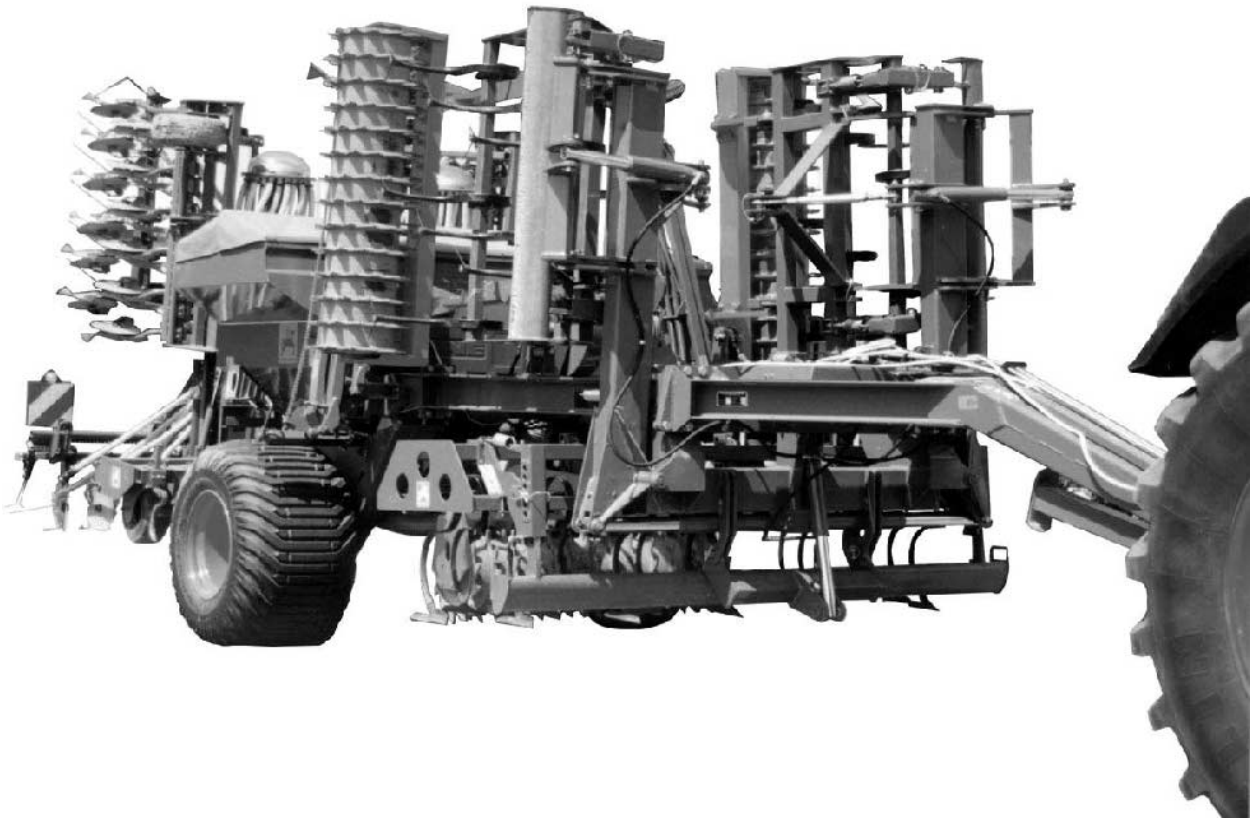
Large Area Seed Drill

Airstar Xpress

Instruction Manual



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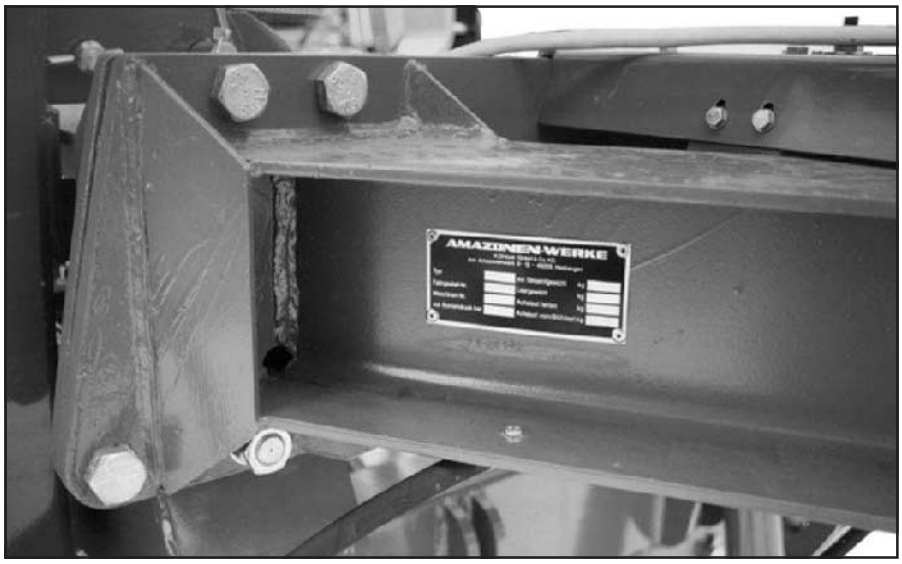
GB

⚠ Before starting operation carefully read and adhere to this instruction manual and the safety advice.

The **large area seed drill AMAZONE Airstar Xpress** is yet another product from the large range of AMAZONE Farm machinery.

This technique in conjunction with correct operation allows an optimum use.

Therefore carefully read and observe this instruction manual, as claims due to operational faults have to be rejected.



Please enter the serial number of your seed drill here. You will find the serial number on the type plate on the right hand side of the frame - seen in the driven direction.

Seed drill AMAZONE AirstarXpress _____

Serial-No.: _____

When ordering components or filing claims, please always state the type of machine and it's serial-No.

To ensure general safety and accident prevention advice is applicable - **original-AMAZONE-spare parts** must be used.

Before starting operation read the instruction manual and observe the safety advice.

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1.0 Details about the machine

1.1 Manufacturer

AMAZONEN-Werke H. Dreyer GmbH & CO.KG,

P. O. Box 51,

D-49202 Hasbergen-Gaste / F. R. Germany.

1.2 Technical cata

Machine type	Airstar Xpress
Working width [m]	6,00
Transport width [m]	3,00
Total weight (empty) [kg]	6500
Permissible payload [kg]	9000
Max. supporting load [kg]	1500
Hitching lower links	trailed
Number of coulters	48
Spacing between the coulters within one row [cm]	12,5
Seedbox capacity [l]	3000
Metering mechanical / pneumatical	pneum.
Operational speed [k.p.h]	10-12
Required tractor power [KW] minimum	125

1.3 Details about noise level

The tractor operator seat related emission value is 74 dB(A), measured when operating with closed tractor cab at the ear of the tractor operator with the implement OPTAC SLM5.

2.0 Important Hints

2.1 Safety-Warning symbol

In this operator instructionmanual this symbol is used with all operator safety hints at which life or health of persons is in danger. Please adhere to these hints and be especially careful in such cases. Please pass on all operator safety hints to other users of this machine. In addition to the hints in this operator instructionmanual, there are included general safety and accident preventive advice which should be adhered to.

2.2 Attention symbol

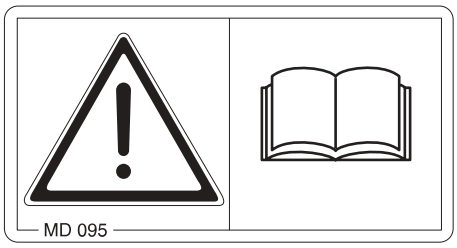
This symbol will always be found in such places of this instruction book which should especially be adhered to in order to comply with rules, advice, hints and the correct procedure of the machine's operation as well as to prevent damage to the implement.

2.3 Hint symbol

This symbol marks machine's specific points which should be observed to ensure the correct operation.

2.4 Warning pictographs and hint symbols on the machine

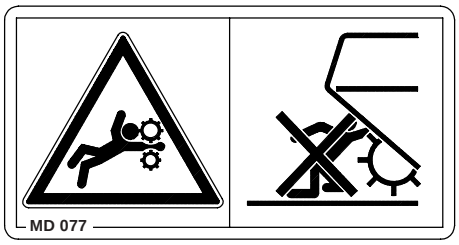
- The warning pictographs indicate dangerous points on the machine. Observing these pictographs means safety for all persons using this machine. The warning pictographs always come together with safety/warning symbols.
- The hint symbols mark machine's specific points which have to be observed to ensure a correct function of the machine.
- Strictly observe all warning pictographs and hint symbols!
- Please pass on all safety advice also to other users!
- Always keep all warning pictogrqaphs and hint signs clean and in a readable condition. Please ask for replacement of damaged or missing signs from your dealer and attach to relevant place (picture No. = Order-No.)!
- Please refer to the following pages for relevant explanations..



Picture No: **MD 095**

Explanation:

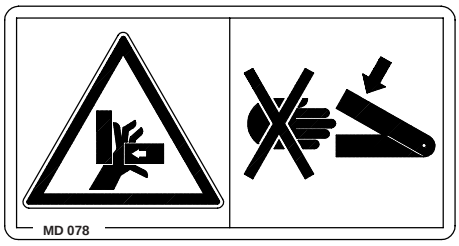
Before commencing operation read the operation manual thoroughly..



Picture No.: **MD 077**

Explanation:

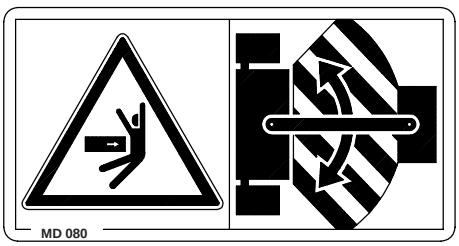
Never reach into the danger area of the metering rollers when tractor engine is running.



Picture No.: **MD 078**

Explanation:

Never reach into the zone of danger of bruising as long as parts are still moving.



Picture No.: **MD 080**

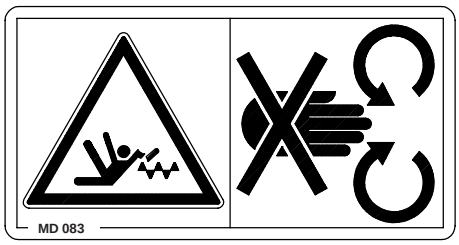
Explanation:

Do not stay within the articulation area when motor is running !

Picture No.: **MD 082**

Explanation:

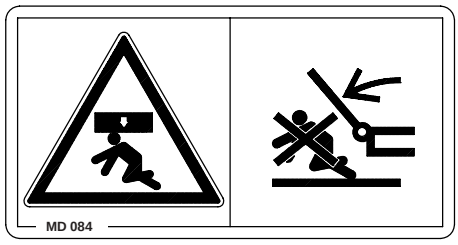
Sitting or standing on the implement during operation or during road transport is prohibited!



Picture No.: **MD 083**

Explanation:

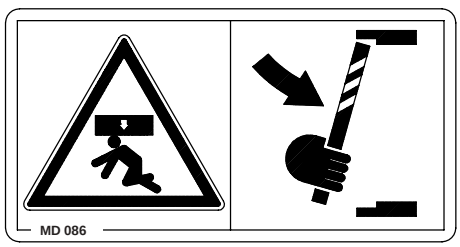
Never touch rotating implement parts.



Picture No.: **MD 084**

Explanation:

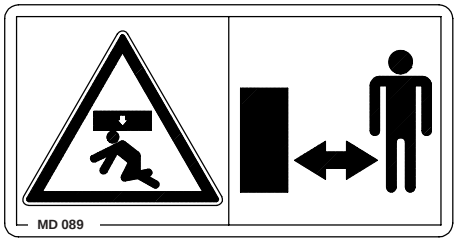
Never stay within the implement's swivel area! Advise people to leave the danger area!



Picture No.: **MD 086**

Explanation:

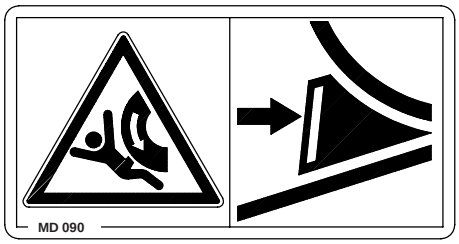
Staying within the danger zone is only permitted when in the locked transport position.



Picture No.: **MD 089**

Explanation:

Do not stay under a lifted, unsecured load.



Picture No.: **MD 090**

Explanation:

Use chock before uncoupling and parking the machine.

2.5 On receipt of the machine

When receiving the machine check that no damage has been caused in transit and all parts are present. Only the immediate claim will lead to compensation. Please check whether all parts mentioned in the delivery note are present.

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

2.6 Declined use of the machine

The large area seed drill **Amazone Airstar Xpress** has exclusively been designed for the usual operation in agriculture. The large area seed drill **Airstar Xpress** is suited for sowing all common seeds.

Any use beyond the one stipulated above is no longer considered as designed use. The manufacturer does not accept any responsibility for damage resulting from this; therefore the operator himself carries the full risk.

Under "designed use" the adherance to the manufacturer's prescribed operation maintenance and repair conditions as well as the exclusive use of **orginal-AMAZONE-spare parts** is required.

The large area seed drill **Airstar Xpress** may only be operated, maintained and repaired by such persons who have been made acquainted with it and who have been advised about the dangers.

All applicable accident preventive advice as well as any further generally accepted safety-, working-, medical- and road-traffic rules and any safety advice on the machines' labels should be adhered to.

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

Though machines having been manufactured with great care by us, certain deviations in the seed rate or even a total failure cannot be excepted. These deviations may be caused e. g. by:

- Varying composition of the seeds (e. g. distribution of grain size, bulk density, geometrical shape, dressing, sealing).
- Drifting.
- Blockages or bridgings (e. g. by strange particles, residue of bags etc.).
- Undulated terrain.
- Wear of wearing parts (e. g. seed wheels, V-belts etc.).
- Damage by external influence.
- Wrong drive-R.P.M. and travelling speed.
- Wrong setting of the machine (incorrect mounting).

Therefore, check and ensure that your machine is functioning correctly before and during use and observe sufficient sowing accuracy.

Claims regarding damage not having occured on the large area seed drill itself will be rejected. This also applies to damages due to sowing errors. Arbitrary changes on the large area seed drill may cause damages and rule out the responsibility of the supplier for these damages.

3.0 General safety and accident prevention advice

In general:

Always check traffic and operation safety before putting the machine into operation!

1. Adhere to the general rules of health- and safety precautions besides the advice in this instruction manual!
2. The fitted warning- and advice lables and plates give important hints for safe operation; adhering to them protects your own safety!
3. When making use of public roads adhere to applicable traffic rules!
4. Become acquainted with all installation and controlling devices as well as with their function before beginning with the operation. Doing this during operation would be too late!
5. The clothing of the operator should fit well. Avoid wearing any loose clothing!
6. To avoid danger of fire keep your machine clean!
7. Before beginning to drive, check surrounding area (children etc.). Ensure sufficient visibility!
8. Sitting or standing on the implement during operation or during transport is not permissible!
9. Attach implements as advised and only to the attachment points provided!
10. Special care should be taken when the implement is coupled to or off the tractor!
11. When attaching or removing the machine bring the supporting devices into the corresponding position (standing safety)!
12. Fit counter-weights always as advised to the fixing points provided for that purpose on the tractor!
13. Adhere to the maximum permissible axle loads, total weights and transport measurements!
14. Fit and check transport gear, traffic lights, warning plates and guards!
15. The release ropes for quick coupler should hang freely and in the lowered position they must not release by themselves!
16. During driving never leave the operator's seat.
17. Stability and braking are influenced by mounted implements, trailers and ballast weights. Check sufficient steerage and braking!
18. When lifting a three-point-implement the front axle load of the tractor is reduced depending on its size. The sufficient front axle load (20 % of the tractor net weight) has to be maintained!
19. When driving around bends note the width of the machine and/or the changing centre of gravity of the implement!
20. Start operating implements only when all guards have been fitted in guarding position.!
21. Remaining within the operating area is prohibited!
22. Never stay within the turning- or swivelling area of the machine!
23. Hydraulic folding frames may only be actuated if no persons are staying in the slewing area!
24. In the area of actuated parts (e.g. hydraulical) there is danger of injury by its squeezing and shearing places!
25. Before leaving the tractor seat lower the machine to the ground. Actuate the parking brake, stop the engine and remove ignition key!
26. Do not allow anyone to stand between tractor and implement, if the tractor is not secured against rolling away by the parking brake and/ or by the supplied chocks!
27. Secure marker arms in transport position!
28. When filling the seed box do not exceed the nominal weight!
29. Use steps only for filling. Staying on the steps during operation is prohibited!

