the application rate of the crop protective agent.

The drive R.P.M.-speed of the metering shaft again depends on the transmission ratio between the counter shaft input- (Fig. 22/1) and output shaft Fig. 22/2), i.e. of the chosen chain wheel pairing (x, y).

The necessary chain wheel combination (X, Y)

- is determined with the aid of
 - a calibration test and
 - the following evaluation by using the metering disc.
- depends on
 - the type of micro granular used,
 - the desired application rate [kg/ha] and
 - the existing row spacing R [cm] of the seeder units.

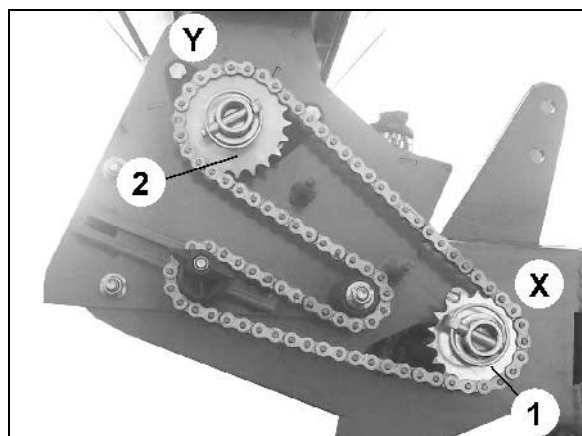


Fig. 22



Warning!

Always carry out a calibration test before starting to operate the micro granular spreader!

3.4.3 Calibration test to check the pre-set application rate

When carrying out the calibration test

- the shaft of the right hand running wheel is turned in clockwise direction with the aid of the calibration crank and this way the driving in the field is simulated.
- the application rate is collected and it is checked whether the desired and the actual application rate coincide.

The collected application rate corresponds to the application rate spread on an area of 1/10 or 1/40 ha.

We recommend to calibrate on 1/10 ha, as this provides more accurate values.

The calibration test is carried out:

1. Transmission ratio
 - o 0.9 adjust as follows (see on page 34 :
 $X = 26$
 $Y = 29$
 - o adjust according to the experience value.
2. Checking the adjustment of the slow stop on the intermediate drive (see on page 35).
1. Filling micro granular spreader (see. on page 36).
2. Pull out both lynch pins (Fig. 23/1) .
3. pull out the metering unit (Fig. 23/2) to the rear until its stop.
4. Place the collection tray (Fig. 24/2) underneath the outlet (Fig. 24/1)
5. Raise the implement so that the driving wheels do not touch the ground any more.



Caution!

Secure the machine against unintended lowering!

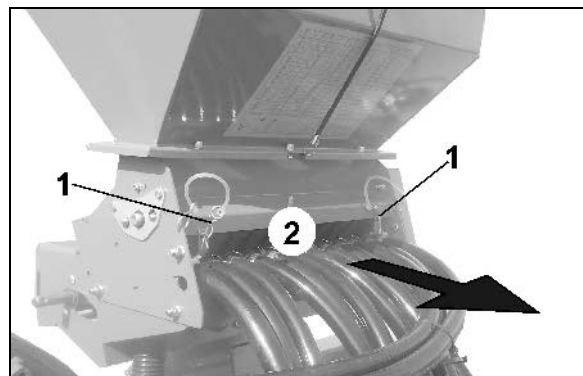


Fig. 23

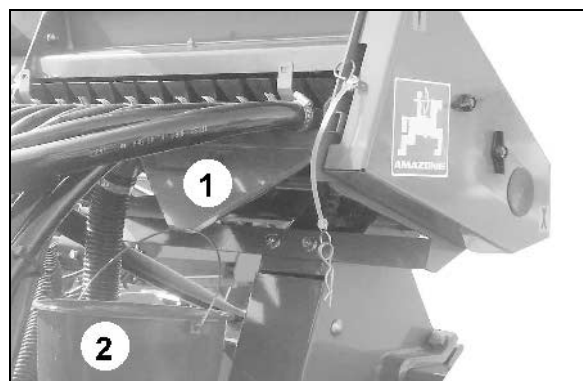


Fig. 24

6. Insert the calibration crank into the shaft (Fig. 25/1) on the right hand drive wheel.



Hint!

You will find the calibration crank in the retainer of the EDD2!

7. According to the following table carry out a number of crank turns depending on working width and tyre type.



Caution!

The values stated in table 1 are valid for the working widths 3,0 m, 4,5 m and 6,0 m. For other working widths, please convert the required crank turns.

8. Weight the collected application rate (beqar in mind the weight of the collecting bucket).



Hint!

Ensure that the balance used weighs precisely. Imprecise weighing may cause deviations at the actually applied spread rate.

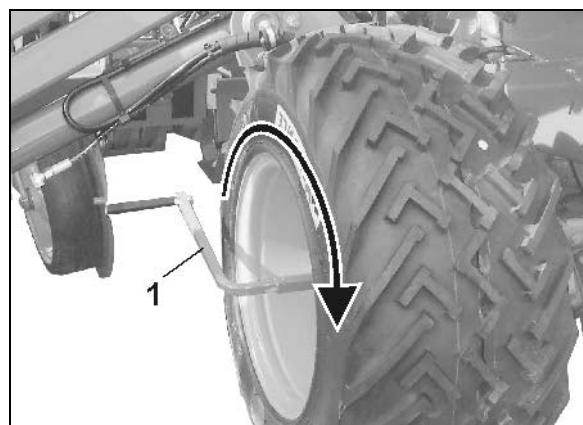


Fig. 25

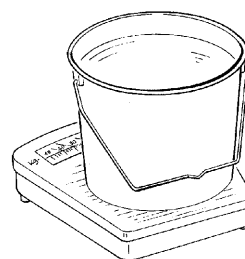


Fig. 26

Pneumatic micro granular spreaders

9. Multiply the collected amount by 10 (1/10 ha) or 40 (1/40 ha) and then convert the collected amount into kg/ha.
10. Pour the collected application rate back into the hopper.
11. Find the application rate value [kg/ha] on the metering disc (Fig. 27) and align with the pre-set ratio on the dial (Fig. 27/2).
12. Read off the required ratio at the desired application rate.
13. Find the new ratio (X, Y) with the aid of table 1 and adjust!
14. Repeat the calibration test with the newly determined ratio.

