

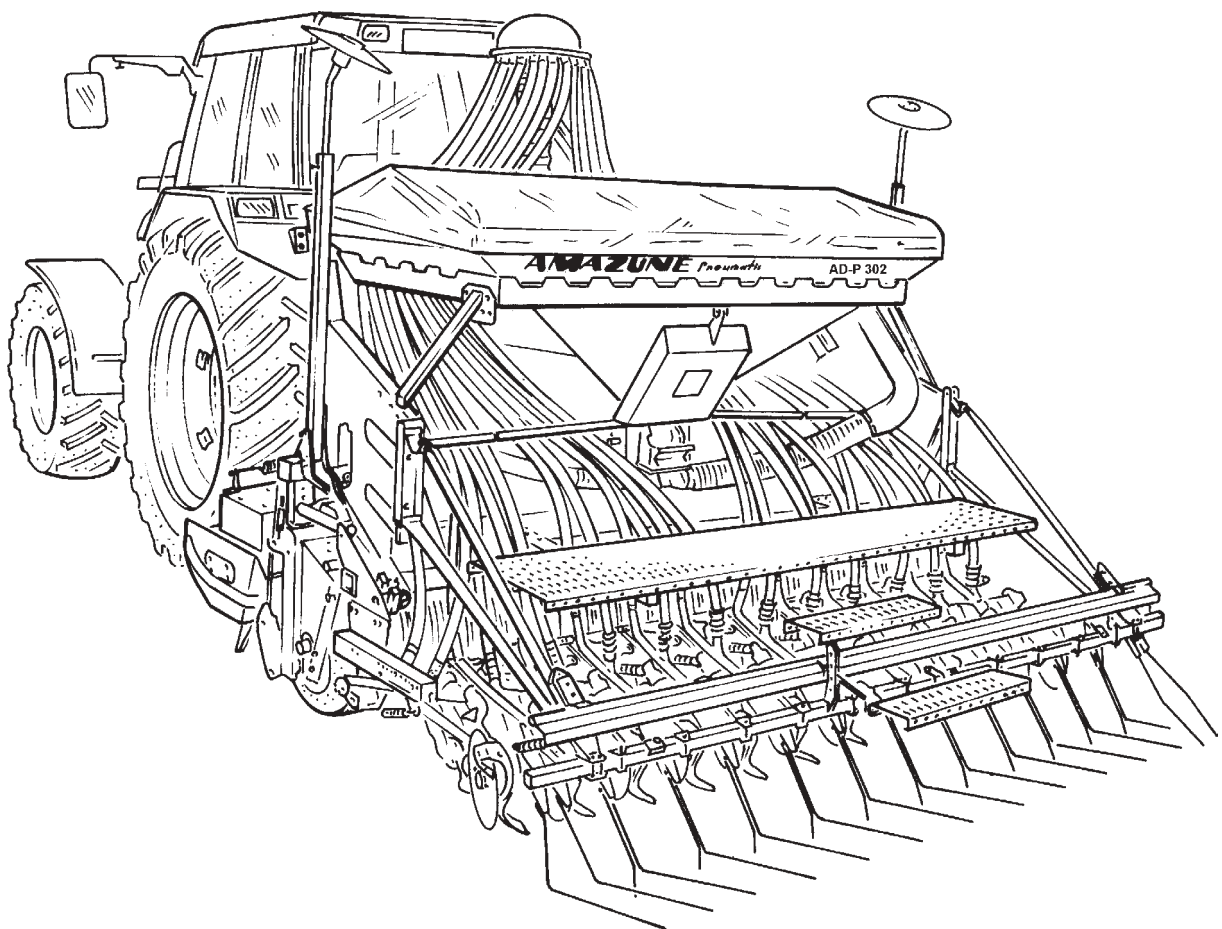


Instruction manual

AirstarProfi

AMAZONE

Pack Top Seed Drills *PNEUMATIC*
AD-P 2



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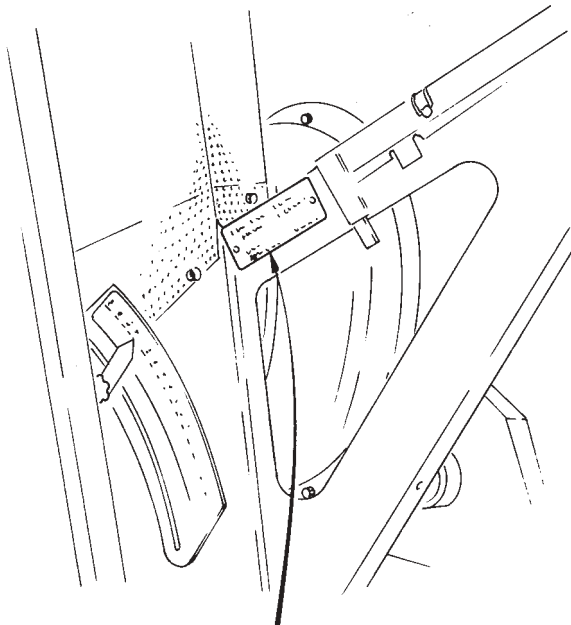


Before starting operation
carefully read and adhere to
this instruction manual and
the safety advice!