3.1 Tractor mounted/trailed implements

1. When hitching the machine to the three-point linkage bring system levers into such a position that unintended lifting or lowering is impossible!
2. When fitting to the three-point linkage the mounting categories at the tractor and the implement must be comparable or must be made comparable!
3. There is danger of injury when mounting implements to the tractor!
4. Secure trailers against rolling away (use parking brakes, chocks).
5. In the area of the three point linkage there is danger of injury by its squeezing and shearing places!
6. Never allow anyone to stay between tractor and implement without having secured by chocks against rolling away!
7. Implements and trailers should only be fitted to the provided attachment points! In other words: use the correct method of mounting the machine. The three point linkage.
8. Consider the max. permissible supporting load of trailer draw bars, hitches or tool bars!
9. When fitting drawbars sufficient manoeuvrability on the itching point should be provided!
10. Hitch up trailers according to law. Check the function of the brakes of the trailed implement. Adhere to the manufacturer's advice!
11. When travelling with trailers, the tractor's independent brakes must be linked.
12. When travelling on public roads lock all devices in transport position!
13. When driving on the road and around bends with trailed or mounted implements mind the wide protrusions and the dynamic forces of the implement!
14. Before travelling on public roads secure all loose components against swinging out of their stowed position.
15. When operating the supporting devices danger by squeezing or shearing may occur!
16. The adjustment of loaded drawbars must always be conducted in a suitable workshop.
17. With single-axle trailers mind the load transfer of the tractor front axle and the influence to the stability of the tractor by the rear load!
18. Care must be taken, when parking mounted implements or trailers!
19. Repair, maintenance- and cleaning operations as well as remedy of function faults should be conducted with a stopped engine. Remove ignition key!
20. Never remove safety guards !

3.2 Hydraulic system

1. The hydraulic system is under high pressure!
2. Connect hydraulic hoses to the hydraulic rams and motors according to the advice in the instructions!
3. When fitting the hydraulic hoses to the tractor hydraulic sockets always ensure that the hydraulic system at the tractor's as well as at the implement side is without pressure!
4. To avoid wrong hydraulic connection, sockets and plugs should be marked (e. g. colour coded). This helps to prevent contrary function, e. g. lifting instead of lowering. Danger of accident!
5. Regularly check hydraulic hoses and pipe lines and exchange if found defective. The replacement hoses and pipe lines must meet with the implement manufacturer's technical standards!
6. When searching for leaks appropriate aids should be used because of the danger of injury.!
7. Liquids leaking under high pressure (hydraulic oil) can penetrate the skin and cause severe injury. When injured see a doctor immediately! Danger of infection!
8. Before starting repair work to the hydraulic system relieve it from pressure by actuating the control lever accordingly, lower the machine to the ground and stop tractor engine!
9. The period of use of any hose circuit should not exceed six years including a possible storing period of two years maximum. Also when stored and used properly hoses and hose circuits do age. Therefore, their longevity and period of use is limited. Deviations from the above may be accepted depending on the experience they have had and the danger potential. For hoses and hose circuits made of thermoplasts other guide lines may prevail.

3.3 Brakes

1. Check functions of brake before travelling on public roads!
2. Brake systems should be regularly checked!
3. Setting up and repair work of the braking system must only be conducted by specialists, workshops with approved services!
4. When travelling on public roads independent braking on the tractor must be excluded (lock both pedals).

3.4 Bolted connections, tyres

1. Repair work to the tyres may only be conducted by trained personnel who have special equipment!
2. When working on the wheels make sure that the machine is safely parked and secured against rolling away (chocks)!
3. Excessive air pressure may cause the tyre to explode! Observe recommendations.
4. Check air pressure regularly.!
5. All fixing bolts and nuts should be retightened frequently!
6. This retightening should be conducted after evedry change of the wheels!

3.5 General safety and accident prevention advice for maintenance, repair and cleaning

1. Repair, maintenance- and cleaning operations as well as remedy of function faults should principally be conducted with a stopped drive and engine. Remove ignition key!
2. Frequently check nuts and bolts for tightness and retighten as necessary!
3. All fixing bolts and nuts should be retightened as advised by the manufacturer!
4. Before conducting electric welding operations on tractor or on the mounted implement, remove leads from generator and battery!
5. Any spare parts fitted must, in minimum, meet witht he implement manufacturers' fixed technical standards. This is, for example, ensured by using orginal-**AMAZONE**-spare parts!
6. When carrying out repair work on a reiased implement secure the implement by proper supporting axle stands!
7. For changing operation tillage tools with cutting edges use proper tools and wear gloves!

4.0 Product description

The large area seed drill **Airstar Xpress** is especially suited for

- **mulch sowing as well as**
- **conventional tillage sowing.**

The **seed bed preparation** is carried out by the **three-stagger cultivator harrow** (4.1/1) with its 29 spring tines.

The levelling bar in front (4.1/2) (option) levels the soil. Its working height can be set in several positions. When hitting obstacles the levelling bar can give way upwards or - via a sprung pivoting point to the rear.

The following **packer roller** (4.1/3) **(or tyre packer roller, cross ring roller)** provides **a good recompaction** of the seed bed. As the cultivator harrow rests on the packer roller the working depth of the cultivator harrow can be set in many positions and it can therefore be accurately maintained.

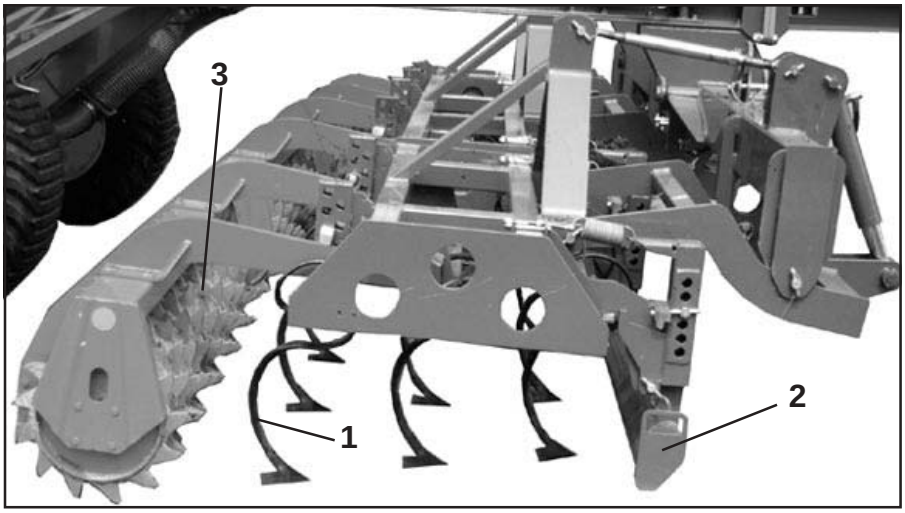


Fig. 4.1

Duck foot- (4.2/1) or **normal tips** (4.2/2) can alternatively be fitted to the spring tines.

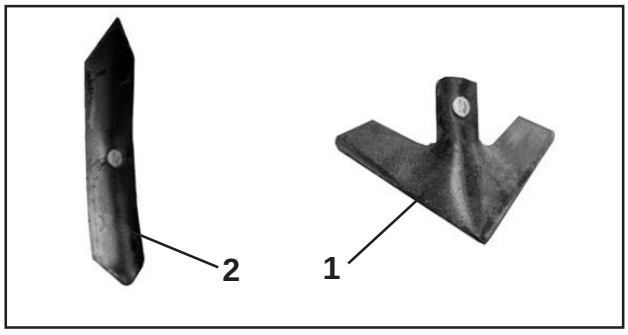


Fig. 4.2

48 Suffolk "K"-coulters or roll coulters (4.3/1) are fitted to the coulter bed with a row spacing of 12.5 cm.

The following **extra coverage harrow** (4.3/2) evenly covers the seed with soil.

The **wheel mark eradicators** (4.3/3) loosen the soil strips which have been compacted by the implement's wheels.

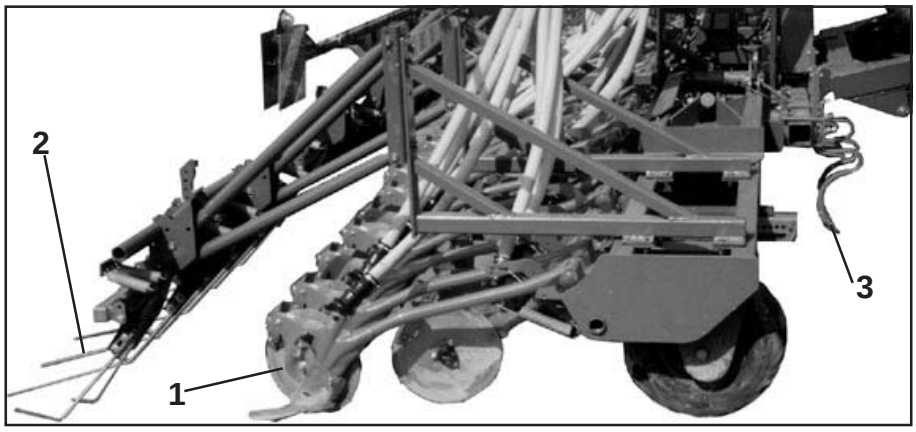


Fig. 4.3

From the **metering unit** the **seed** is **centrally** metered into the air flow and transported to the distributor head (4.4/1) where it is distributed to the individual flexible hoses which lead to the sowing coulters.

The metering unit consists of 1 white and 1 orange coloured **main seed metering wheel** (4.4/3 and 4.4/4) which can be engaged or disengaged. There is also 1 red and 1 black metering wheel for fine seeds (4.4/5 and 4.4/6). These are mounted on the same **shaft.**

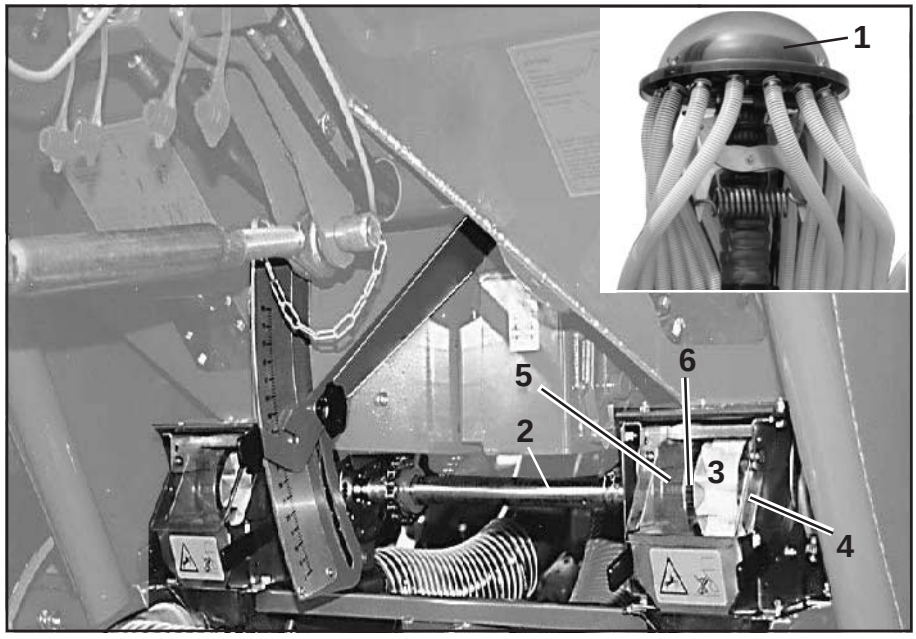


Fig. 4.4

The seed rate is changed by the speed of the metering shaft (4.5/1). For this, the **metering shaft** is connected to a **stepless free wheel gearbox (4.5/2) .**

By removing the lynch pin (4.5/3) the drive of the individual metering unit can be interrupted. By this means, the **working width can be reduced to 3 m**.

The shear bolt (4.5/4) serves as **overload safety of the metering unit** and thus prevents damages on the metering wheels.

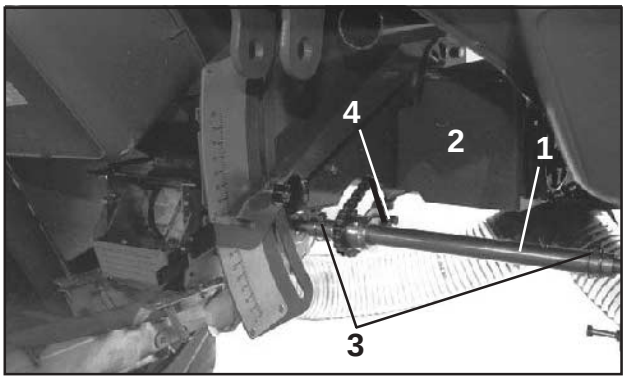


Fig. 4.5

The freewheel gearbox is driven via the friction wheel situated on the left hand side ground wheel, making contact with the machine's land wheel, when

- **the transport safety device on the friction wheel is released and**
- the coulter bed as well as the cultivator harrow is lowered into working position.

For setting a wide variety of seed rates the free wheel gearbox is designed as a two-range gearbox. The **metering shaft can be driven at two speeds**. **A "fast" or a "slow" speed can be chosen.** The machine is supplied with **"fast speed"** already **set by the manufacturer** (please refer to para. 7.5).


Fig. 4.6

The **electronic seed level indicator** (4.7/1) monitors the seed box contents. If the seed level reaches the seed level indicator this is displayed on the **AMADOS** computer.

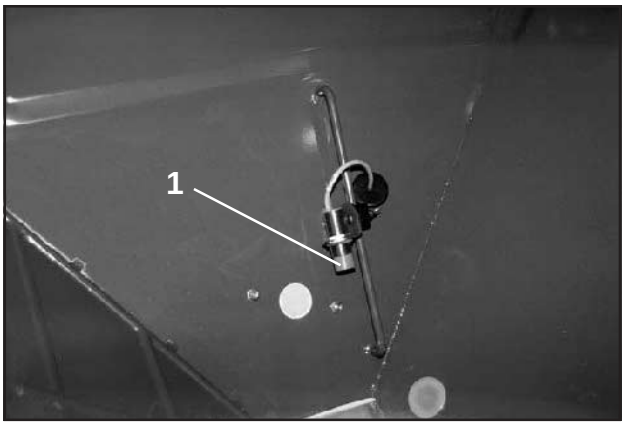


Fig. 4.7

For creating tramlines the seed delivery to the tramlining coulters **is interrupted** by the hydraulic control **on the distributor head in pre-selected intervals between the tramlines (**the tramline rhythm) **(please also refer to para. 9.3).**

If the **spring is tensioned and the hydraulic ram extended**, **no tramline is created (Fig. 4.8)**.

Sensors on the switching tongs (4.8/1) inform AMADOS whether tramlines are created or not. When the tramline counter shows [0] and no tramline is created, the AMADOS display shows "Error 3".

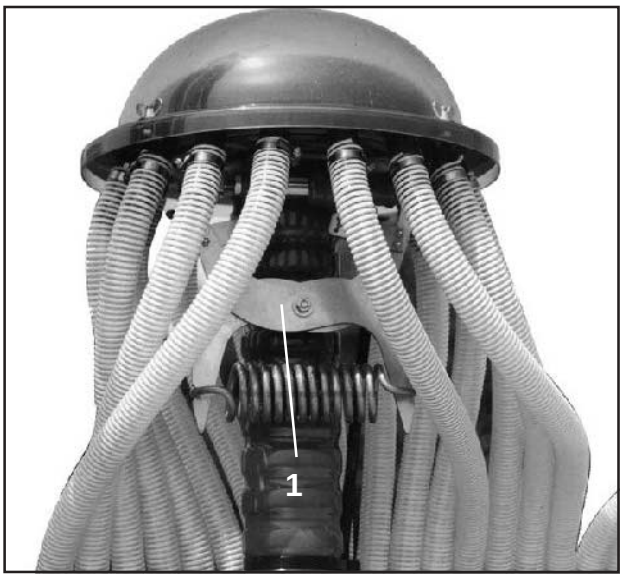


Fig. 4.8

If the spring tension is released and the hydraulic ram retracted a tramline is created (Fig. 4.9).

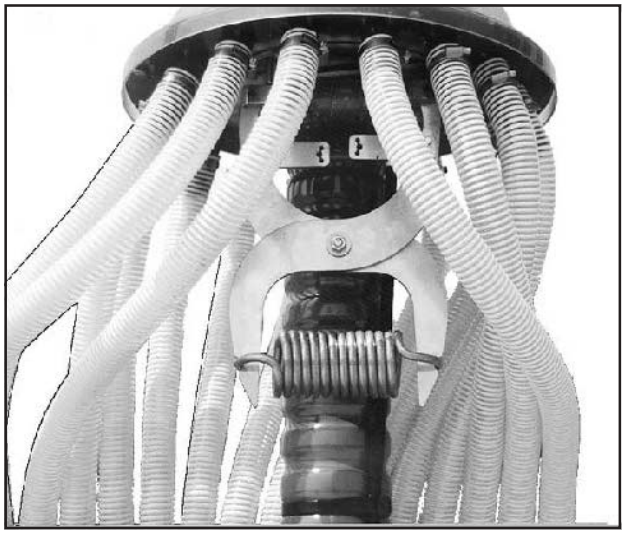


Fig. 4.9

The hydraulically actuated **track markers** with vertical track marker folding carve a mark into the soil alternatively on the right and left hand side of the machine., thus creating **trace** lines in the **tractor track centre**.

The **track markers** are **coupled with** the **hydraulic system** for **lifting** the sowing coulters and the spring tine cultivator. During the lifting process the switching over procedure for the track markers is automatically actuated.

Should the marker arm hit a firm obstacle the shear bolt (4.10/1) shears off and thus protects the marker from damages.