$\frac{X}{Y} = i$	$\frac{X}{Y}$	$\frac{X}{Y}$	$\frac{X}{Y} = i$	$\frac{X}{Y}$	$\frac{X}{Y}$	$\frac{X}{Y} = i$	$\frac{X}{Y}$	$\frac{X}{Y}$	$\frac{X}{Y} = i$	$\frac{X}{Y}$	$\frac{X}{Y}$	$\frac{X}{Y} = i$	$\frac{X}{Y}$	$\frac{X}{Y}$	$\frac{X}{Y} = i$	$\frac{X}{Y}$	$\frac{X}{Y}$
0,34	11	32	0,72	23	32	1,12	28	25	1,48	31	21	1,91	21	11			
0,35	11	31	0,73	22	30	1,13	18	16	1,50	18	12	1,92	23	12			
0,37	11	30	0,74	21	28	1,14	32	28	1,52	32	21	1,93	27	14			
0,38	12	32	0,75	24	32	1,15	31	27	1,53	29	19	1,94	31	16			
0,39	12	31	0,76	22	29	1,16	29	25	1,54	20	13	2,00	32	16			
0,40	12	30	0,77	24	31	1,17	14	12	1,55	17	11	2,07	31	15			
0,41	13	32	0,78	14	18	1,18	26	22	1,56	25	16	2,08	25	12			
0,42	13	31	0,79	23	29	1,19	32	27	1,57	22	14	2,09	23	11			
0,43	13	30	0,80	12	15	1,20	30	25	1,58	30	19	2,13	32	15			
0,44	14	32	0,81	22	27	1,21	29	24	1,59	27	17	2,14	30	14			
0,45	14	31	0,82	18	22	1,22	22	18	1,60	24	15	2,15	28	13			
0,46	11	24	0,83	25	30	1,23	27	22	1,61	29	18	2,17	26	12			
0,47	15	32	0,84	26	31	1,24	31	25	1,62	21	13	2,18	24	11			
0,48	11	23	0,85	23	27	1,25	15	12	1,63	26	16	2,21	31	14			
0,50	16	32	0,86	12	14	1,26	24	19	1,64	23	14	2,23	29	13			
0,52	16	31	0,87	27	31	1,27	19	15	1,65	28	17	2,25	27	12			
0,53	16	30	0,88	14	16	1,28	32	25	1,67	20	12	2,27	25	11			
0,54	15	28	0,89	22	29	1,29	18	14	1,68	32	19	2,29	32	14			
0,55	16	29	0,90	26	29	1,30	30	23	1,69	27	16	2,31	30	13			
0,56	15	27	0,91	21	28	1,31	17	13	1,71	24	14	2,33	28	12			
0,57	16	28	0,92	11	12	1,32	29	22	1,72	31	18	2,36	26	11			
0,58	15	26	0,93	28	30	1,33	16	12	1,73	19	11	2,38	31	13			
0,59	19	32	0,94	29	31	1,35	23	17	1,75	28	16	2,42	29	12			
0,60	12	20	0,95	21	22	1,36	19	14	1,76	30	17	2,45	27	11			
0,61	19	31	0,96	22	23	1,37	26	19	1,77	23	13	2,46	32	13			
0,62	16	26	0,97	31	32	1,38	22	16	1,78	32	18	2,50	30	12			
0,63	19	30	1,03	32	31	1,39	32	23	1,79	25	14	2,55	28	11			
0,64	14	22	1,04	24	23	1,40	21	15	1,80	27	15	2,58	31	12			
0,65	17	26	1,05	23	22	1,41	24	17	1,81	29	16	2,64	29	11			
0,66	19	29	1,06	17	16	1,42	17	12	1,82	20	11	2,67	32	12			
0,67	20	30	1,07	16	15	1,43	30	21	1,83	22	12	2,73	30	11			
0,68	21	31	1,08	26	24	1,44	23	16	1,85	24	13	2,82	31	11			
0,69	18	26	1,09	25	23	1,45	32	22	1,86	26	14	2,91	32	11			
0,70	16	23	1,10	32	29	1,46	19	13	1,87	28	15						
0,71	20	28	1,11	21	19	1,47	22	15	1,88	30	16						

			6,4 m	6,0 m	5,8 m	5,4 m	4,8 m		4,5 m	4,2 m	3,2 m	3,0 m	2,8 m	2,7 m
	10.0/75-15	1/10 ha	---	---	---	---	91,9		98,0	105,0	137,8	147,0	157,5	163,3
	31x15,5x15	1/10 ha	60,3	64,3	68,9	71,4	85,0		90,7	97,2	127,5	136,0	145,7	151,1
			15,1	15,1	17,3	17,9	21,3		22,7	24,3	31,9	34,0	36,4	37,8

Table 1

Example:

- Required amount: **12,5 kg/ha**
- Ratio for calibration test: **0,9**.
(chain wheel X=26, Y=29)
- Carry out **64,3** crank turns at
 - working width: 6m
 - tyres: 31x15.5x15
 - calibrate 1/10ha
- Collected amount converted into 1ha:
15kg/ha.
 1. Take the metering disc and align the ratio 0.9 with the amount 15 kg/ha.
 2. For the required amount **12,5 kg/ha** read off the ratio to be adjusted: **0,75**.
 3. For ratio 0,75 chain wheel X=24, adjust chain wheel Y=32.

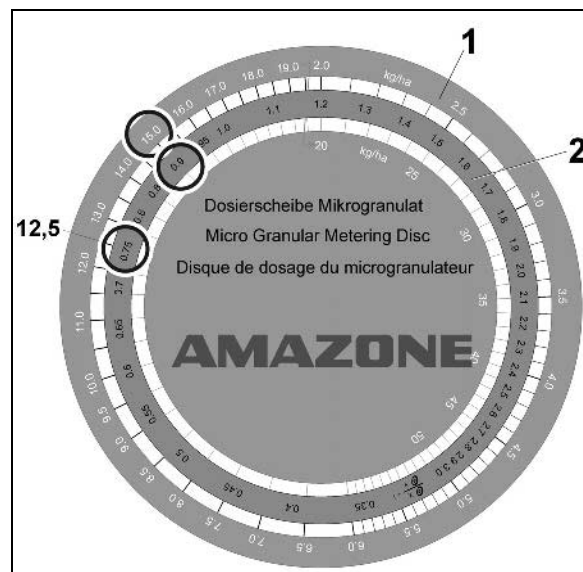


Fig. 27



Caution!

If the required application rate is not achieved with maximum ratio the ratio can be changed to "quick ratio" in the intermediate drive (see on page 35).

Conversion of the crank turns for other working widths

Example:

standard working width:	4,50 m
actual working width:	4,20 m
tyres:	10.0/75-15
crank turns :	98,0 for 1/10 ha

crank. (actual) = crank. (table 4.2) x conversion factor

$$\text{Conversion factor} = \frac{\text{standard working width [m]}}{\text{actual working width [m]}}$$

$$\frac{4,50 \text{ [m]}}{4,20 \text{ [m]}} = 1,07$$

$$\text{crank. (actual)} = 98,0 \times 1,07 = 105$$

3.4.3.1 Exchange of chain wheels in the transmission

Example:

fitted chain wheel pairing: $x = 22, y = 28$

required chain wheel pairing: $x = 14, Y = 26$

1. Slacken thumb nut (Fig. 28/1) and remove chain guard (Fig. 28/2).
2. Slacken thumb nut (Fig. 29/1) to release the chain tensioner (Fig. 29/2).
3. Remove chain (Fig. 29/3).
4. Remove lynch pin and remove chain wheels (Fig. 29/6) and (Fig. 29/7).
5. Choose the required chain wheels – for this example chain wheels with 14 and 26 teeth – among the chain wheel set (Fig. 29/8).
6. Add the removed chain wheels to the chain wheel set and secure.
7. Attach the chain wheel with 14 teeth to the input shaft x, the chain wheel with 26 teeth to the output shaft y and secure.
8. Insert the chain.
9. Tension the chain with the aid of the chain tensioner.
10. Mount chain guard.