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D-49202 Hasbergen-Gaste

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AD-P 302



AMAZONEN-WERKE	
D-49205 Hasbergen	
zul. Nutzl. :	
Typ :	
Masch.Nr. :	

Machinery types

AMAZONE- PNEUMATIC Pack Top Seed Drills AD-P 302, AD-P 402, AD-P 452.

The type plate is affixed to the front right hand frame side section when looking into operating direction (refer to illustrations). It contains the following data:

Manufacturer: **AMAZONEN-Werke
D - 49205 Hasbergen**

allowable payload.:

Type: (Typ)

Serial-No.: (Masch.Nr.)

Please enter here the type of machine and the serial-No. of your seed drill.

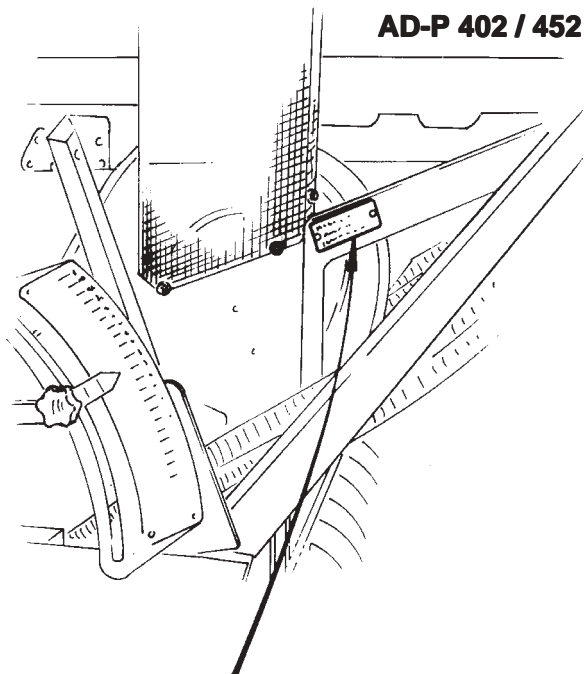
Machinery type:

**AMAZONE-
Pack top seed drill
PNEUMATIC AD-P**

Serial-No.:

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

AD-P 402 / 452



AMAZONEN-WERKE	
D-49205 Hasbergen	
zul. Nutzl. :	
Typ :	
Masch.Nr. :	

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3.0 Manufacturer

AMAZONEN-Werke H. Dreyer GmbH & Co. KG,
Postfach 51, D-49202 Hasbergen-Gaste/Germany.

3.1 Technical data

	AD-P 302	AD-P 402	AD-P 452
Coulter exchange module	K-coulters or Roll disc coulters	K-coulters or Roll disc coulters	K-coulters or Roll disc coulters
Number of rows	24	32	36
Row spacing	12,5 cm	12,5 cm	12,5 cm
Working width = Transport width	3,0 m	4,0 m	4,5 m
Height up to upper edge of basic seed box	1,85 m	1,85 m	1,85 m
up to upper edge of distributor head	2,67 m	2,67 m	2,67 m
Net weight (without soil tillage implement and without packer roller)	970 kg	1150 kg	1225 kg
Hopper capacity			
Main hopper	1000 l	1000 l	1000 l
with hopper extension N 1500	1500 l	1500 l	1500 l
with hopper extension N 1800	1800 l	1800 l	1800 l
with hopper extension N 3000	2500 l	2500 l	2500 l