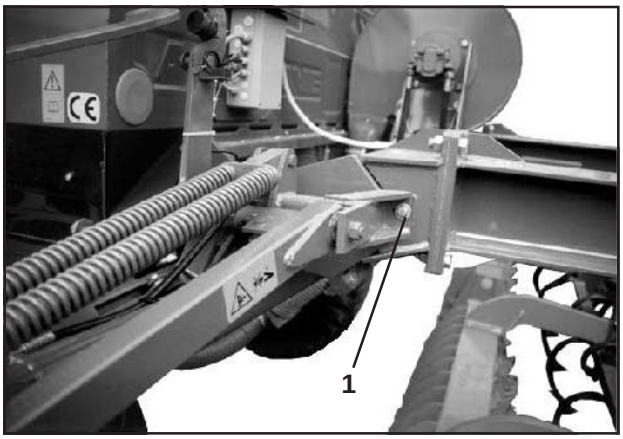


Fig. 4.10

When replacing the shearbolt only use bolts with a strength rating of 8.8.

The **length** and the **operating intensity** of the marker arm can be **adjusted** at the outer marker arm end.

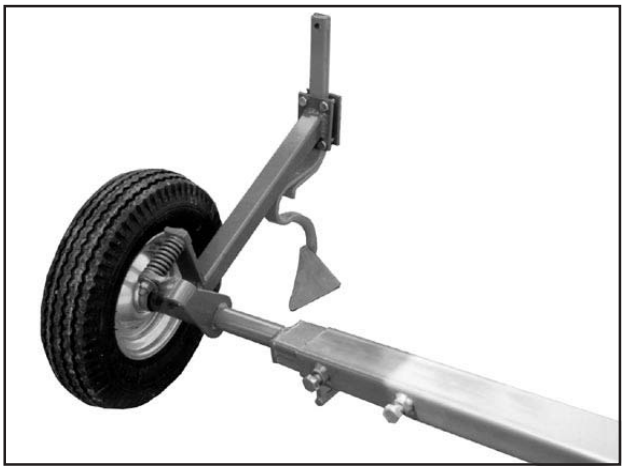


Fig. 4.11

5.0 Coupling to and uncoupling from the tractor

When coupling and uncoupling observe the safety advice (especially para. 3.2)!

5.1 Drawbar

Consider maximum permissible supporting load of the draw bar.

The lower links of the tractor's three-point hydraulics have to be equipped with stabiliser bars or chains. Lower links of the tractor should be braced to prevent a sway movement of the seed drill.

- Hang pulling bar (5.1/1) into the lower links of the three-point hydraulics of the tractor and secure.
- Raise the machine until its frame is level to the ground.

Observe the correct catching of the draw bar safety!

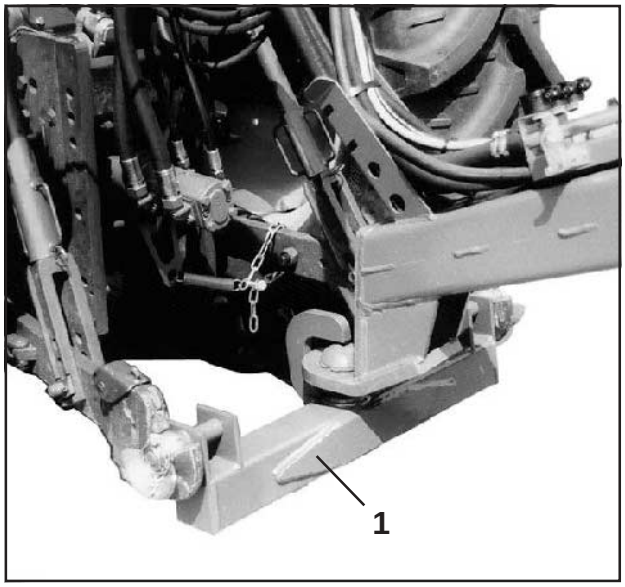


Fig. 5.1

- Fold drawbar jack (5.2/1) upwards, lock with locking pin and secure with R-clip.

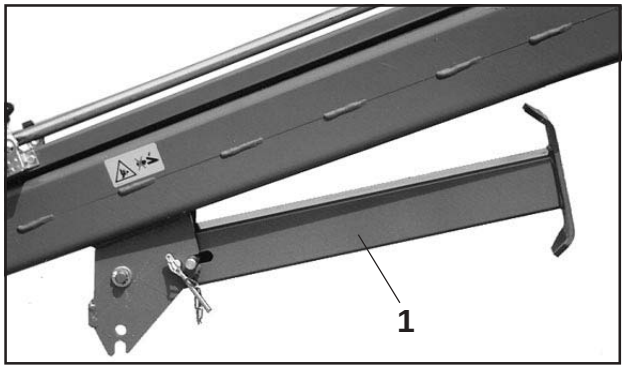


Fig. 5.2

5.2 Hydraulic slide-on pump

The **Airstar Xpress** is equipped with an own on-board hydraulic system. This hydraulic system is driven by the hydraulic slip-on pump (5.3/1)and drives the blower fan.

- Clean and apply grease to the pto shaft stub .
- Slide-on the hydraulic pump onto the pto shaft stub and secure it by pin or bolt depending on design.
- Secure hydraulic slide-on pump against rotation by hooking-in the chain (5.3/2)!
- Check guidance of the hydraulic hoses! Ensure that the hydraulic hoses are long enough in all operational positions, so that they do not rub on other parts, so that they do not foul or break.

Do not exceed max. pto shaft speed of 1000 R.P.M.!

To avoid damage slowly engage pto shaft at low tractor engine speed!

Before switching on the pto shaft read the safety advice according to para. 3.3.

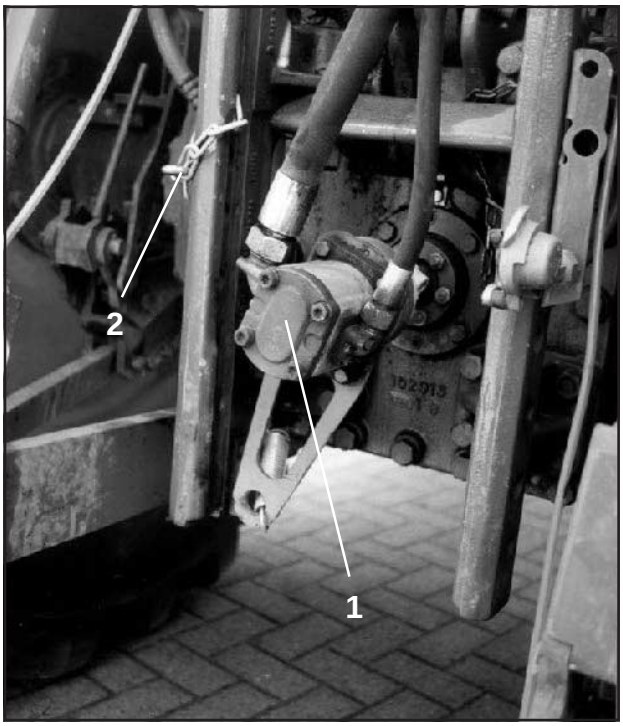


Fig. 5.3

5.3 Hydraulic connections

- To connect the two hydraulic hoses (5.4/1) two **single acting** control valves on the tractor are required.
  1. The lifting of the sowing coulters and the folding in and out of the marker arms is carried out via the green colored hose.
  2. The coulter pressure adjustment is done by the red colored hose.

In order to avoid damages on the seed drill the pressure of the tractor hydraulic system must not exceed 230 bar.

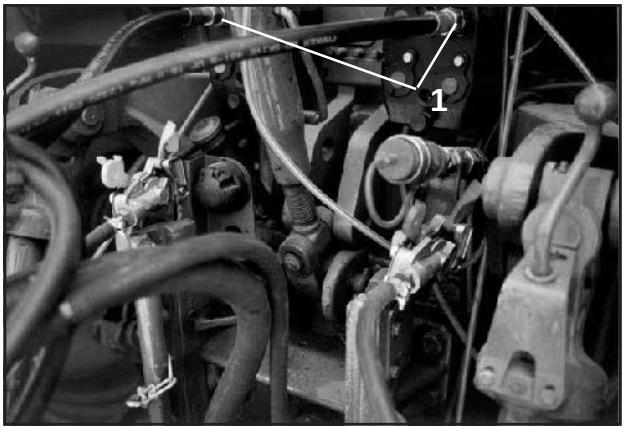


Fig. 5.4

5.4 Two circuit airbrake and parking brake

Allowable forward speed: 25 k.p.h.

5.4.1 Coupling

- Couple two-circuit airbrake to tractor.
  - Coupling claw - yellow - to brake hose.
  - Coupling claw - red - to supply hose.

Before coupling check cleanness of coupling claws and ensure correct engagement!

Check guidance of hoses! Hoses must never rub on other parts

- Before starting to travel the brake pressure regulator (5.6/1) on the hand lever (5.6/2) has to be adjusted manually.

  Full load ▬▬

- Release parking brake.
  - Turn hand crank (5.7/1) counterclockwise until stop.

To ensure correct function of the parking brake check, whether the brake cable is tightly tensioned when the parking brake has been released. If this is not the case, readjust the brake cable.

After any adjustment of the brakes conduct a brake test.

- Remove chocks, affix them in the pockets on the frame and secure.

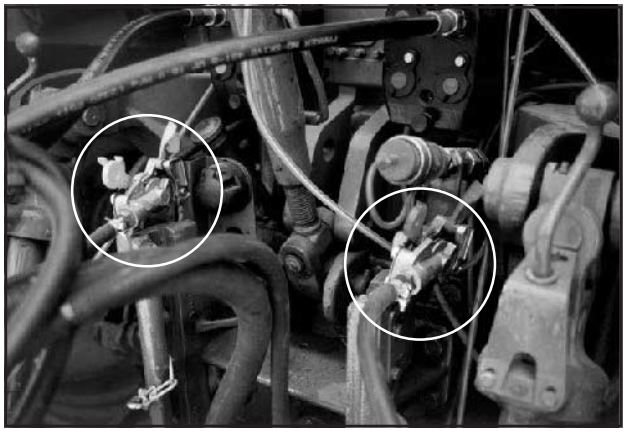


Fig. 5.5

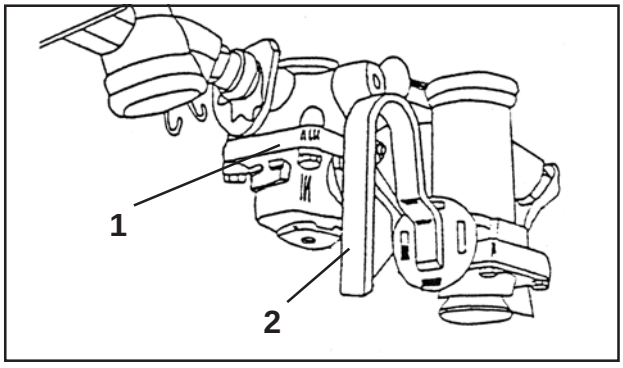


Fig. 5.6

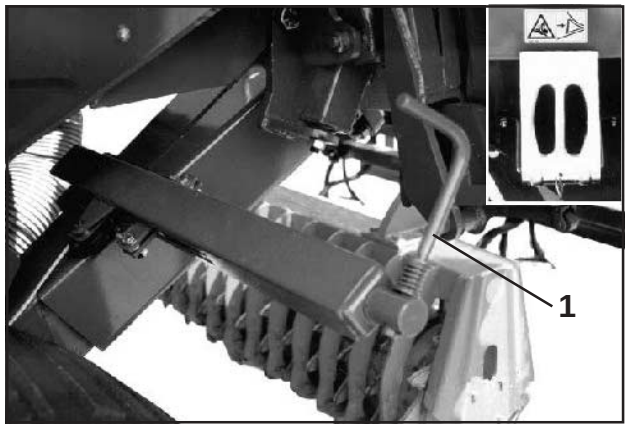


Fig. 5.7

5.4.2 Uncoupling

- Before uncoupling your Airstar Xpress secure with the two chocks (5.8/ 1) against unintended rolling.
- Apply parking brake (5.8/ 2) .
  - Turn hand crank on the side of the chassis clockwise until stop.
- After uncoupling shut coupling claws and hook them into the dummy coupling.

Manoeuvring the uncoupled seed drill

- For manoeuvring the uncoupled drill you must move the crank lever (5.9/ 1) of the brake pressure regulator to poosition "Lösen" (release).

After manoeuvring reset lever into initial position.

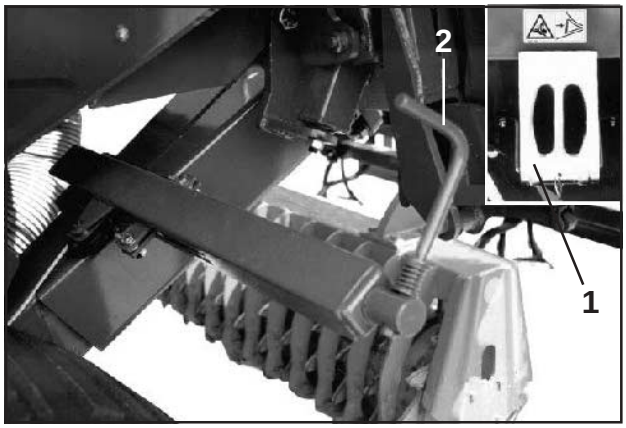


Fig. 5.8

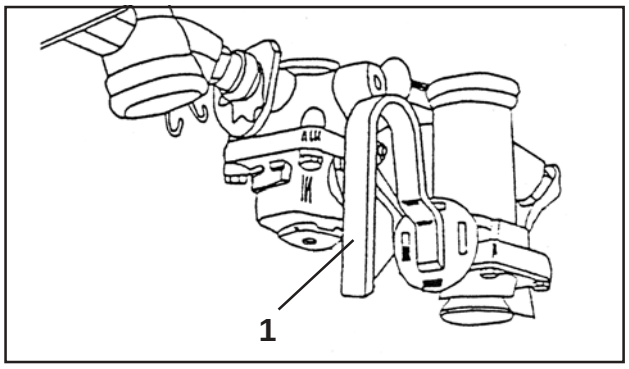


Fig. 5.9

5.5 Hydraulic brake and parking brake

5.5.1 Coupling

- Connect the coupling claw of the hydraulic brake to the tractor brake system.

Before coupling check cleanness of coupling claws and ensure correct engagement.

Check guidance of hoses. Hoses must never rub on other parts.

- Release parking brake.
  - Turn hand crank (5.8/2) counterclockwise until it stops.

To ensure the correct function of the parking brake check whether the brake cable is tightly tensioned when the parking brake has been applied. If this is not the case, readjust the brake cable.

After any adjustment of the brakes conduct a brake test.

- Remove chocks, affix them in the pockets on the frame and secure.

5.5.2 Uncoupling

- Before uncoupling, secure the AirstarXpress with the two chocks against unintended rolling.
- Apply parking brake (5.8/2).
    - Turn hand crank on the side of the frame clockwise until stop.
- Remove hydraulic brake connection from the tractor and hook into the dummy coupling.

5.6 Traffic light

- Connect power cable of electric traffic lights on tractor and check all functions (turn signal, lights, stop light) before every use.

5.7 AMADOS

- Connect implement plug of the machine cable with AMADOS .

When connecting the implement plug to AMADOS the power supply of AMADOS remains switched off.

Enter the machinery data before AMADOS is put to use.

Please also see the detailed AMADOS instruction book.

6.0 Filling the machine

Before filling the seed box check, whether

- no residues or foreign parts are left in the seed box.
- the sieve has been properly inserted.
- the outlets of the metering units are shut.

When filling the seed box make sure that no foreign objects are in the seed.

Do not sow moist or sticky seeds.

Observe maximum payload!

Standing on steps or platforms during transport and operation is prohibited!

- Lower the folded maintenance platform (6.1/1) .
- Step onto the platform.

Fig. 6.1

- Open the canvass and fold back.
- Fill the seed box.
- To cover the seed box fold down the canvass.

Fig. 6.2

7.0 Basic settings of the machine

7.1 Setting the seed rate

The seed is metered:

- when **sowing grain** by the **main metering wheels.**
- when sowing **fine seeds** by the **fine seed metering wheels**.

During sowing operation always use either the two main metering wheels (white and orange) or the fine seed metering wheels (red and black).

The seed rate depends on:

- speed of the metering shaft.
- choice of metering wheel (main- or fine seed metering wheels)
- choice of the relevant revolution range ("fast" or "slow" speed).Ex works the gearbox is set to the "slow speed".

  The higher the setting figure on the scale (7.1/3),**the larger** the relevant **seed rate.**

Setting procedure:

- Depending on the kind of seed choose the seed metering wheel type (main- or fine seed metering wheels) (please refer to para. 7.2).
- Slacken star knob (7.1/1) by turning to the left.
- **First swivel entirely upwards the gearbox setting lever** (7.1/2) (in direction of the largest scale figure). Then **swivel lever downwards and set the value of the determined gearbox setting figure** (please refer to para. 7.3).

  Read off the chosen **gearbox setting figure on the scale** (7.1/3) **on the pointer** (7.1/4).

When setting small seed rated and it becomes necessary to choose a gearbox setting below "5", set the two-range gearbox on the "slow peed" (please refer to para. 7.4).

- Retighten star knob.
- Conduct calibration test (please refer to para. 7.4).