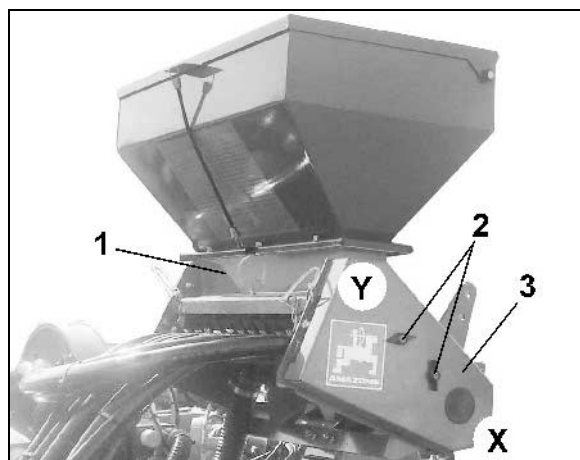


Fig. 28

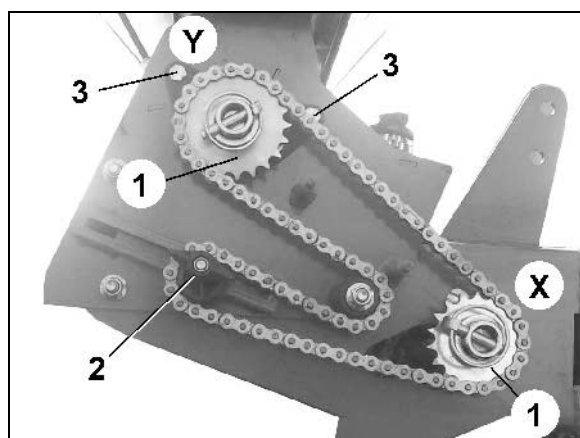


Fig. 29

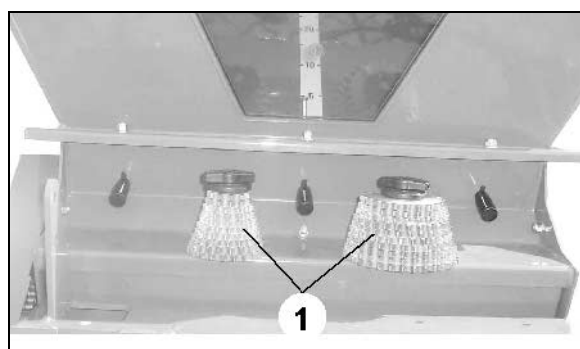


Fig. 30



Caution!

Always carry out a calibration test after having changed the ratio!

3.4.3.2 Changing the ratio in the intermediate drive

1. Slacken thumb nut (Fig. 31/2).
2. remove chain guard (Fig. 31/1).

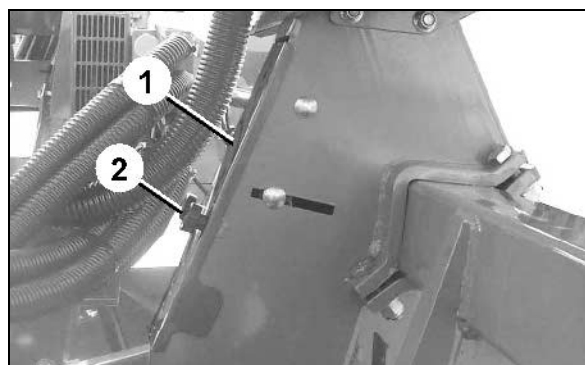


Fig. 31

3. Slacken the chain tensioner (Fig. 32/1) with the aid of the thumb nut.
4. Place the chain (Fig. 32/2) on to the desired ratio.
5. Tension the chain with the aid of the chain tensioner and tighten thumb nut.
6. Mount chain guard.

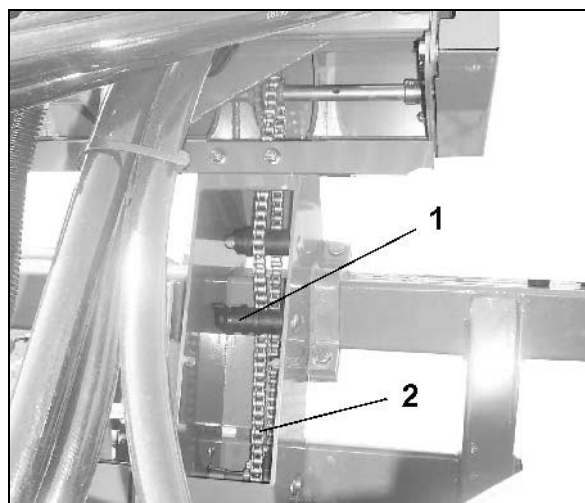


Fig. 32

- Slow ratio for usual amounts (Fig. 33/1).
 - Upper chain wheel: 23 Zähne
 - Lower chain wheel: 13 teeth
- Quick ratio for large amounts (Fig. 33/2).
 - Lower chain wheel: 13 teeth
 - Upper chain wheel: 23 teeth



Caution!

Always carry out a calibration test after having changed the ratio.

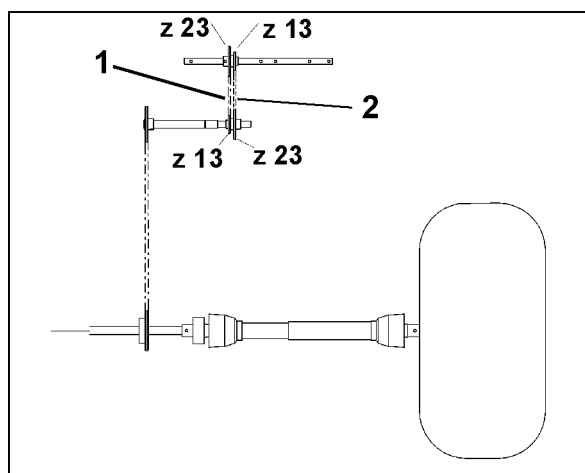


Fig. 33

3.5 Operation of the machine

**Danger!**

- When operating the machine observe the chapter "Safety advice for the operator", page 7.
- Observe the warning signs on the machine. The warning signs provide you with important hints for the safe operation of the machine. Adhering to these hints serves your safety!

3.5.1 Filling

**Danger!**

Before filling the hopper mount the Airplanter on to the tractor and place it horizontally on to the ground.

When filling and emptying the storage hopper avoid inhaling the agent dust and a direct contact with your skin (wear protective gloves and protective clothing). Afterwards thoroughly wash your hands and all affected parts of your skin using water and soap.

The accurate determination of the required filling and topping up quantities helps to avoid unnecessary contact the crop protective agent.

Fill the hopper at an aerated place.

**Warning!**

All micro granular is susceptible to humidity. When it rains, some rain drops in the hopper are sufficient to

- choke the supply hoses,
- to damage the metering wheels and thus
- to alter the required spread rate.

1. Open the micro granular hopper lid.
2. Check, whether
 - o the metering unit is in metering position and secured with lynch pin (Fig. 34/1).
 - o the sieve insert has properly been placed into the hopper.
 - o the emptying shutter (Fig. 35/1) is closed (lower position) and the bolts (Fig. 35/2) are tightened.
3. Fill the micro granular hopper from the rear using the loading board.
4. Shut the micro granular hopper lid.