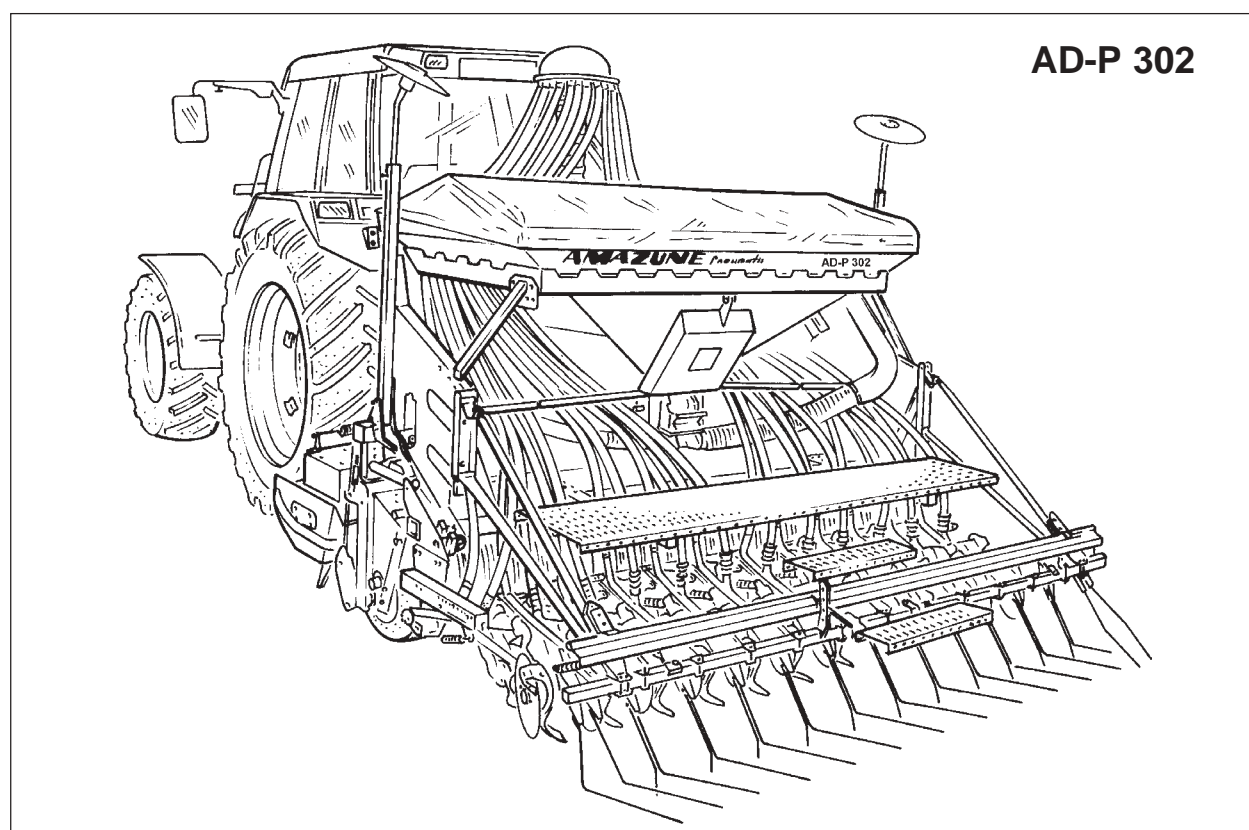


Fig. 3.1

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4.1 Operational safety symbol



In this operator instruction 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 also to other users of this machine. Besides the hints in this operator instruction also the general safety and accident preventive advice should be adhered to.

4.2 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 operation as well as to prevent damage to the implement.

4.3 Hint Symbol



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

4.4 Important hints



The AMAZONE SEED DRILL PNEUMATIC AD-P has exclusively been designed for the usual operation in agriculture (designed use of the machine).

2. 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.
3. Under "designed use" also adhering to the manufacturer's prescribed operation maintenance and repair conditions as well as the exclusive use of original AMAZONE spare parts is to be understood.
4. The AMAZONE seed drill PNEUMATIC AD-P 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. Any damages or injuries resulting from arbitrary changes on the machine rule out the responsibility of the manufacturer.
5. All applicable accident preventive advice as well as any further generally accepted safety-, working-medical- and road-traffic rules should be adhered to. Furthermore any existing law regarding the protection of crops as well as any safety advice on the machines' labels should also be adhered to.
6. Please follow carefully all safety advice in this instruction book and on the machine.
7. Unagreed modifications to the machine exclude a liability by the manufacturer for resulting damages..
8. Deviations of the seed rate or even total misses of individual rows cannot fully be excluded, even though we have produced the machine with utmost care and you have used the machine according to the intention of its design. Such faults can e. g. be caused by:
 - varying composition of the seed (e.g. distribution of grain size, dressings, bulk density, geometrical shape).
 - Drift alongside slopes or errors when travelling along the earlier bout.
 - Blockages or bridgings, e. g. by strange particles, residue of bags etc.
 - Undulations of the terrain.
 - Wear to wearing parts (e. g. metering wheels etc.)
 - Damage from outside influences.
 - Wrong pto speeds and forward speeds.
 - Wrong setting of the machine (incorrect mounting, incorrect determination of the gearbox setting).

Therefore, check and ensure that your machine is functioning correctly before and during use.

Claims regarding damage not occurring to the AMAZONE seed drill PNEUMATIC AD-P itself will be rejected. Modifications made to the AMAZONE seed drill PNEUMATIC AD-P by the owner/user may result in damage and therefore the manufacturer does not accept liability for such damage.

In case of willful intent or gross negligence on the part of the owner or a responsible employee, the manufacturer is not exempt from liability. According to product liability law, this exemption also applies in cases where liability is given for damage to persons or property on privately used machinery as a result of errors at the AMAZONE seed drill PNEUMATIC AD-P. Neither is the manufacturer exempt from liability in the case of errors involving features that have been explicitly guaranteed not to fail if this guarantee is specifically aimed at covering the purchaser against damage not caused to the AMAZONE seed drill PNEUMATIC AD-P.