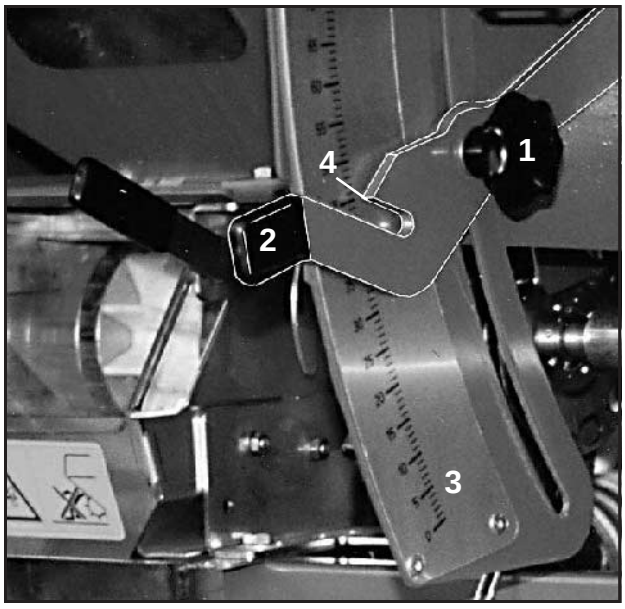


Fig.7.1

7.2 Switching on and off the main- and fine seed metering wheels

Switching on and off the metering wheels is done by the coupling screws (7.2/1 bzw. 7.2/2). For this

- move the gearbox setting lever up and down to turn the seed shaft (7.2/3) until the relevant knurled nut of the coupling screws can be turned by hand.

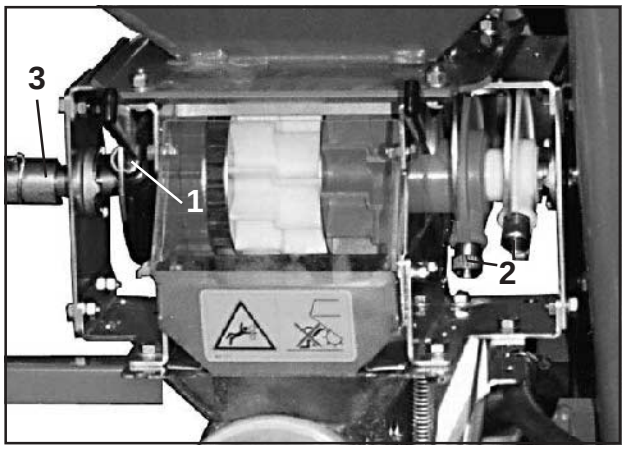


Fig. 7.2

Switching on

- Drive in **both** coupling screws (main seed metering wheels) (7.3/1) entirely (until stop). The wedge connection automatically catches when the metering unit is in operation.

Switching off

- Drive out **both** coupling screws (main seed metering wheels) (7.3/1) until they reach into the relevant gap of the stop plate (7.3/2) **(see Fig. 7.4)**.

  Thus it is ensured that one of the metering wheels sections will align exactly on the sealing lip and good sealing is achieved.

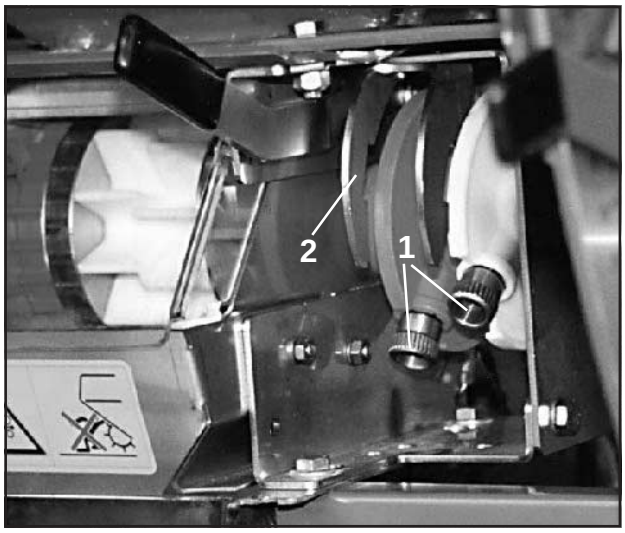


Fig.7.3

Always switch on and off seed metering wheels in pairs.

Switching on and off the **fine seed metering wheels** is done the same way. Here, however, only turn the coupling screw (7.4/1) .

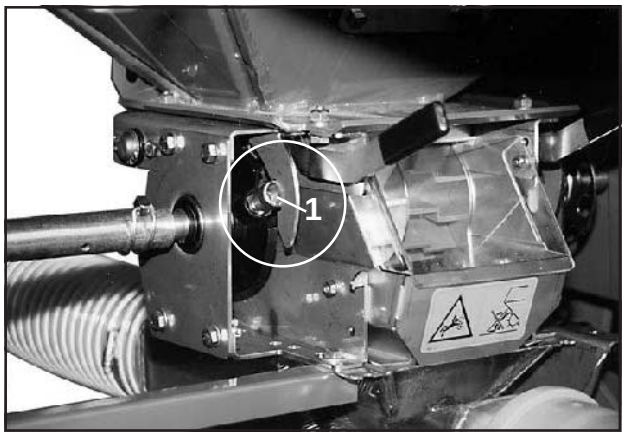


Fig. 7.4

7.3 Determining the gearbox setting with the aid of the disc rule

Determine the required gearbox setting figure for the desired seed rate with the aid of the disc rule.

The disc rule consists of 3 scales:

1. one outer white scale (7.5/1) for all seed rates above 30 kg/ha.
2. one inner white scale (7.5/2) for all seed rates below 30 kg/ha.
3. one central coloured scale (7.5/3) with the gearbox setting numbers from "1" until "100".

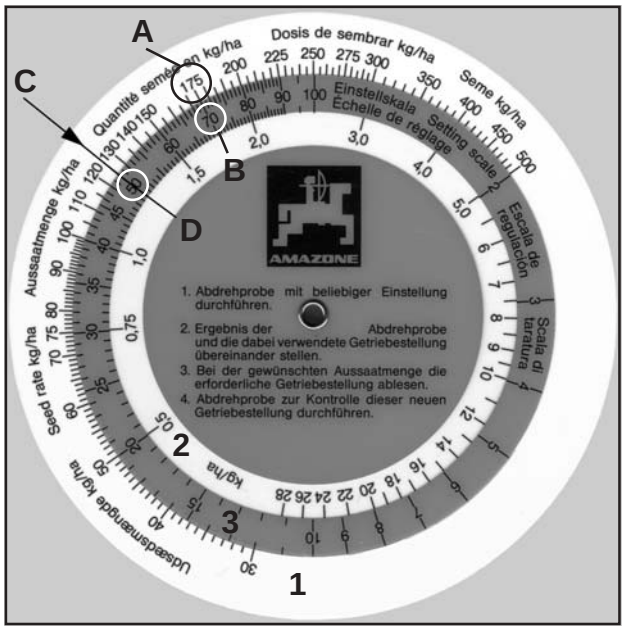


Fig. 7.5

Example:

Wanted seed rate: 125 kg/ha

- Set **gearbox setting lever** (7.1/2) as desired, e. g. to setting position“70” (also all other settings can be chosen, **preferably** for **grain “50”**and for **rape “10”**).
- Conduct the first calibration test (see para. 7.4).
- Weigh the collected seed and convert. The converted seed rate is for example 175 kg/ha (see para. 7.4.2).
- Take the disc rule and align the seed rate 175 kg/ha (7.5/A) and the gearbox setting figure “70” (7.5/B) .
- Now read off scale "3" of the disc rule the required gearbox setting figure, e.g. "50" (7.5/D) for the wanted seed rate (e.g. 125 kg) (7.5/C) .
- Check the determined gearbox setting figure “50” by a fresh calibration test.

The determination of the gearbox setting figure with the aid of the disc rule allows the setting of the desired seed rate without setting chart. Hereby the different flowing properties of the seed are already taken into account when determening the gearbox setting figure.

7.4 Calibration test for checking the set seed rate

The calibration test checks whether the set seed rate corresponds to the desired seed rate.

The calibration test is carried out statically.

Please follow these hints.

Deviations of the flowing properties of the seeds influence the seed rates. Seeds with various surface treatment may have to be sown. These may be:

- untreated seed.
- dry dressed seed.
- moist dressed seed.

The seed may have different flowing properties. The flowing properties can change by reactions of the dressing agent due to environmental influences, such as temperature and air moisture.

In principle: before sowing a new batch of seed conduct a calibration test.

7.4.1 Conducting the calibration test

Usually the calibration test is related to 1/40 ha. You will need to turn the metering shaft on the

Airstar Xpress .....34 - crank turns

clockwise on the drive wheel (Fig. 7.6).

Fig. 7.6

The calibration test has to be conducted on *both* metering units.

Never climb between machine and coulter bed before the block tap (7.7/1) has been shut off. Danger of squeezing! With the block tap shut off the hydraulics for lifting and lowering the coulter bed are locked.

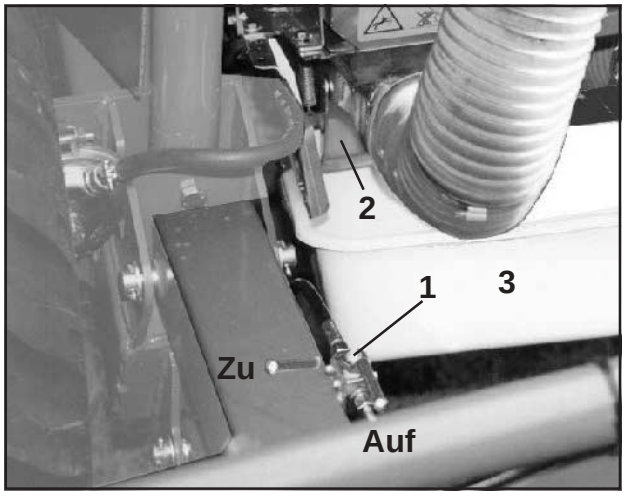


Fig. 7.7

- Shut off block tap (Position "Zu" [off]).
- Swivel the flap downwards (7.7/2) underneath the injector.
- Locate collecting trays (7.7/3) under the outlet openings.
- Turn the crank on the drive wheel for the prescribed number of turns (34).
- Weigh the seed collected in the tray(s).

- Convert the collected seed rate [kg] into the seed rate [kg/ha] (please refer to para. 7.4.2).

7.4.2 Conversion of the collected seed [kg]into the seed rate [kg/ha]

- To convert the seed rate from [kg] into [kg/ha] weight the collected seed from both trays and multiply by factor "40" (for 1/40 ha).

Example:

The collected seed rate is, for example, **3,2 kg**

$$\text{seed rate [kg/ha]} = \frac{\text{collected seed rate [kg] x factor}}{\text{ha}}$$

$$\text{seed rate [kg/ha]} = \frac{\text{3,2 kg x 40}}{\text{ha}} = \text{125}$$

7.5 Hints for sowing in "slow" or "fast speed" range

The two cogs inside the gearbox (7.8/1) provide two ratios: "high" or "low". The setting range of the setting scale (7.8/2) is enlarged. By turning the cog (7.10/1) "fast speed" range (Fig.7.10), alternatively a "slow speed" range (Fig.7.11) can be set.

The "slow speed" range should only be used, if for setting small seed rates, a gearbox setting of below "5" has to be chosen. Ex works the gearbox is set to the "fast speed".

7.5.1 Shifting to the "slow speed" range

- Open the gearbox side cover (7.9/1) after having removed the thumb bolt (7.9/2) and the thumb nuts (7.9/3) .
- Remove the cog (7.10/1) from the shaft, turn it and reinsert it according to Fig. 7.11 . If the pinion cannot be pulled off the shaft by hand, move the drive wheel until the cog can be removed easily from the shaft.
- Put side cover back in place and bolt properly.

☞ **If at all possible, sow in the "fast speed" range. After sowing in the "slow speed" range shift the gearbox back again to the "fast speed" range .**

7.5.2 Determining the gearbox setting figure after shifting the gearbox into the "slow speed" range

- After shifting into the "slow speed" range, conduct a calibration test, e.g. with gearbox setting figure “50”.
- Determine the final gearbox setting figure with the aid of the disc rule (please refer to para. 7.3).

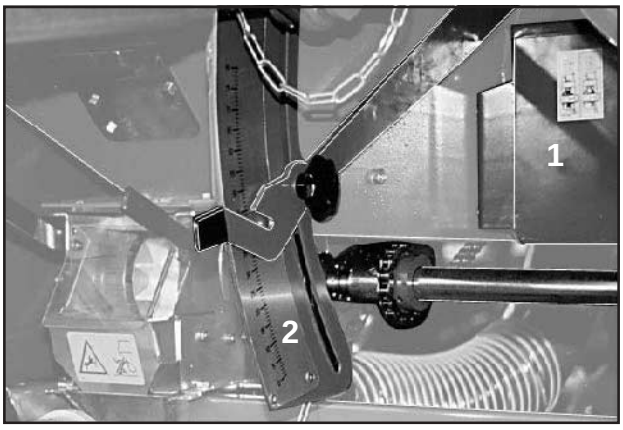


Fig. 7.8

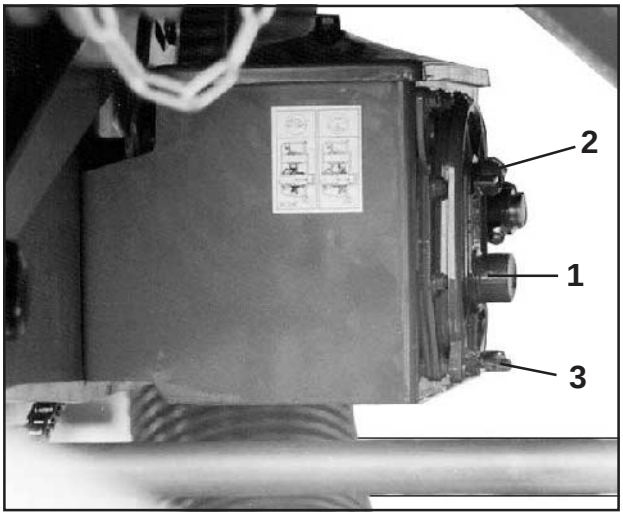


Fig. 7.9

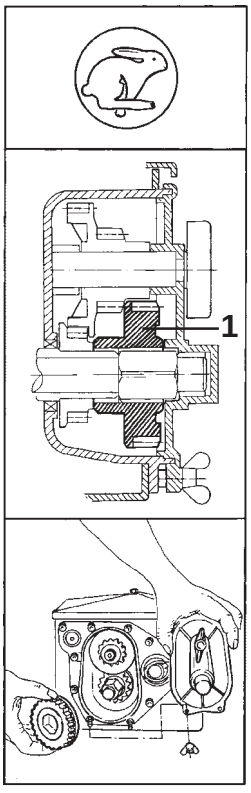


Fig. 7.10

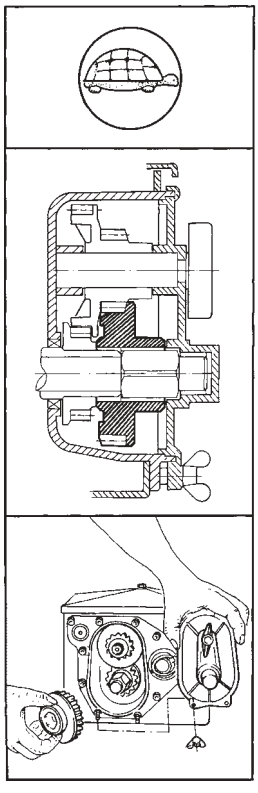


Fig. 7.11

7.6 Setting the levelling bar

When sowing conventionally set the levellingbar in operational position in such a way that a small wall of soil is created for levelling existing undulations. For mulch sowing the levelling bar can be fixed in the upper most position.

The operational height of the levfelling bar (7.12/1) is adjustable by pin (7.12/2) .After setting secure pin by lynch pin.

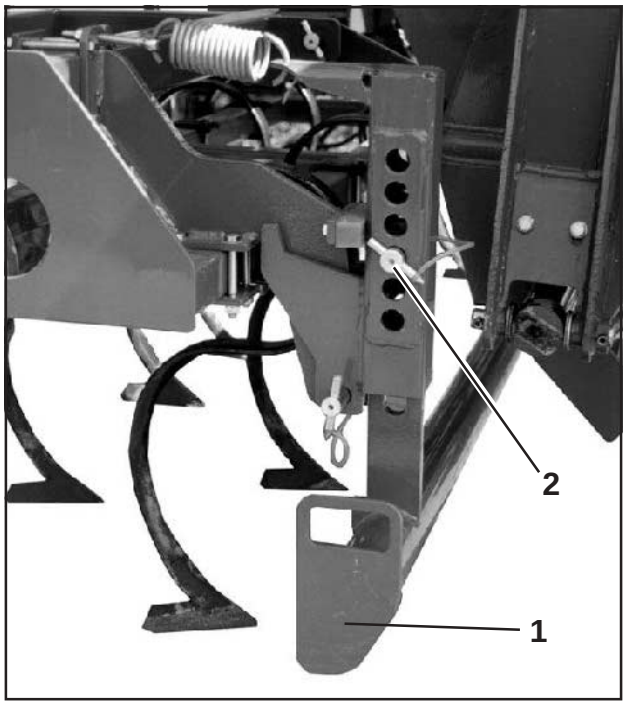


Fig. 7.12

7.7 Setting the spring tine cultivator

The working depth of the spring tine cultivator is set by its link arms on the tooth packer roller (tyre packer roller, cross ring roller).