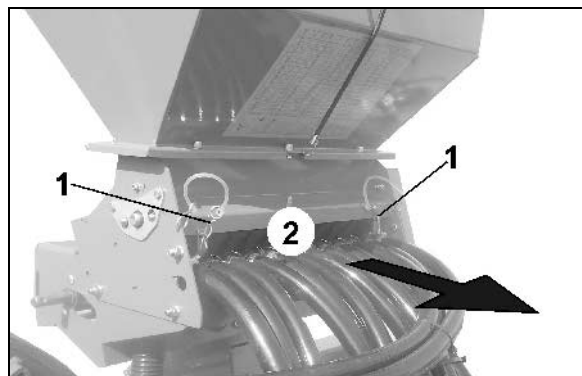


Fig. 34

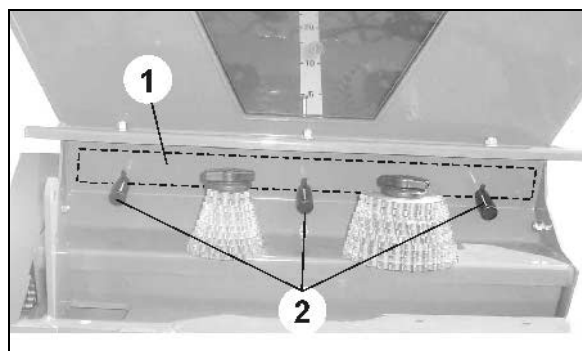


Fig. 35



Hint!

The crop protective agent quantity can be read off the two scales (4.2/3). The scales have a graduation of 5 l and indicate the filling quantities from 5 litres up to 50 litres.



Warning!

Fill the hopper with a maximum of

- 80 l (4 – 7-row)
- 90 l (8 – 12-row)

crop protective agent to avoid a not permissible flow over of crop protective agents, e. g. in case of shaking of the entire implement.

3.5.2 Working on the head lands

Only for machines with hydraulic shut off:

5 m before lifting the Airplanter ED actuate the track marker folding and thus switch off the drive for the metering unit. This way, the crop protective metering is stopped and prevents an inadmissible placement of crop protective agent on the soil surface.

If the application of micro granular shall be interrupted, e. g. the micro granular metering is entirely stopped, first fold in both track markers and then shut the block tap (Fig. 36/1) for the metering unit switching off. Then again actuate the track marker folding in the known way.

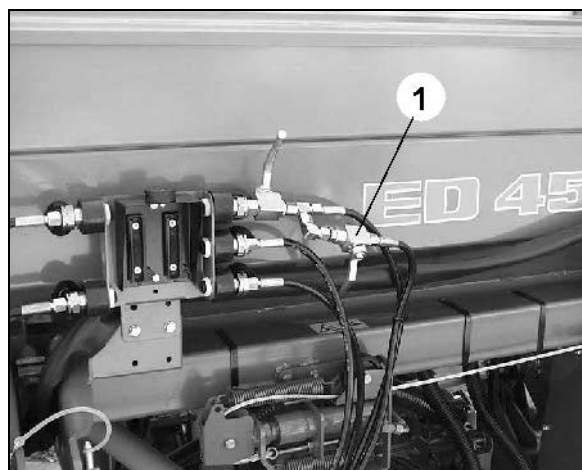


Fig. 36

3.5.3 Working width upwards folded track markers on both sides, e. g. last bout on the field's side

Only for machines with hydraulic shutt off:

Secure the folded upwards track markers in transport position by using clip pins. Then switch on and off the metering unit by actuating the track marker folding.



Caution!

Monitor the switching on and off of the metering unit via the drive control (Fig. 37/1). If the metering unit is switched on, the drive control rotates.

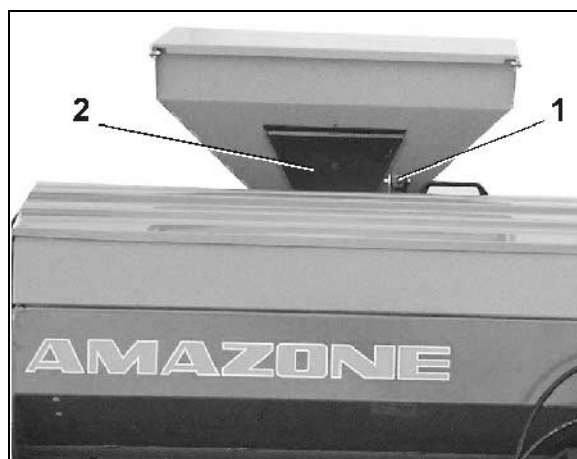


Fig. 37

3.5.4 Filling level check

The filling level inside the hopper can be watched via the sight window (Fig. 37/2) from the tractor seat.

3.5.5 Emptying the hopper

1. Pull out both lynch pins (Fig. 38/1).
2. pull out the metering unit (Fig. 38/2) to the rear until its stop
3. Place the collection tray (Fig. 39/2) underneath the outlet (Fig. 39/1)
4. Slacken the bolts(Fig. 40/2), move shutter slide upwards and open in this way, re-tighten the bolts.
→ The micro granular in the hopper flows into the collecting bucket!
5. Use a paint brush to remove the residual amount.
6. After emptying return the micro granular spreader in its metering position!
7. Close the shutter slide!



Danger!

When filling and emptying the storage hopper do not inhale the agent's dust and avoid contact with your skin (wear protective gloves and appropriate protective clothing). After application clean your hands and all affected parts of your skin thoroughly with water and soap.

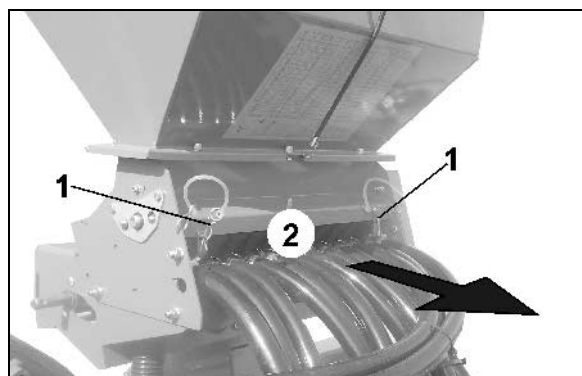


Fig. 38

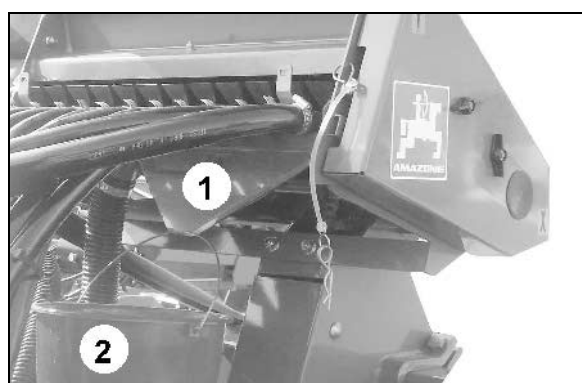


Fig. 39

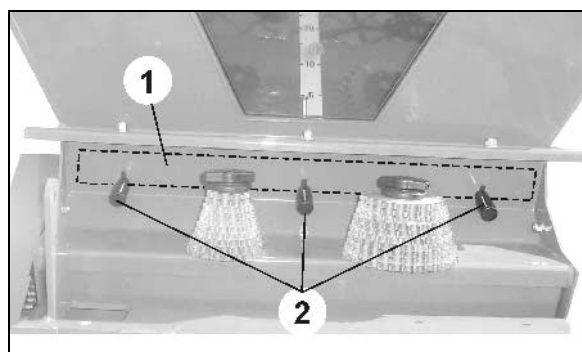


Fig. 40

4 Mechanic micro granular spreaders

4.1 Product description

This chapter

- provides you with a comprehensive survey about the design of the machine.
- provides the descriptions of the individual components and parts.

Read this chapter when standing at the machine. In this way you will get optimally acquainted to the machine.

4.1.1 Overview – components



Fig. 41

- (1) Micro granular hopper with agitator shaft and setting table
- (2) Metering unit with adjustment
- (3) Micro granular delivery into the sowing coulter
- (4) Chain drive

4.1.2 Designated use of the machine

The **mechanic** micro granular spreader

- is a component of the **AMAZONE** Airplanters **ED 302** and **ED 452** and has exclusively been designed for the usual operation in agriculture.
- is suited for the application of plant protective agents like insecticides, helicides (slug pellets) and micro fertiliser..



Hint!

The pneumatic micro granular spreader has been designed in such a way that its dedicated and appropriate use when applying plant protective agents will not have any harmful effects on the health of human beings, animals and on ground water..

AMAZONE machines have been manufactured with great care, however, even in case of declined use, certain deviations from the application rate or even a total failure cannot totally be excluded. These deviations may be caused e. g. by:

- Varying composition of the plant protective agent (e. g. grain size distribution, specific density, humidity, geometrical shapes, dressing, sealing).
- Blocking or bridging (e.g. by foreign particles, bag residue, etc.).
- Undulated terrain.
- Wear of wearing parts (e.g. metering unit . . .).
- Damage by external influence.
- Incorrect drive RPM and travelling speed.
- Incorrect setting of the machine (incorrect mounting).

Therefore, check before any use and also during operation your machine for the proper function and sufficient application rate accuracy.

Claims regarding damage not having occurred on the pneumatic micro granular spreader PM itself would be rejected. This also applies to damage due to spreading errors. Modifications made to the pneumatic micro granular spreader by the owner/user may result in consecutive damage and the manufacturer does not accept liability for such damage.

The declined use also includes:

- observing all hints in this operator's manual.
- adhering the service and maintenance work.
- the exclusive use of original **-AMAZONE-** spare parts.

Other use than that stipulated is prohibited and is no longer considered as designed use.

For damage resulting from not designed use

- the operator himself will carry the full risk,
- the manufacturer will not accept any responsibility.

4.1.3 Declined equipment of the plant protective implement

The declined equipment of the **mechanic** micro granular spreader PM results from the combination of

- Base implement including metering device with drive unit,
- granular placement and
- loading board.

4.1.4 Danger zones

Within these zones permanently existing danger or unexpectedly arising danger exist. Safety symbols identify these danger zones. Here particular safety advices are valid. Please refer to chapter "General safety advice", on page 14.

Danger zones prevail:

- in general when handling micro granular.
- in the operational range of the chain drives

4.1.5 Conformity

The machine fulfils the:

Guide lines- / Standard terms

- Machine guide line 98/37/EG
- EMV- guide line 89/336/EWG

4.2 Assembly and function

The following chapter informs you about the assembly of the machine and the functions of the individual components.

4.2.1 Function

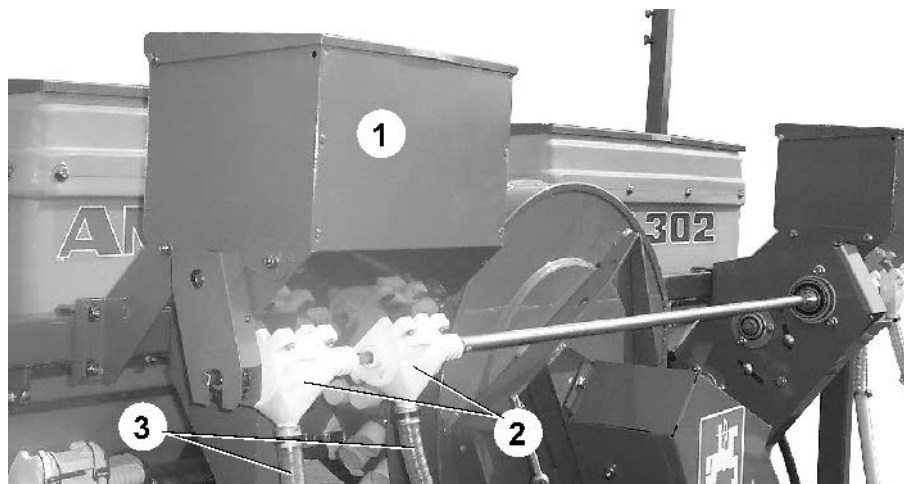


Fig. 42

The **mechanic** micro granular spreader is suited for the transport and the application of plant protective agents, e.g. insecticides, herbicides and helicides (slug pellet). And micro fertiliser

Available for the **AMAZONE** Airplanter **ED 02**

- 4 row mechanic micro granular spreader with drive and fitting components for metering granular in the front of the sowing coulter.

One micro granular hopper (Fig. 42/1) is equipped with 2 metering units (Fig. 42/2) from where – via hoses (Fig. 42/3) – the plant protective agent is delivered into the front of the sowing coulter.

4.2.2 Plant protective agent metering

• Metering unit

The metering unit (Fig. 43/1) consists of

- a conveying auger which delivers the micro granular from the hopper into the hose towards the sowing coulter.
The drive of the conveying auger is provided by the ground wheel drive and the ratio in the intermediate drive (X, Y).
- an adjustable shutter slide which meters the application rate in relation to the diameter of the opening. For setting the individual metering quantities the setting wheel (Fig. 43/2) is turned into the required position..

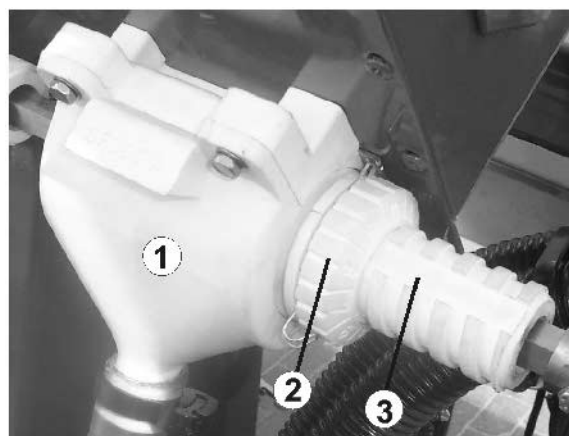


Fig. 43

• Micro granular hopper

One hopper

- Provides two metering units with micro granular.
- Has a capacity of 20 litres.