Insert the depth setting pin (7.13/1) for setting the working depth into the desired hole of the fixing bars **above** link arms and secure by lynch pins.

The depth limiting pins have a square head with different spacings. The edges are marked by the figures "1, 2, 3, 4". Due to the different spacings on the square head of the depth regulating pin a fine adjustment also between the individual square holes of the spring tine cultivator's depth guidance is possible.

Observe that the depth regulating pins are resting on the link arms with coinciding edges and markings.

The higher the depth regulating pin is inserted into the quadrant tube and the higher the figure on the resting face on the link arm, the deeper is the working depth.

Adjust the spring tine cultivator horizontally by changing the upper link length.

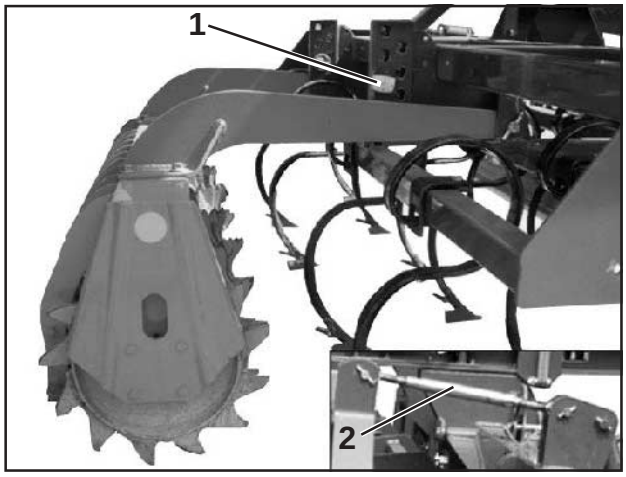


Fig. 7.13

Do not forget to secure the depth regulating pin with the lynch pin after every new setting.

When inserting grasp the depth regulating pin in such a way that your hand will never be between pin and link arm (danger of injury).

After having set the working depth adjust the spring tine cultivator horizontally by changing the upper link length (7.13/2).

7.8 Setting the coulter pressure (sowing depth)

The coulter pressure determines the placement depth. An important precondition for high yields is the accurate maintenance of the desired placement depth of the seed.

The coulter pressure adjustment is done by different locking of the hydraulic ram (7.14/1) in the setting segment (7.14/2) and, may be, by hooking the tensioning spring (7.14/3) on the coulter arm into another position.

Depending on the desired coulter pressure (placement depth) the two pins (7.14/4 or 7.15/1 and 7.14/5 or 7.15/2) function as a limiter for the hydraulic ram 7.14/1 or 7.15/3) in the setting segment (7.14/2 or 7.15/4).

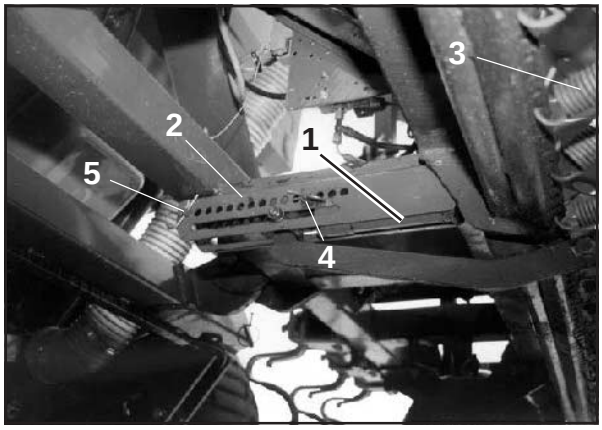


Fig. 7.14

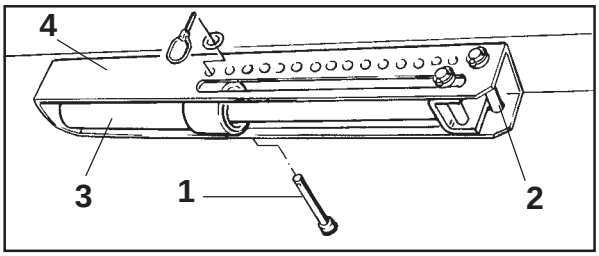


Fig. 7.15

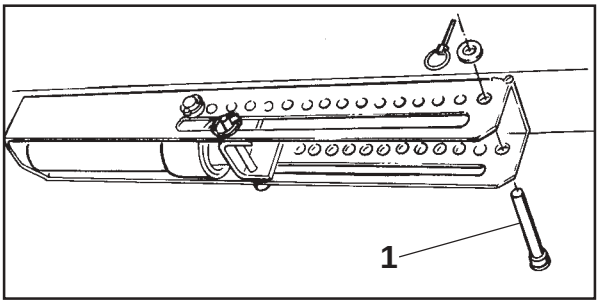


Fig. 7.16

When the hydraulic ram rests

- on pin (7.15/1) , the hydraulic ram is pressureless (normal coulter pressure).
- on pin (7.15/2), the hydraulic ram is pressurized (increased coulter pressure).

For the hydraulic coulter pressure adjustment the hydraulic rams (7.14/1) underneath the coulter bed are either pressurized with hydraulic oil or relieved. Hereby it is possible to work during sowing operation with increased (e.g. when heavy soil prevails) or normal coulter pressure.

Setting the normal coulter pressure

- Pressurize the hydraulic ram (Fig. 7.15).
- Insert pin (7.14/4or 7.15/1) in a hole of the quadrant plate and secure with lynch pin.

The further the pin (7.14/4 or 7.15/1) is moved in direction of pin (7.14/5 or 7.15/2) the higher the normal coulter pressure will become.

Setting the increased coulter pressure

- Relieve hydraulic ram from pressure.
- Insert the pin (7.16/1) into a hole of the quadrant plate and secure with lynch pin.

If the pin (7.16/1) is inserted into the quadrant plate in the illustrated position, the highest coulter pressure is achieved.

If on machines with roll disc coulters and depth limiters the desired placement depth cannot be achieved by reinserting the pin, all roll roulter depth limiters have to be readjusted according to para.7.9.

Always check the planting depth of the seed before starting the operation.

7.8.1 Checking the planting depth of the seed

- Drive a distance of approx. 30 m with your seed drill at the intended forward speed and check the placement depth of the seed, readjust if necessary.

7.9 Setting the placement depth of the seed by the roll disc coulter depth limiters

To ensure the seed depth placement will be maintained throughout the field even in changing soil conditions the roll disc coulters are equipped with depth limiters (7.17/1) . Ex works these are set on a placement depth of approx. 2.5 cm (Always check depth placement of seed before starting operation).

Setting the depth limiters

Set all depth limiters evenly, e. g. set all pointers into the same direction.

The V-cuttings in the roll disc coulter function as a setting aid..

- Slacken hex nut r (7.18/1) (do not remove).
- Swivel depth limiters..
- Firmly retighten hex. nut after setting.

Extremely high coulter pressure may lead to pre-mature wear of the depth limiters.

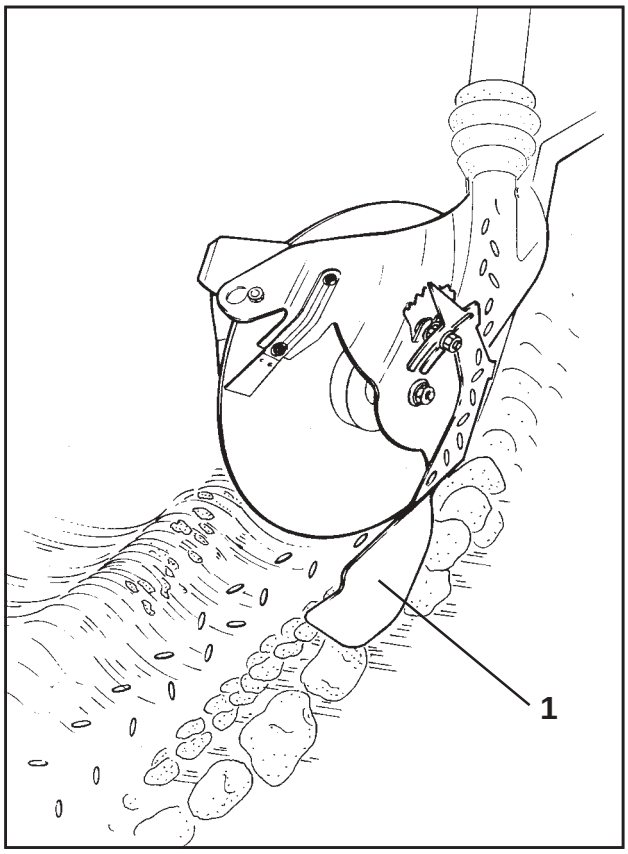


Fig. 7.17

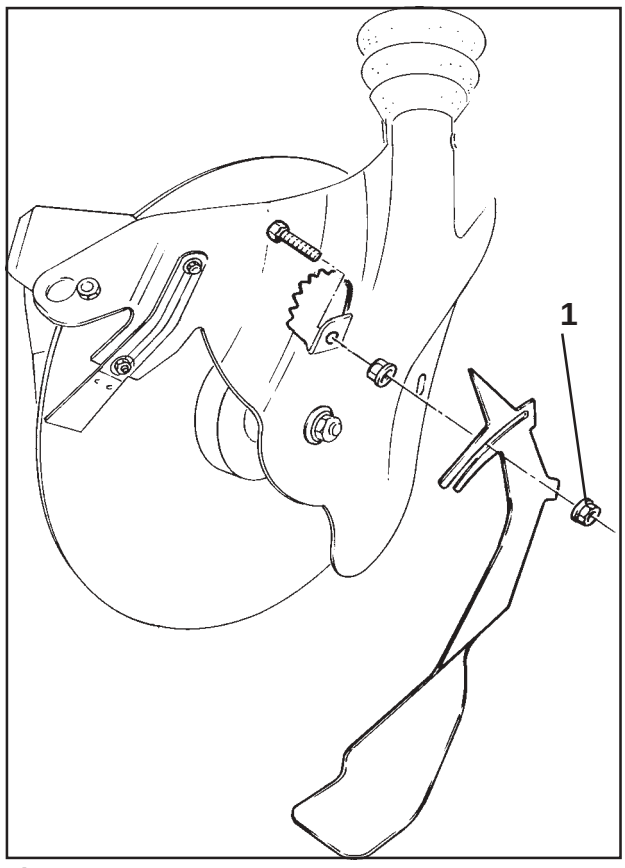


Fig. 7.18

The setting of the depth limiter from one V-cutting to the next corresponds to a change of the seed placement depth by approx. 1.5 cm on medium heavy soils. The more the pointer is moved into forward direction the deeper the seed placement will become.

The setting as shown in Fig. 7.19 corresponds to a seed placement depth of approx. 2.5 cm on medium heavy soils.

Check the seed placement depth after every setting.!

Slight changes in the placement depth of the seed may be corrected with the aid of the coulter pressure adjustment (please refer to para. 7.8).

In sticky soil conditions (soil sticks to the roll disc coulter's front edge) operate with high coulter pressure and limit the seed depth placement with the aid of the depth limiters accordingly. Hereby a too deep seed placement is avoided.

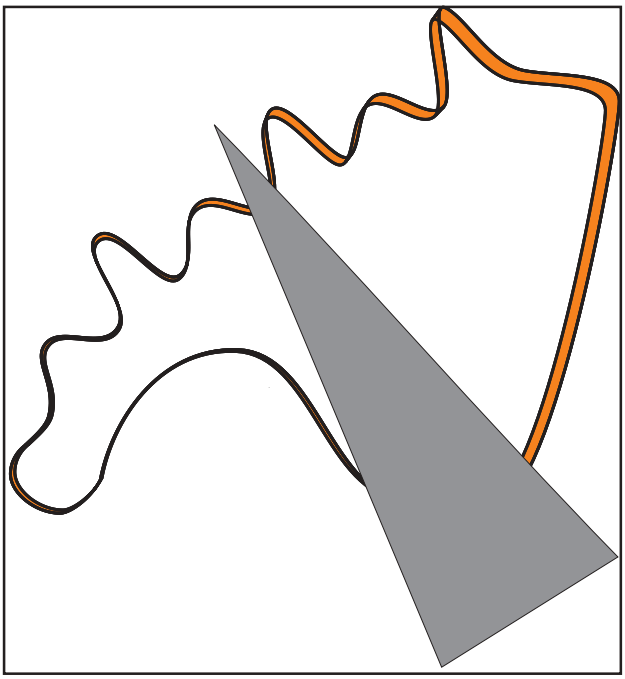


Fig. 7.19

7.10 Setting the extra coverage following harrow

The extra coverage following harrow is set by extending or shortening the upper link on the coulter bed.

The extra coverage following harrow evenly covers the seed sown with soil.

Set the spring tines (7.20/1) of the extra coverage following harrow in the field so that they

- lie horizontally on the soil and
- can still move downwards by about 5 to 8 cm.

The spacing between the soil and the square tube should then measure between 230 and 280 mm.

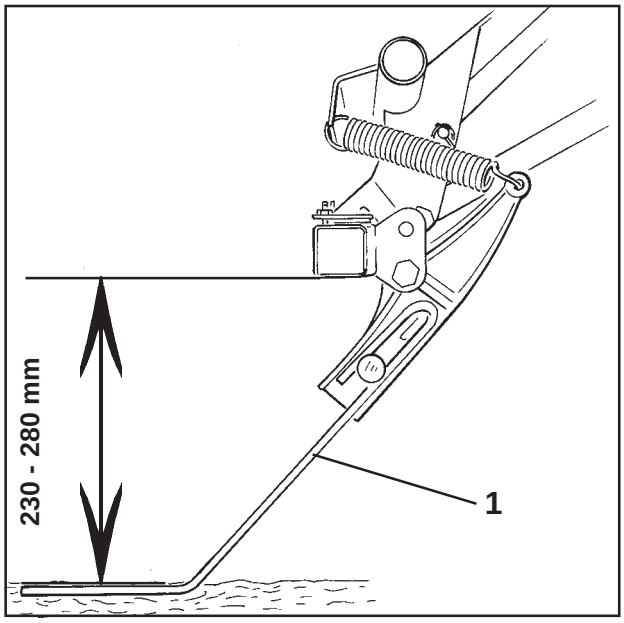


Fig. 7.20

Setting the extra coverage following harrow pressure

- Pull the stop lever (7.21/1) upwards.
- Insert the pin (7.21/1) into a hole below the stop lever and secure with lynch pin.

The higher the pin is inserted into the quadrant plate, the higher the pressure of the extra coverage following harrow will be.

Set the spring pressure so that the tines of the harrow are pressed onto the ground in such a way that the seed coverage has no ridge of soil visible on the field.

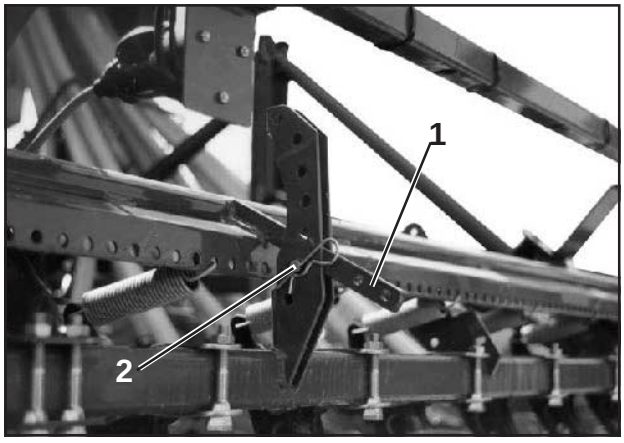


Fig. 7.21

7.11 Setting the wheel mark eradicators

Set the wheel mark eradicators (7.22/1) so that the soil compacted by the machines' tyres will be eradicated.

When mulch sowing with high walls of organic matter remove the wheel mark eradicators to avoid blockages.

For setting and removing slacken the clamping bolt (7.22/2) .

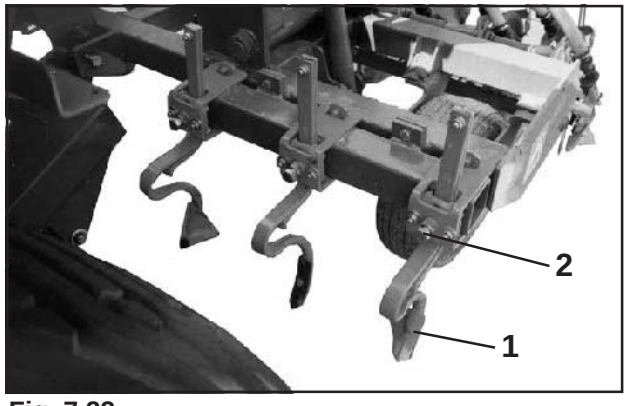


Fig. 7.22

7.12 Setting the track markers

Set the working depth of the track marker tines in such a way that they create a clearly visible trace.

- After slackening the bolts (7.23/2) the working depth of the track marker tines (7.23/1) can be set in relation to the running wheel. Retighten bolts.