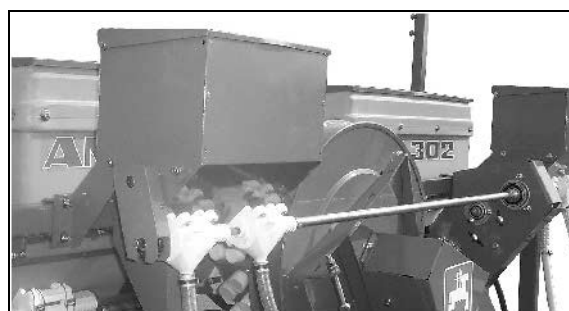


Fig. 44

4.2.3 Placement into the sowing coulter

• Front mounting unit

The front mounting unit consists of a hose with hose clamp which is inserted in the front of the sowing coulter.

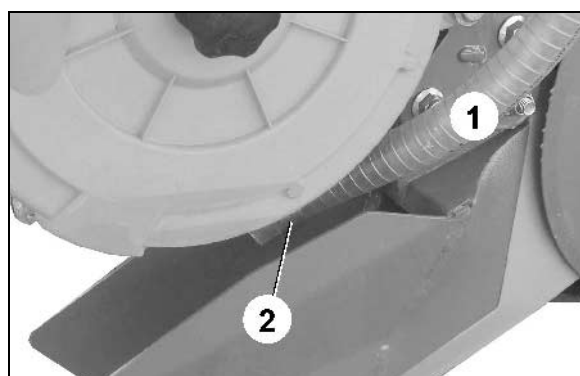


Fig. 45

4.2.4 Ground wheel drive

The drive of the metering unit is carried out by the running wheel (Fig. 46/1)) of the precision Airplanter via the intermediate drive (Fig. 46/2) to the micro granular spreader.

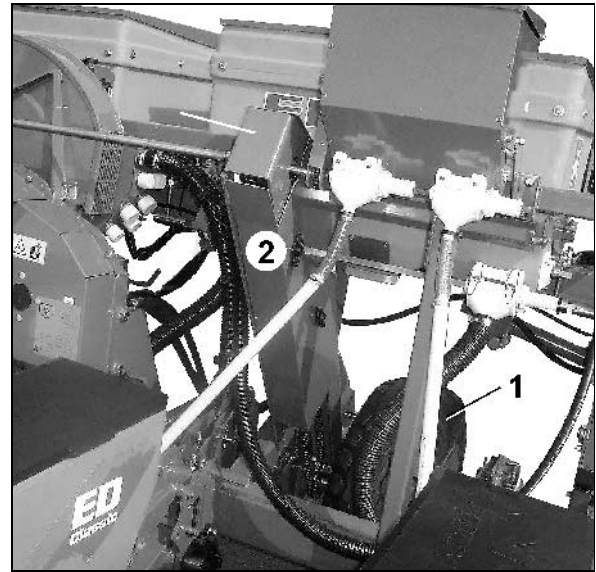


Fig. 46

Ratio X, Y with interchangeable chain wheels.

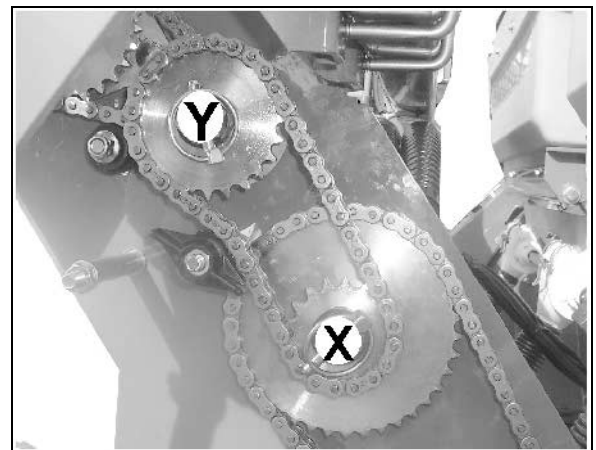


Fig. 47

4.3 Putting into operation

In this chapter you will find information for putting your machine into operation.



Danger!

- Before putting the machine into operation ensure that the operator has read and understood the operator's manual.
- Before hitching the machine on or off read the chapter "Safety advice for the operator", page 7
 - Operation of the machine
- Take account to these effects and allow sufficient steering and braking of your tractor!
- If necessary use ballast weights!
- When mounting of machines at the front and/or in the rear do not exceed
 - the permissible tractor total weight
 - the permissible tractor axle loads
 - the permissible tyre carrying capacity of the tractor tyres
- The tractor must provide the prescribed brake lag for the laden combination according to the national legal traffic regulations.
- Tractor and machine must correspond to the local and national legal traffic regulations.
- Both, the vehicle owner and operator are responsible for adhering to the legal traffic rules.
- Observe the max. payload of the mounted or trailed machine and the axle loads of the tractor. If necessary travel with only partly filled hopper.
- Before any transport travel secure the control lever of the three point hydraulics against unintended lifting or lowering of the mounted or trailed machine.

4.4 Settings



Danger!

Read the crop protective agent instructions and observe the precaution measures mentioned therein!

For a uniform crop protective agent metering ensure a minimum contents of 0.5 litres in the storage hopper.

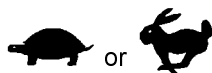
The setting of the required metering rates for the crop protective agents is carried out according to the relevant setting chart and a calibration test.

Precondition for an appropriate application of the crop protective agent is

- **the proper function of the micro granular spreader and**
- **the correct determining and setting of the required application rates for the crop protective agents.**

4.4.1 Setting the application rate

- Setting the application rate via r
 - the setting wheel (Fig. 48/2) of the metering unit (Fig. 48/1), setting figures from A – 0 to D – 9.
 - the ratio (X, Y) in the intermediate drive



- The required setting position
 - is
 - read off the setting table
 - determined by a calibration test.
 - depends on
 - The type of micro granular used.
 - The bulk density of the micro granular [kg/l].
 - The desired application rate [kg/ha].
 - The existing row spacing R [cm] of the seeder units.
- Take the setting values for the metering unit and the intermediate drive from table 2.

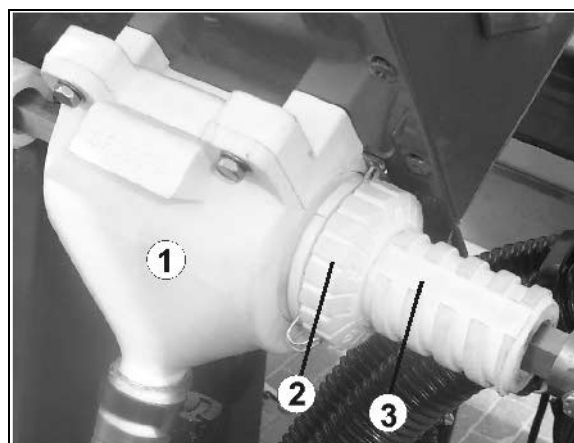
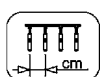


Fig. 48

Example:

- Row spacing : **75 cm**
- bulk density : **1 kg/l**
- desired application rate: **14 kg/ha**

→ Setting figures:

- intermediate ratio: 
- metering unit: **C - 5**



Warning!