The **track marker measurement is measured from the machine's centre until the place where the track marker tines touch the soil** and corresponds to the working width of the seed drill.

- After slackening the bolts (7.23/3) the marker arm length can be corrected. Thereafter retighten bolts firmly.
- The **folding speed** of the track markers can be steplessly set on the check valve (7.24/1) .

Take care that the track markers do not work too deeply in the soil. When the track markers work too deeply damages may occur on rough, stony soil.

On public roads the track markers have to be locked in transport position..

When folding in and out the track markers advise people to leave the track markers' swivel area!

Secure the upwards folded track marker (7.25/1) in transport position with the linch pin (7.25/2) .

When folding in and out the track markers there are bruizing and squeezing places between track marker and machine frame. Never reach into this area while parts can move there.

Never stay under a raised track marker that is not secured!

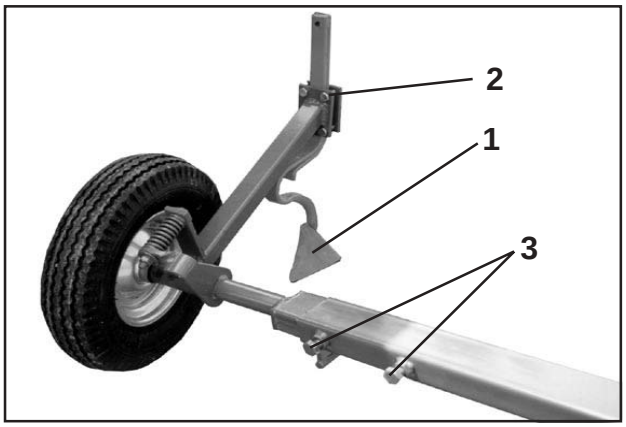


Fig. 7.23

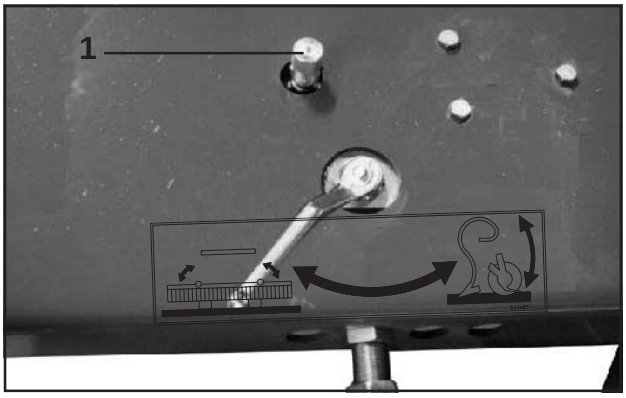


Fig. 7.24

Fig. 7.25

8.0 Transport to the field - transport on public roads and fields

Please adhere to the following hints. They help to prevent accidents in public traffic.

When travelling on public roads and ways during transport to the field the execution of tractor and machine have to correspond to the national road transport and traffic rules.

Both, the vehicle owner and operator are responsible for adhering to the legal traffic rules.

The traffic lights have to correspond to the legal traffic rules.

The vehicle width has to correspond to the legal traffic rules.

- The transport width of 3 m must not be exceeded.
- **Traffic lights and warning plates:**

  Required traffic lights and warning plates (Fig. 8.1, 8.2):

• Complete rear traffic light with rear reflectors and if necessary warning plates, during the night additional front limiting lights.

Required warning plates:

• Front and rear, right and left hand warning plates according to DIN 11 030 or parking warning plates.

  The Airstar Xpress is equipped with a complete set of parking warning plates, front limiting lights (Fig. 8.2), rear lights, rear reflectors and warning plate carriers (Fig. 8.1 and 8.2) .

  Relevant are the national road transport and traffic rules of your country. The machine owner is responsible for the traffic lights and warning plates meeting with the rules.

- Check traffic lights for function before using public roads.

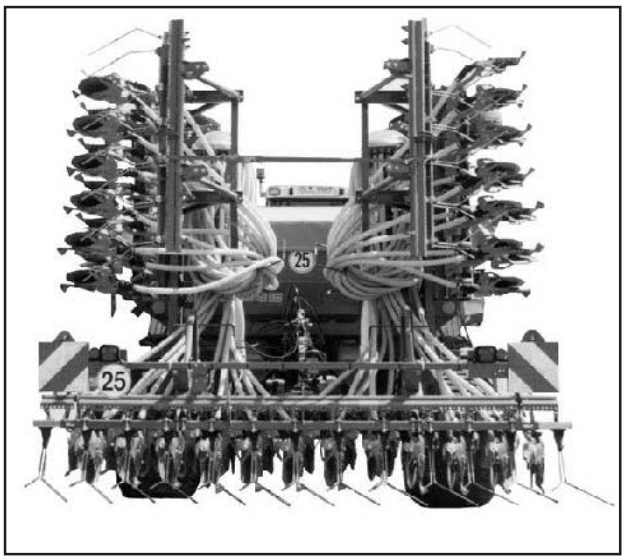


Fig. 8.1

Fig. 8.2

8.1 Converting the implement for road transport

- Bring the track markers into transport position according to Fig. 8.3, shift lever (8.3/1) and secure with linch pins.

When folding in and out the coulter wings and marker arms, advise persons to leave the working area of these parts!

When folding in and out the wings and track markers there are bruizing and squeezing places between wings or markers and the machine frame. Never reach into this area while parts can move .

Never stay underneath a raised, unsecured track marker.

- Secure transport safety on the friction wheel. For this, the securing plate (8.4/1) has to be folded downwards as illustrated.

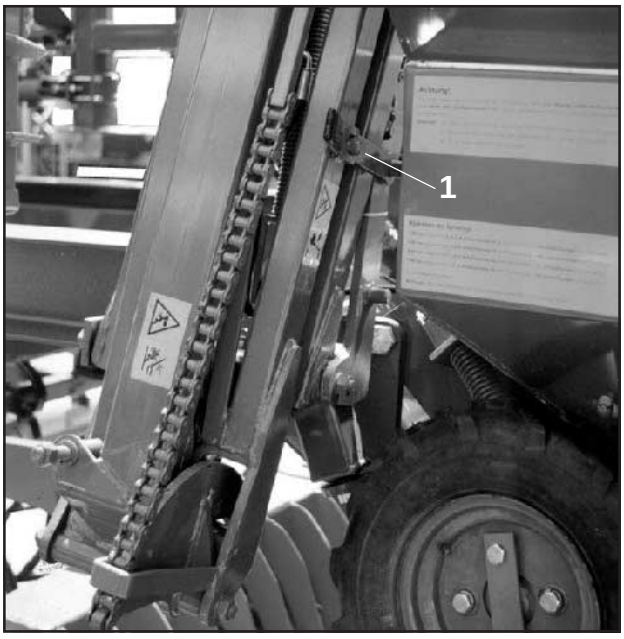


Fig. 8.3

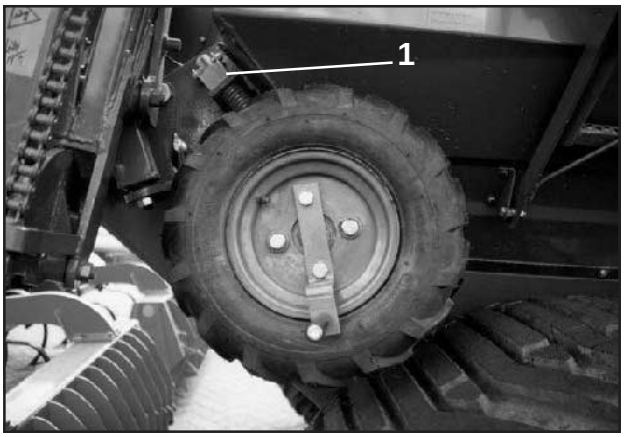


Fig. 8.4

- Shut off block tap (8.5/1) for hydraulic locking of the coulter bed (Position "Zu" [off]).

During road transport lock the actuating lever for the three-point-coulter bed against unintended lowering.

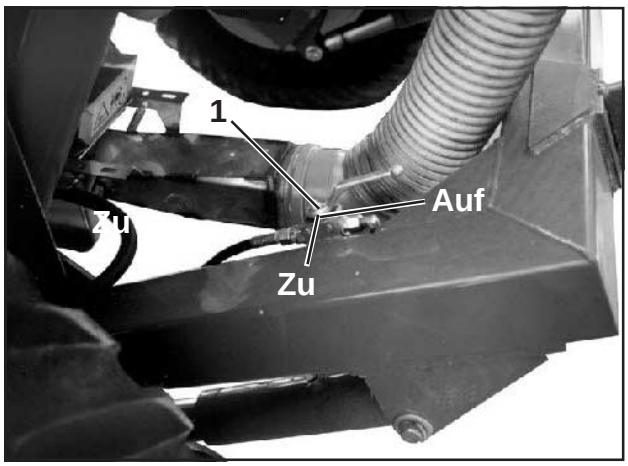


Fig. 8.5

- Set block ball tap (8.6/1) into position illustrated.
- Fold wings of coulters and spring tine cultivator into transport position..

In case of leaking control valve and/or after longer pauses, e. g. when transporting the machine, leave the block ball tap in this position in order to avoid an unintended lowering of the coulters and the spring tine cultivator.

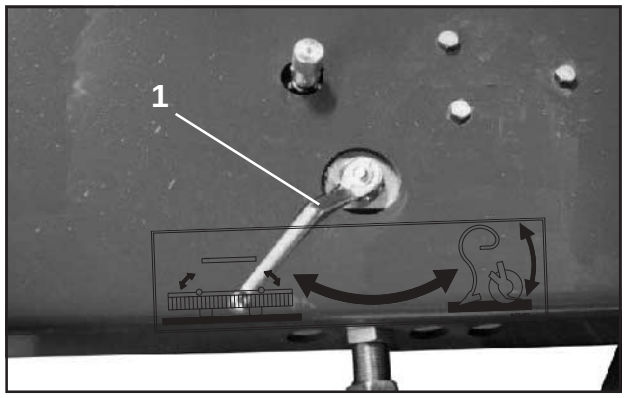


Fig. 8.6

- Lock boom of spring tine coulter. For this
  - tilt catch (8.7/1).
  - Arrest with the pin (8.7/2) and secure with R-clip (8.7/3).

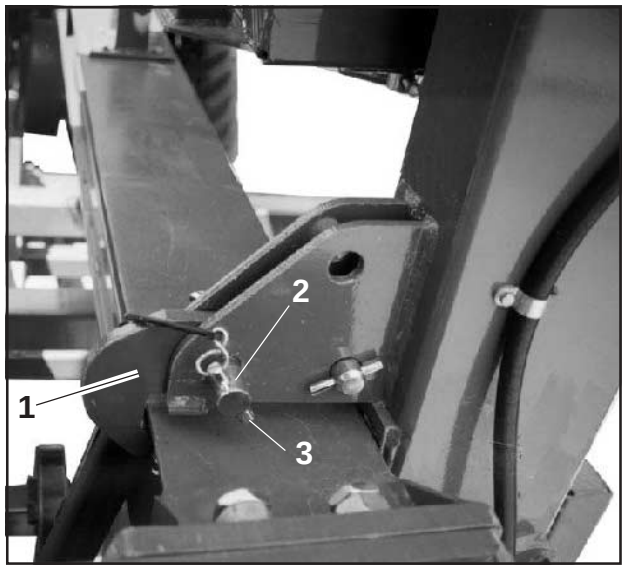


Fig. 8.7

- Lock boom of coulter frame. For this
  - tilt catch (8.8/1) .
  - Arrest with pin (8.8/2) and secure with R-clip.

For an automatic locking of spring tine cultivator and coulter bed in transport position lay the locking catches (8.9/1) of the wings of coulter frame and spring tine cultivator in unfolded position onto the pin (8.9/2). When folding in the catches automatically move into locking position.

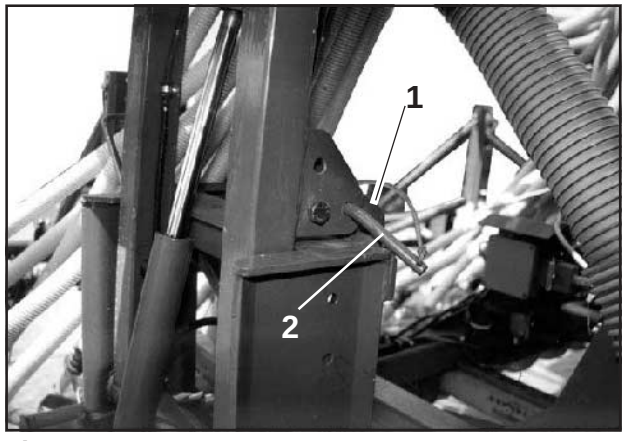
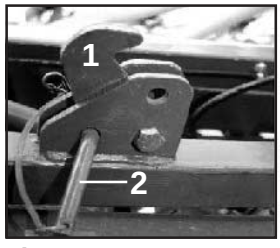


Fig. 8.8



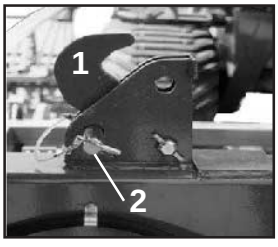


Fig. 8.9

- With the aid of a tensioning belt (8.10/1) draw the folded extra coverage following harrows so that the transport width of 3 m is not exceeded.

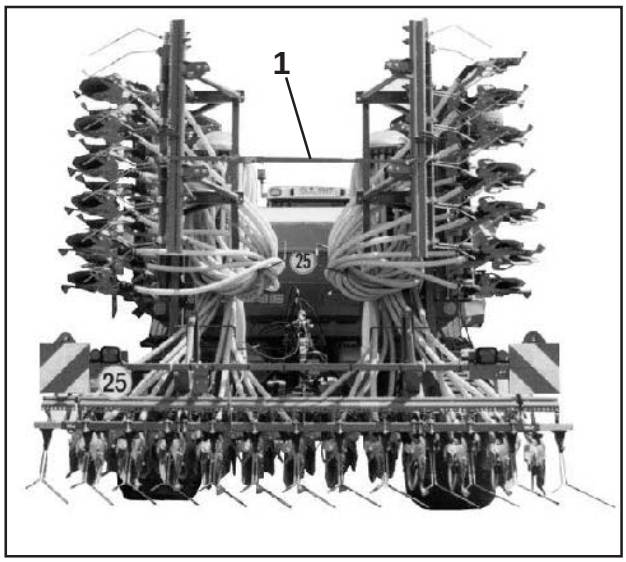


Fig. 8.10

- Push the outer harrows (8.11/1) on the centre coulter bed into the carrying tube until stop and secure with bolt (8.11/2) .

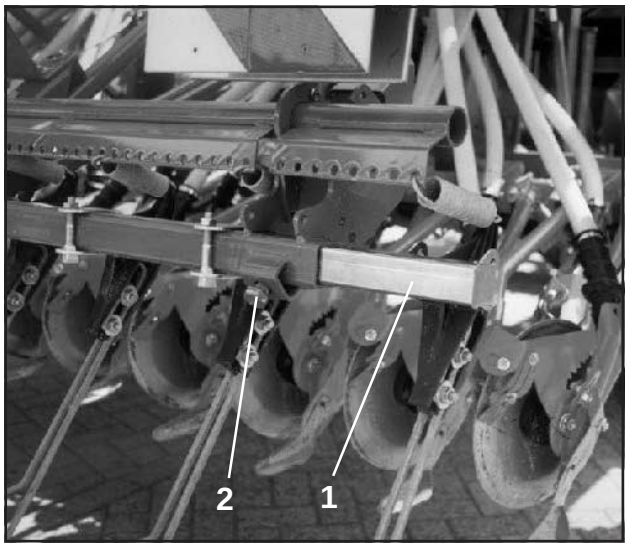


Fig. 8.11

- Pull out the levelling rods (8.12/1) on the folded wings and secure in the lowest hole so that they cover the tines to the front.

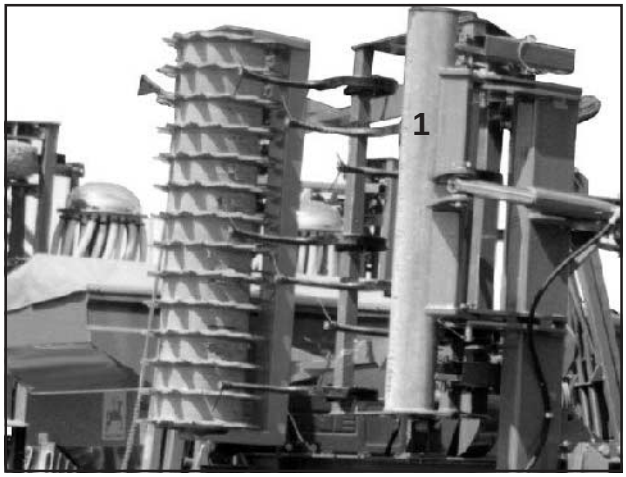


Fig. 8.12

9.0 Setting up the machine in the field

9.1 Setting up the machine before starting operation

- Bring outer harrow (9.1/1) into working position. The outer harrows have to be set in such a way that the soil is led back and a track-free sed bed is created. Slacken clamping bolt (9.1/2), pull out harrow and retighten clamping bolt.

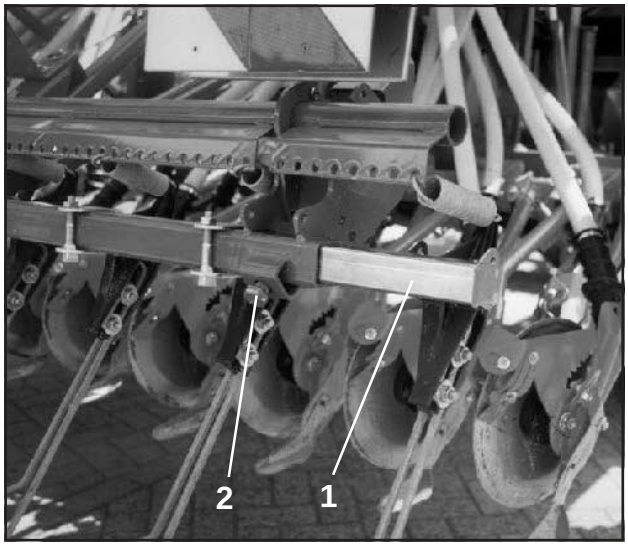


Fig. 9.1

- Remove tensioning belt (9.2/1) from the harrow frame.

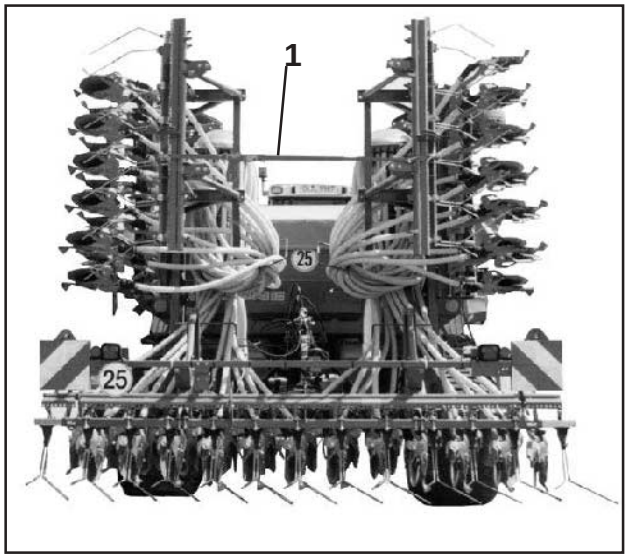


Fig. 9.2

- Release the transport position of the spring tine cultivatorframe. For this pull off the R-clip (9.3/1) take out pin (9.3/2) fold upwards safedty catch (9.3/3) and secure with pin and R-clip again.
- Unlock transport position of the coulter bed wing. For this
  - Pull off the R-clip.

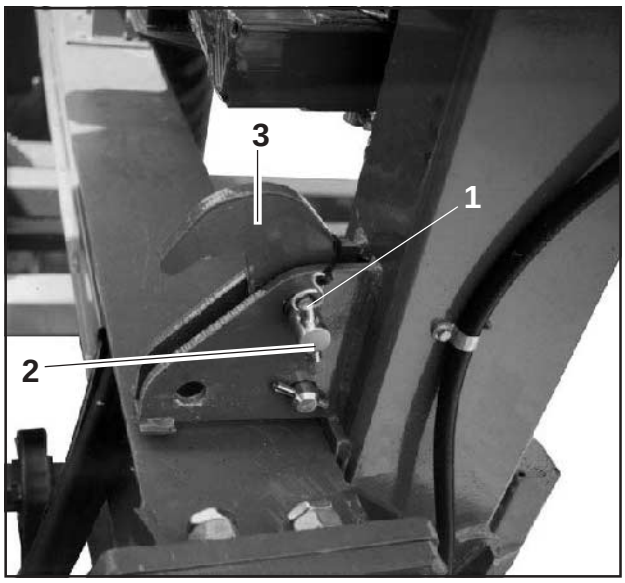


Fig. 9.3

- Remove pin (9.4/1).
- Fold the safety catch upwards (9.4/2)and secure with pin and R-clip. (Fig. 9.4).

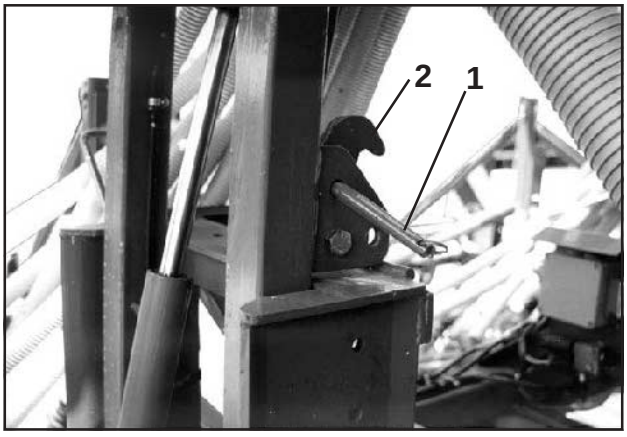


Fig. 9.4

- Move block ball tap (9.5/1) into illustrated position.
- Set the control valve of the tractor to position "lowering" and thus **fold down sowing coulter- and spring tine cultivator bars**.

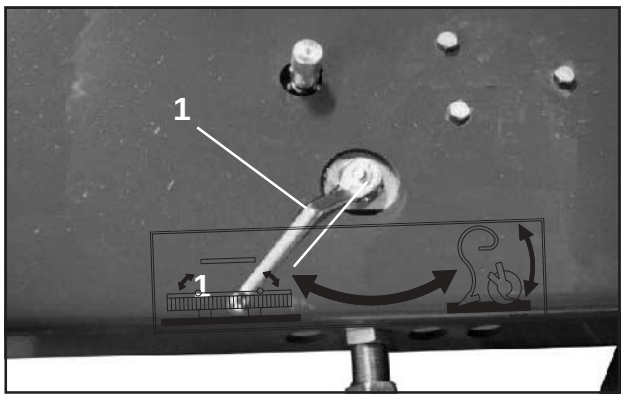


Fig. 9.5

- Unlock the transport safety catch for the friction wheel. For this
  - Fold securing plate (9.6/1) upwards.

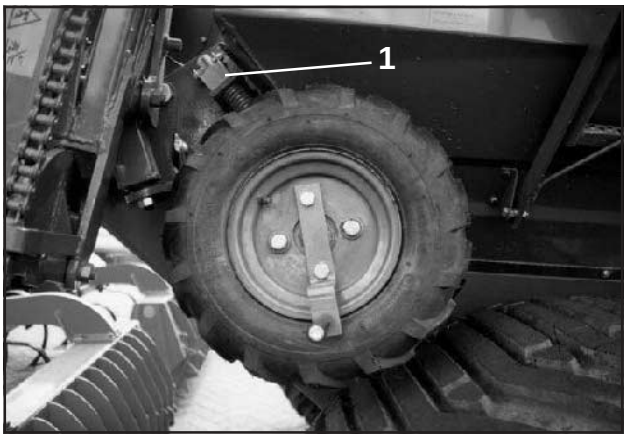


Fig. 9.6

- Unlock track markers. For this
  - Remove R-clip.
  - Lift locking lever (9.7/1) off the pivot (9.7/2), swing and retighten on pivot (9.7/3) .
  - Secure locking lever with R-clip.

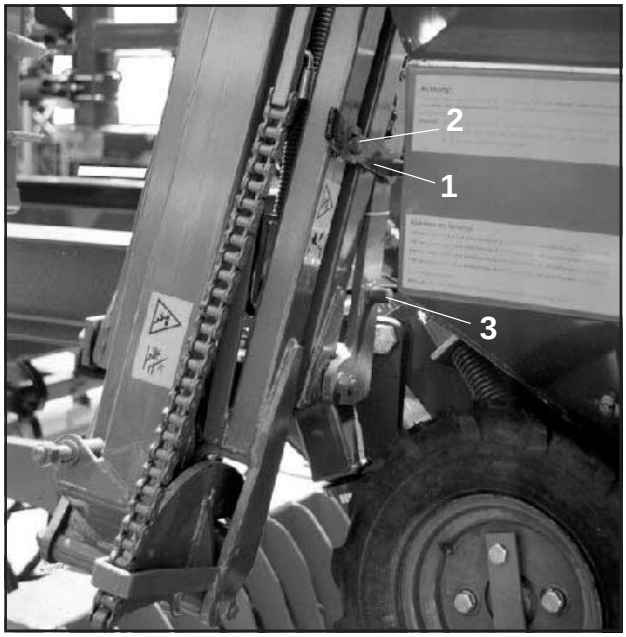


Fig. 9.7

- Open block ball tap (9.8/1) on the coulter bed (Position "Auf" ["open"]).

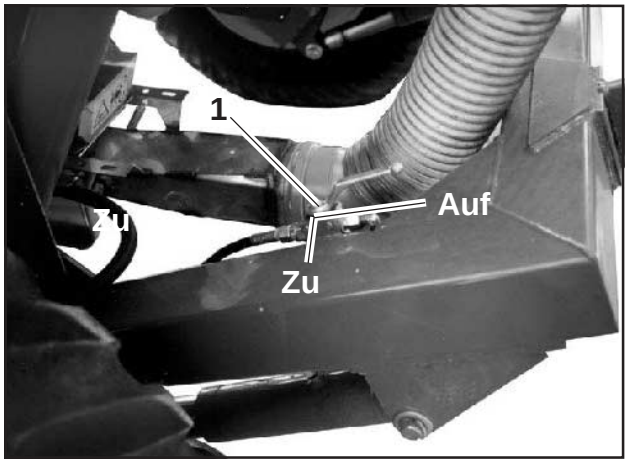


Fig. 9.8

- Move block ball tap (9.9/1) into the illustrated position.
- Lower sowing coulters, spring tine cultivator, track markers and friction wheel into working position.

☞ **If the lowered track marker is on the "wrong side", fold in and out track marker. Hereby the track marker position changes.**

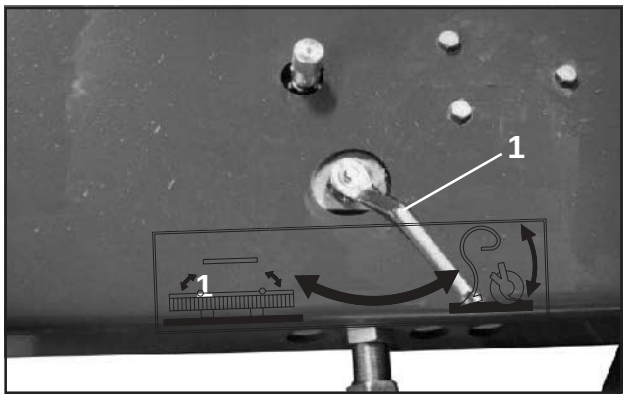


Fig. 9.9

9.2 Programming the AMADOS before starting operation

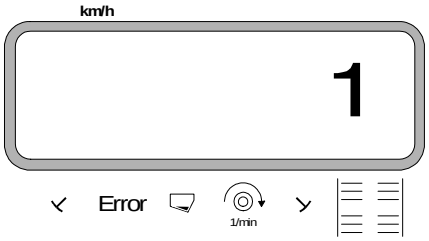
- Press key 

(AMADOS switched on).

- Press key 

and check, correct, if necessary..

Display mode „1“ **for machines** with **track marker**



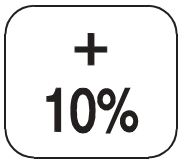
- 

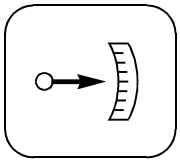
check and correct, if necessary..

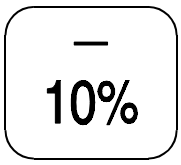
- 

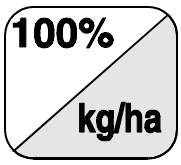
check and correct, if necessary.

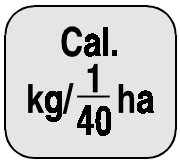
The following keys are not to be used when operating the Airstar Xpress in conjunction with AMADOS :



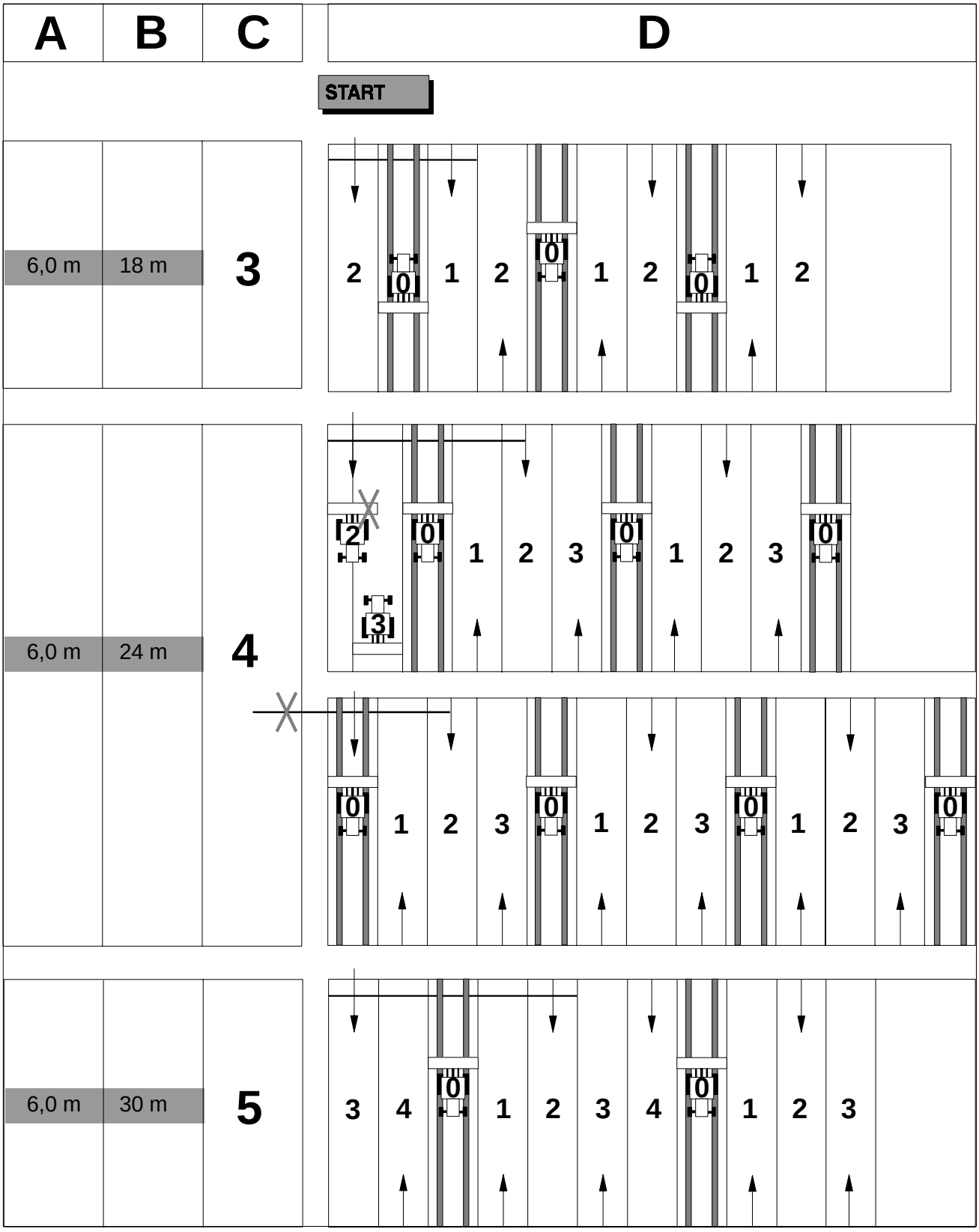








Possible wwitching rhythm on the Airstar Xpress



A	B	C	D
Working width of the seed drill	Tramline spacing	Switching-rhythm	Tramline counter, controlled and displayed by the **AMADOS**

9.3 Creating tramlines with AMADOS

The distance of the tramlines depends on the working width of your seed drill and the working widths of other machines, as e. g.

- centrifugal broadcaster and/or
- field sprayer.

Depending on the working width of these machines it is necessary to be able to create tramlines with different tramline spacings.

For this it is necessary when using the on-board computer AMADOS to program the switching rhythm for creating tramlines (tramline rhythm) before starting operation. For this a certain figure has to be entered for the chosen switching rhythm (depending on the tramline distance).

The tramline counter controls the creation of the tramlines. When creating a tramline the tramline counter shows the figure "0" on the display.

On the AirstarXpress the forward switching of the tramline counter is done by the hydraulically actuated track marker folding which is coupled with the sensor for the tramlining control. **AMADOS** receives the necessary information for switching when the track marker changes.

Example:

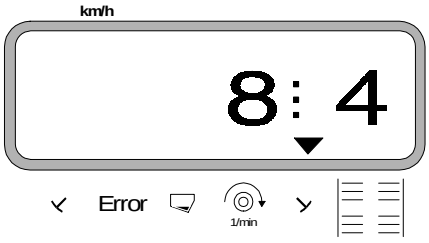
Seed drill	6m working width
Fertiliser broadcaster/ field sprayer:	24m working width = 24 m tramline distance

- Unfold boom.
- Lower coulter bed and spring tine cultivator. Automatically one of the two track markers is also lowered.