Always carry out a calibration test before starting to operate the micro granular spreader!

		Mikrogranulat ED 02																			
[cm]	[kg/l]	45 cm					50 cm					60 cm					75 cm				
		0,6	0,8	1,0	1,2	1,4	0,6	0,8	1,0	1,2	1,4	0,6	0,8	1,0	1,2	1,4	0,6	0,8	1,0	1,2	1,4
 X = 17 y = 24 [kg/ha]	A - 5	4	5	6	8	9	3	5	6	7	8	3	4	5	6	7	2	3	4	5	5
	B - 0	5	7	9	11	12	5	6	8	10	11	4	5	7	8	9	3	4	5	6	7
	B - 5	9	12	15	18	21	8	11	14	16	19	7	9	11	14	16	5	7	9	11	12
	C - 0	11	15	19	23	26	10	14	17	20	24	8	11	14	17	20	7	9	11	14	15
	C - 5	14	18	23	28	33	13	17	21	25	30	11	14	18	22	26	10	13	17	20	22
 X = 24 Y = 17 [kg/ha]	D - 0	17	22	28	33	39	15	20	25	30	35	12	17	21	25	29	10	13	17	20	22
	D - 5	20	26	33	39	46	18	23	29	35	41	15	20	24	29	34	12	16	20	23	27
	A - 5	9	12	15	18	21	5	7	9	11	13	4	5	6	7	8	5	6	8	9	10
	B - 0	13	17	21	25	29	8	10	13	15	18	5	7	8	10	12	6	8	11	13	15
	B - 5	21	29	36	43	50	13	17	21	26	30	9	11	14	17	20	11	14	18	21	25
	C - 0	27	36	45	54	63	16	22	27	32	38	11	14	18	22	25	13	18	22	27	31
	C - 5	34	45	57	68	80	20	27	34	41	48	14	18	23	27	32	17	23	28	34	40
	D - 0	39	52	66	79	92	24	31	39	47	55	16	21	26	31	37	20	26	33	39	46
	D - 5	47	62	78	93	109	28	37	47	56	65	19	25	31	37	43	23	31	39	47	54
	D - 5	47	62	78	93	109	28	37	47	56	65	19	25	31	37	43	23	31	39	47	54

Tabelle 2

4.4.1.1 Setting the metering unit

1. Turn the metering ring of the metering unit in clockwise direction until the setting figure is in alignment with the setting letter.
2. Carry out the setting on all metering units!

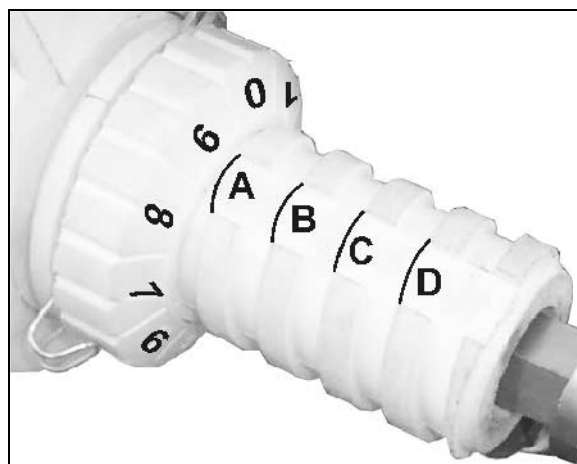


Fig. 49

4.4.1.2 Setting the ratio in the intermediate drive

1. Slacken thumb nut (Fig. 50/2).
2. remove chain guard (Fig. 50/1).

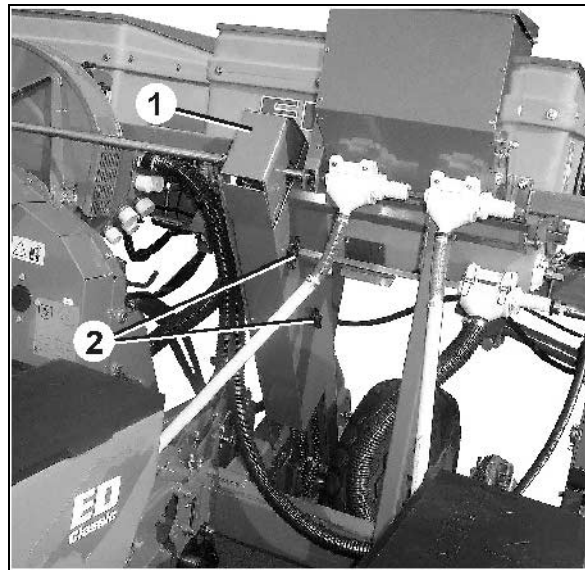


Fig. 50

3. Slacken the chain tensioner (Fig. 51/3) with the aid of the thumb nut.
4. Remove the lynch pins of the chain wheels (Fig. 51/1, 2).
5. Pull both chain wheels (Fig. 51/1, 2) including the chain off the hex. shafts.
6. Mount the chain wheels (Fig. 51/1, 2) with chain in reverse order on the hex. shafts and secure using lynch pins.
7. Tension the chain with the chain tensioner and righten thumb nut.
8. Fit chain guard again.

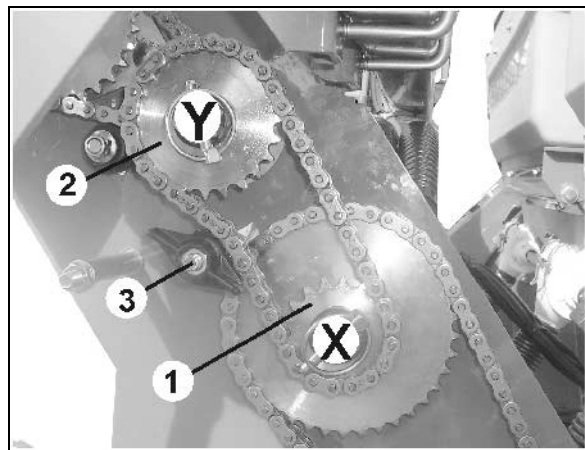


Fig. 51

-  - Ratio for smaller amounts:
 - **Y** –Upper chain wheel: 24 teeth
 - **X** –Lower chain wheel: 17 teeth
-  - Ratio for larger amounts:
 - **Y** –Upper chain wheel: 17 teeth
 - **X** –Lower chain wheel: 24 teeth

4.4.2 Calibration test to check the pre-set application rate

When carrying out the calibration test

- the shaft of the right hand running wheel is turned in clockwise direction with the aid of the calibration crank and this way the driving in the field is simulated.
- the application rate is collected and it is checked whether the desired and the actual application rate coincide.

The collected application rate corresponds to the application rate spread on an area of 1/10 or 1/40 ha.

Carrying out the calibration test:

1. Set the metering units according to the table (see on page 49).
2. Adjust the ratio (X, Y) in the intermediate drive (see on page 50).
3. Fill micro granular spreader (see on page 53).
4. Insert the hose ends of all metering units in each one collecting bucket.
5. Raise the implement so that the driving wheel do not touch the ground any more.



Caution!

Secure the machine against unintended lowering!

6. Insert the calibration crank into the shaft (Fig. 52/1) on the right hand drive wheel



Hint!