If the lowered track marker is on the "wrong side", raise sowing coulters and lower again. Thus the track marker position changes.

- Look in the left hand side table for "Switching rhythms possible with the AirstarXpress" the line in which the seed drill's working width **(6m)** and the desired tramline distance **(e.g.24m)** are listed side by side.
- For the switching rhythm read off the figure **"4"** .
- if necessary, press key.  (switch on AMADOS).
- On the **AMADOS** press key  and the display shows the actual switching rhythm.

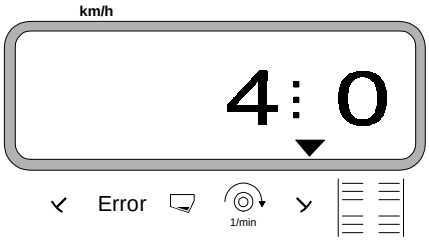
Display of actual switching rhythm



- Via the keys  or  preselect the required switching rhythm **"4"** .
- Press key 

and store the value **(4)** . thereafter the following display is shown:

Display showing a new switching rhythm



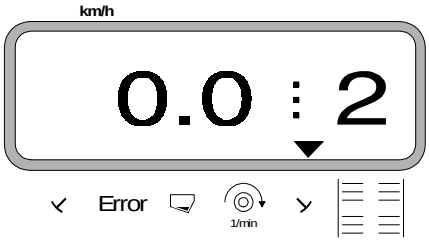
Set tramline counter

For the correct creation of tramlines shift over the tramline counter by pressing key 

and thus choose the figure which it indicates under the writing "**START**" (table page 44) .

For example **"0",** if the first tramline has to be created directly at the field's side.

Display of the tramline counter when stationary, figure "2" is set:

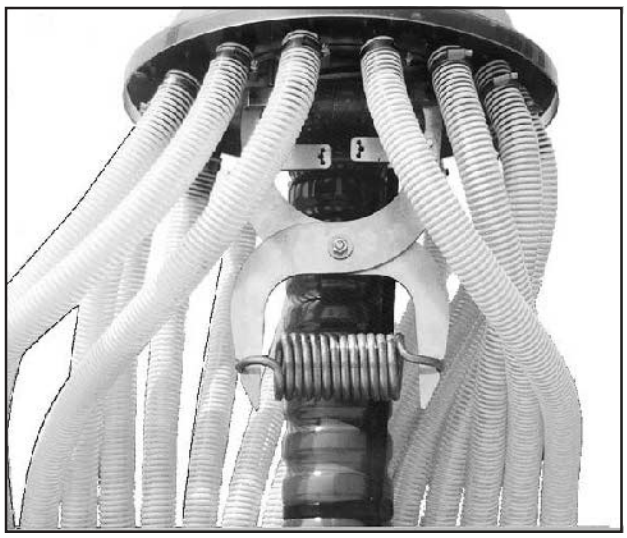


- Check whether the hydraulic switching device for creating tramlines is in the right position on the distributor head.

  When creating a tramline (Tramline counter = 0") the **spring** on the switching tong is is **released**.

  If **no tramline is created** the **spring is tensioned** and the **hydraulic ram** is extended.

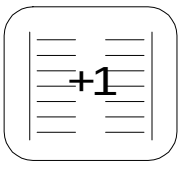
Position of the switching tong when creating tramlines (spring is released).



If the switching tong is not in the desired position, actuate track marker until the switching tong position changes.

If necessary, press key 

and shift over the tramline counter correspondingly.

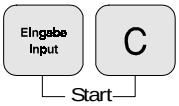


9.4 Starting to sow and checking the chosen machine settings

- Bring **pto shaft** slowly to its **operational speed (1000 min^{-1}.)** .

- Press key 

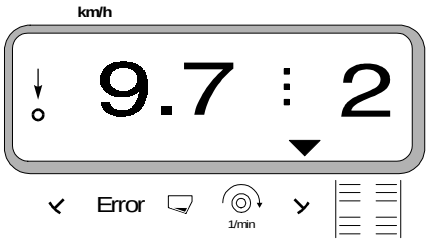
and enter nominal speed of the blower fan **(approx. 3200 min^{-1})** for monitoring the speed. This entering is only then possible when the hydraulic motors are driven by their rated speed **(1000 min^{-1})** .

- Press 

and thus release the start function.

During sowing operation the actual operational speed [k.p.h.] and the actual figure of the tramline counter are displayed.

Display during sowing operation



- **Lift the single acting control valve for lifting sowing coulters and track markers, raise friction wheel and arrest tramlining control in position "floating position".**
- Sow for approx. 30 m with normal operational speed and stop.
- **Check operational performance of the seed drill and correct, if necessary.**
  - Check placement depth of the seed and correct coulter pressure or depth limiter setting (when the machine is equipped with roll disc coulters) and correct if necessary.
  - Check whether seed has been sown in every row.
  - Check whether the seed furrows are sufficiently covered with soil and correct extra coverage following harrow if necessary.
  - Check track marker measurement and operation of the track markers.

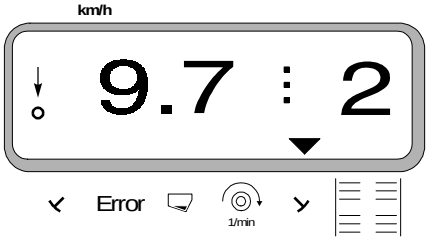
Repeat checking the performance of your seed drill's operation until a satisfying working result is achieved.

9.5 Important hints when the sowing operation in the field is interrupted

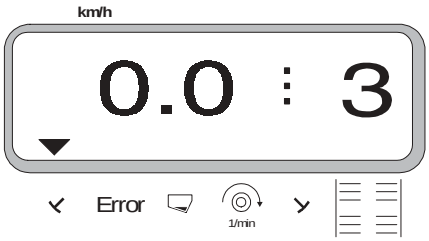
If for any reason the **track markers** are folded in during sowing operation in the field, e. g. when lifting the sowing coulters, it automatically occurs

- **unwanted track marker change over .**
- **unwanted shifting over of the tramline counter.**

Display showing during sowing operation (before having stopped in the field)



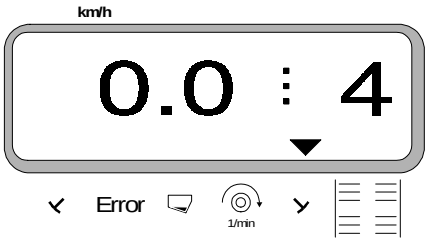
Display showing **while stopped** in the field and after a ***one-time*** lifting and lowering of the sowing coulters



Before continuing sowing operation

- lift and lower the sowing coulters for a second time, so that the lowered track marker is on the "correct" side.

Display shows during stop in the field and **<u>two-times</u>** lifting and lowering the sowing coulters

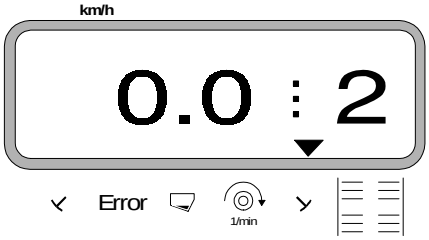


- **set back the tramline counter to that figure which was displayed before the interruption**. For this shift on the counter via

  key 

  until the tramline counter shows the same figure as it did before stopping in the field (e.g. 2).

Required display **before continuing the sowing operation** (only valid for this procedure sample)



If the switching tong is not in the correct position lift the track marker long enough so that the tramline counter shifts on and brings the switching tong into the correct position.

10.0 After sowing operation

10.1 Emtpying the seed box

- Place collecting tray under the outlet openings of the metering units.
- Swivel lever (10.1/1) of the emptying flaps downwards, arrest and thus give way to the outlet.

After emptying swivel both opening flaps upwards and catch the lever in the uppermost position.

If the machine is stored for longer periods:

- empty seed box completely because otherwise danger of germination.
- Open emptying flaps of the metering units so that no mice are caught as they otherwise may nibble at the plastic parts.

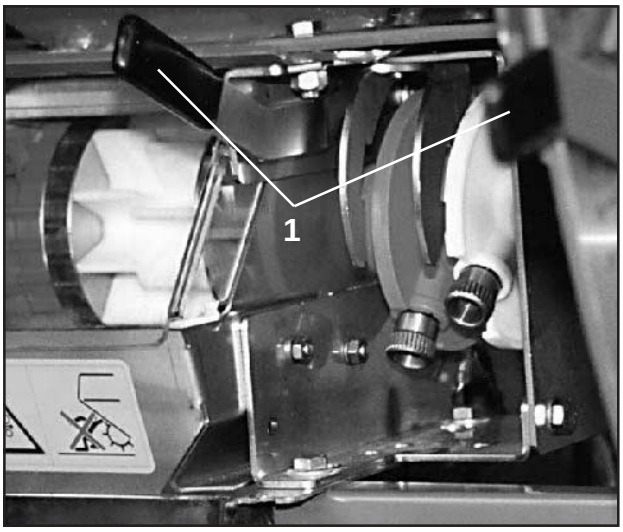


Fig. 10.1

10.2 Cleaning the machine

Clean the machine with a jet of water or with a high pressure cleaner.

In case you blow out the seed box with pressurized air, keep in mind: dressing dust is poisenous. Do not inhale the dust.

After a longer standstill the seed residues cake and lead to forced breakages of the seed metering wheels.

11.0 Maintenance

- **Daily**
  - **Check oil level of the hydraulic system and fill in oil if necessary.**

    Use the following kinds of oil:

    Hydraulic oil HLP, Wiolan HS 22.

    Filling quantity: 20 l.
  - **Check hydraulic motor** on the blower fan. The bore beneath the bearing has to be free of grease.
  - **Check cooling spiral. Remove dirt.**
  - Check the **metering system** for residues.
  - **Check gearbox setting lever for firm seating.**
  - Check easy run of the **friction wheel** .
  - **Check tightness of the setting screws** for for the main- and fine seed metering wheels in the different positions.
  - **Check wheel nuts for tightness.**
  - **Check air pressure of tyres.**
  - **Check hydraulic system for leakages.**
  - **Check distributor head** (Fig.11.1) regularly and clean - especially when sowing dressed seeds - after every operation.
    - Relieve hydraulic system from pressure.
    - Remove distributor outer hood (11.1/1) for cleaning.
  - **Airbrake:** Dehydrate the air tank if necessary.
  - **Hydraulic brake**: Check the stroke of the braking ram piston! At full braking readjust approx. 1/3 to 1 /2 of the total ram piston stroke, at least when reaching 2/3 of the total stroke readjust wheel brake! Release brake and check whether the piston of the ram returns entirely! Replace damaged bellows!

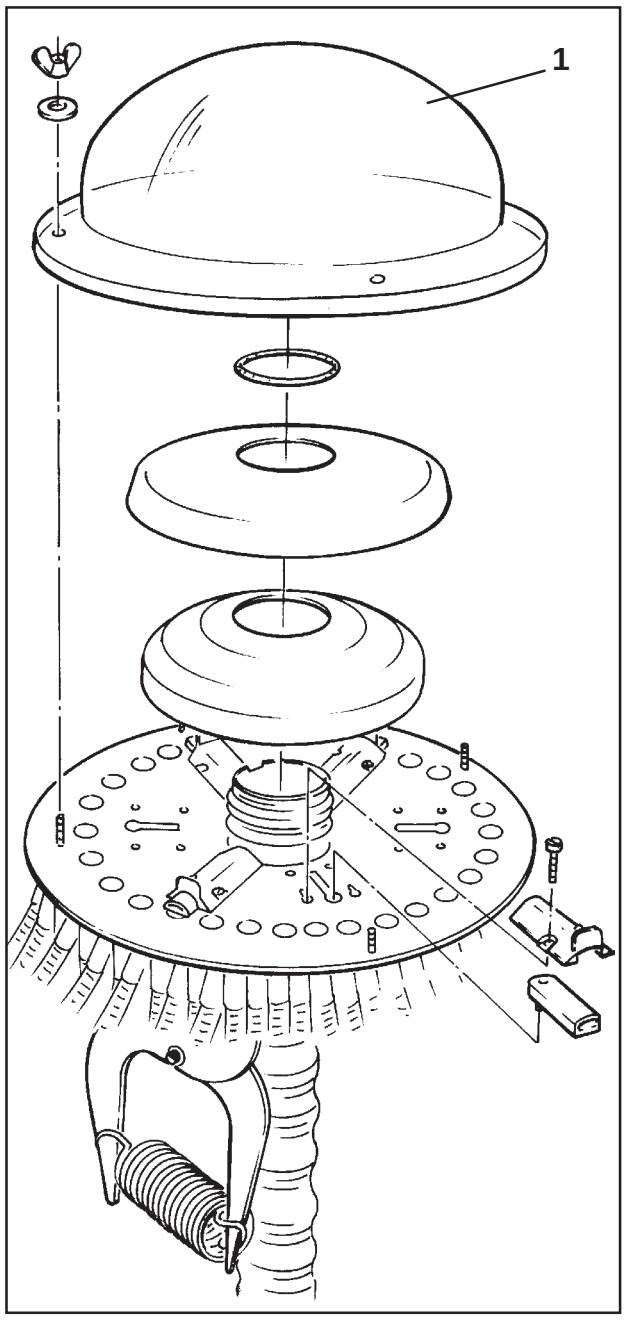


Fig. 11.1

- **after every 25 hours of operation:**
  - Check all **frame bolts for tightness.**
  - **Check oil level in the two-range gearbox** at the oil level gauge and fill with oil if necessary. **An oil change is not necessary.** For adding oil, unscrew the lid of the gearbox. **Filling quantity: 1.8 litres.**

    Use the following kinds of oil:

    hydraulic oil WTL 16,5 CST/50°C or

    motor oil SAE 10 W

- **Check brakes:**
  - Check and clean the inserts of the tube filters.
  - Check the braking circuit for leaks. The pointer of the pressure meter should stay unchanged for 3 minutes after stopping the tractor engine at an air tank pressure of 5.3 bar. In case of any loss of air pressure within the above mentioned time limit, remedy should be made by a licenced workshop.
  - Check brake hoses for faultless condition. If necessary exchange damaged brake hoses.
  - Never weld or solder on control units and pipes. Exchange damaged parts.
  - Greasing! For greasing only use grey-special grease for air assisted implements. When greasing apply grease to the pin of the yoke head of the piston ram.
- **after every season:**
  - apply grease to all **grease nipples** (keep clean sealings).

    You will find grease nipples at the:
    - track marker (3x),
    - packer roller (each 2),
    - lifting ram harrow,
    - folding ram harrow,
    - folding ram coulter frame,
    - bearing boom.
  - **Check tightness of all frame bolts.**
  - **Apply oil to roller chains** (remove chain guard to do this, then refix after having finished this work).
- **If necessary:**
  - **Readjust roll disc coulter scrapers.** In order to clean the roll disc coulters from sticking soil, every roll disc coulter is equipped with two scrapers (11.2/1) .

    These scrapers undergo a certain wear and have to be reset if required.

    Set scrapers in such a way that they touch slightly on the outer edge of the roll disc without braking the disc too much. Slacken bolts (11.2/2) before setting and retighten afterwards.

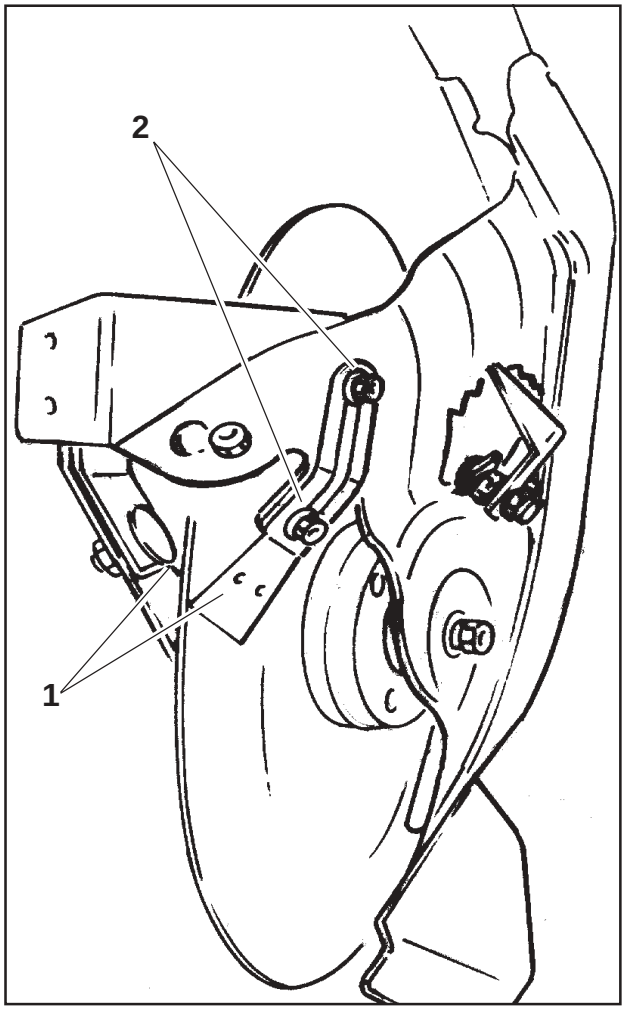


Fig. 11.2

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