You will find the calibration crank in the retainer of the **ED02!**

7. According to Tabelle 2 depending on
 - o number of rows
 - o row spacing
 - o tyres

conduct a specific number of crank turns.

8. Weigh the collected application rate (bear in mind the weight of the collecting bucket).



Hint!

Ensure that the balance used weighs precisely. Imprecise weighing may cause deviations at the actually applied spread rate.

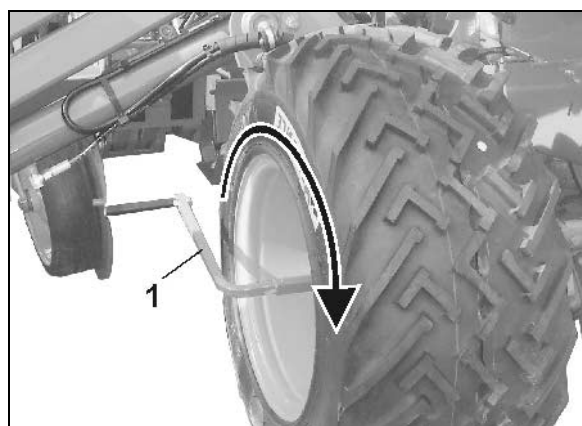


Fig. 52

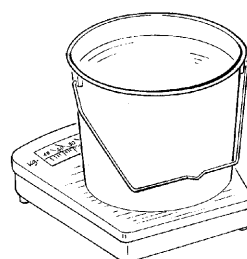


Fig. 53

9. Multiply the collected amount by 40 (1/40 ha) and in this way convert the collected amount into kg/ha.
10. Set the converted amount kg/ha in the metering unit.
 - o The collected amount x 40 is **bigger** than the required amount →
turn the metering ring to a **smaller** value.
 - o The collected amount x 40 is **smaller** than the required amount →
turn the metering ring to a **bigger** value.
11. Pour the collected amount back into the hopper
12. Repeat the calibration test with the aid of the new figures.

4.4.2.1 Conversion of the crank turns for other row spacings:

Example:

Row spacing in Tabelle 2: 45 cm

Actual row spacing: 37,5 cm

tyres: 10.0/75-15

crank turns: 40,9 for 1/40 ha according to Tabelle 2

crank. (actual) = crank. (table 4.2) x conversion factor

$$\text{Conversion factor} = \frac{\text{standard working width [m]}}{\text{actual working width [m]}}$$

$$\frac{4,50 \text{ [m]}}{4,20 \text{ [m]}} = 1,07$$

$$\text{crank. (actual)} = 40,9 \times 1,07 = 43,8$$

4.5 Operation of the machine



Danger!

- When operating the machine observe the chapter "Safety advice for the operator", page 7.
- Observe the warning signs on the machine. The warning signs provide you with important hints for the safe operation of the machine. Adhering to these hints serves your safety!

4.5.1 Filling



Danger!

Before filling the hopper mount the Airplanter on to the tractor and place it horizontally on to the ground.

When filling and emptying the storage hopper avoid inhaling the agent dust and a direct contact with your skin (wear protective gloves and protective clothing). Afterwards thoroughly wash your hands and all affected parts of your skin using water and soap.

The accurate determination of the required filling and topping up quantities helps to avoid unnecessary contact the crop protective agent.

Fill the hopper at an aerated place.



Warning!

All micro granular is susceptible to humidity. When it rains, some rain drops in the hopper are sufficient to

- choke the supply hoses,
- to damage the metering wheels and thus
- to alter the required spread rate.

1. Open the micro granular hopper lid.
2. Fill the micro granular hopper from the rear using the loading board.
3. Shut the micro granular hopper lid.



Warning!

Fill the hopper with a maximum of 20 l crop protective agent to avoid a not permissible flow over of crop protective agents, e. g. in case of shaking of the entire implement..

4.5.2 Emptying the hopper

1. Place/hook appropriate collecting buckets underneath the emptying flap.
 2. Slacken the thumb nuts of both emptying flaps (Fig. 54/1).
 3. Open both flaps.
- The micro granular inside the hopper flows into the collecting bucket!
4. Use a paint brush to remove the residual amount.
 5. Close the emptying flaps and secure using thumb nuts.

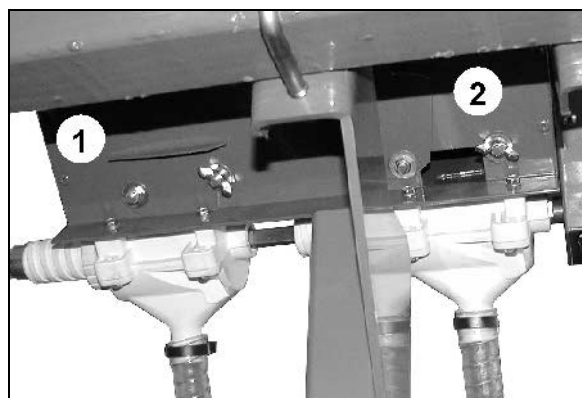


Fig. 54



Danger!

When filling and emptying the storage hopper do not inhale the agent's dust and avoid contact with your skin (wear protective gloves and appropriate protective clothing). After application clean your hands and all affected parts of your skin thoroughly with water and soap.

5 Faults

Faults	Cause	Remedy
Blockage inside	Moist micro granular	• Empty hopper • Clean and dry hopper, metering unit and delivery hose.
• hopper • metering unit • delivery hose		

6 Maintenance, repair and care

6.1 Cleaning



Important!

- Monitor brake-, air and hydraulic hoses with special care.
- Never ever treat brake-, air- and hydraulic hoses with petrol, benzole, paraffin or mineral oils..
- After cleaning grease the machine, especially after cleaning with a high pressure cleaner / steam jet or fat soluble agents.
- Observe the legal prescriptions for the handling and disposal of cleaning agents.

Dry cleaning



Caution!

After emptying carry out an internal cleaning of the

- hopper
- metering units

by using a paint brush!



Danger!

When cleaning the storage hopper do not inhale the agent's dust and avoid contact with your skin (wear protective gloves and appropriate protective clothing). After application clean your hands and all affected parts of your skin thoroughly with water and soap

6.1.1 Greasing points - overview

Greasing points	Kind of greasing	Intervals [h]
Drive chains	Apply oil	100

6.2 Bolt torques

Thread	Spanner size [mm]	Torques [Nm] depending on bolt / nut quality		
		8.8	10.9	12.9
M 8	13	25	35	41
M 8x1		27	38	41
M 10	16 (17)	49	69	83
M 10x1		52	73	88
M 12	18 (19)	86	120	145
M 12x1,5		90	125	150
M 14	22	135	190	230
M 14x1,5		150	210	250
M 16	24	210	300	355
M 16x1,5		225	315	380
M 18	27	290	405	485
M 18x1,5		325	460	550
M 20	30	410	580	690
M 20x1,5		460	640	770
M 22	32	550	780	930
M 22x1,5		610	860	1050
M 24	36	710	1000	1200
M 24x2		780	1100	1300
M 27	41	1050	1500	1800
M 27x2		1150	1600	1950
M 30	46	1450	2000	2400
M 30x2		1600	2250	2700



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