4.5 General safety and accident prevention advice



Basic principle:

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

1. Adhere to the general rules of health- and safety precautions besides the advice in this instruction manual.!
 2. The fitted warning- and advising plates give important hints for sa 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 installations 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 oeprator 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 advised devices.!
 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, warnings and guards.
 15. The release ropes for quick coupler should hang freely and in the lowered position must not release by themselves.
 16. During driving never leave the operator's seat.
 17. Mount the implement as prescribed. Moving behaviour, steerability and braking are influenced by mounted implements, trailers and ballast weights. Check sufficient steerability 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 observed.
 19. When driving round bends note the width of the machine and/or the changing centre of gravity of the implement.
-

20. Never stay or allow anyone to stay within the operating area!
21. Never stay within the turning- or swivelling area of the machine!
22. Hydraulic folding frames should only be actuated if no persons are staying in the slewing area.
24. In the area of the three point linkage there is danger of injury by its squeezing and shearing places.
24. Before leaving the tractor lower the machine to the ground. Actuate the parking brake, stop the engine and remove ignition key.
25. Allow nobody 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.
26. Secure marker arms in transport position.

4.6 Safety advice for implements mounted to the tractor's three point linkage



When fitting the machine to the three point linkage of the tractor bring all control levers into such a position that unintended lifting or lowering is impossible.

2. When fitting to the three-point linkage the mounting categories on the tractor and the implement must strictly be compatible or must be made compatible.
 3. In the area of the three point linkage there is danger of injury by its squeezing and shearing places.
 4. When actuating the control levers for the three-point linkage never step between tractor and implement!
 5. In the transport position of the implement ensure that the tractor three-point linkage is locked against movement to the sides.
 6. For travelling on public roads with a lifted implement lock the control lever against unintended lowering.
-

4.7 Safety advice for the hydraulic system



The hydraulic system is under high pressure.

2. Connecting 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 on the tractor as well as on the implement 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 (lifting instead of lowering or vice versa) and reduces the 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 (Diesel fuel, hydraulic oil) can penetrate the skin and cause severe injury.
When injured see a doctor immediately! Danger of infection!
8. Before starting to do repair work to the hydraulic system relieve it from pressure by actuating the control lever accordingly, lower 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 by the Health- and Safety Authorities depending on the experience they have had and the danger potential. For hoses and hose circuits made of thermoplasts other guide lines may prevent.

4.8 Safety advice for the operation of seed drills



During the calibration test pay attention to danger of injury by rotating and oscillating machinery parts.

2. Use the steps only when refilling. Staying on the steps during the field operation or during transport is prohibited.
 3. For road transport the marker arms and discs must be removed.
 4. When refilling the seed box note hints by the implement manufacturer.
 5. Arrest markers in transport position.
 6. Do not place any parts inside the seed box.
 7. Do not exceed the maximum permissible payload of the seed box.
-

4.9 Safety regulation for operation with pto shafts



Use only pto shafts which are designed for the implement and which are equipped with all legally requested guardings (CE marked).

2. Guard tubes and cones of the pto shaft as well as a tractor and implement side pto guard must be fitted and kept in a proper condition.
 3. At pto shafts always see the advised tube is overlapping in transport- and operating position.
 4. Fit and remove the pto shaft only when engine is stopped and ignition key is removed.
 5. Ascertain correct fitting and securing of the pto support.
 6. Prevent pto guard from spinning by fixing the provided chain to a nearby static part.
 7. Before switching on the pto shaft ensure that the chosen pto speed of the tractor corresponds to the allowable implement input speed.
 8. When using the ground-related pto take into account that the pto speed depends on the driving speed and that the turning direction is reversed when driving backwards.
 9. Before switching on the pto shaft take care that no one stays in the danger zone of the implement.
 10. Never switch on the tractor pto while engine is stopped.
 11. When operating with a switched-on pto shaft allow no one to stay near to the spinning pto- or universal joint shaft.
 12. Always stop pto when it is not needed or when the shaft is in an adverse position.
 13. Attention: After switching off the pto the mounted implement may continue to run by its dynamic mass. During this period never come too close to the implement. Begin to work on the implement only after it has come to a full standstill.
 14. Clean and grease the universal joint shaft and the pto driven implement only after the pto shaft and engine have been stopped and ignition key removed.
 15. Place the uncoupled pto shaft on the retaining device provided.
 16. When travelling in curves mind the permissible angling and length of sliding of the pto shaft.
 17. After removal of pto shaft apply guard cap onto pto stub.
 18. Immediately repair any damages before operation to avoid consequential problems.
-

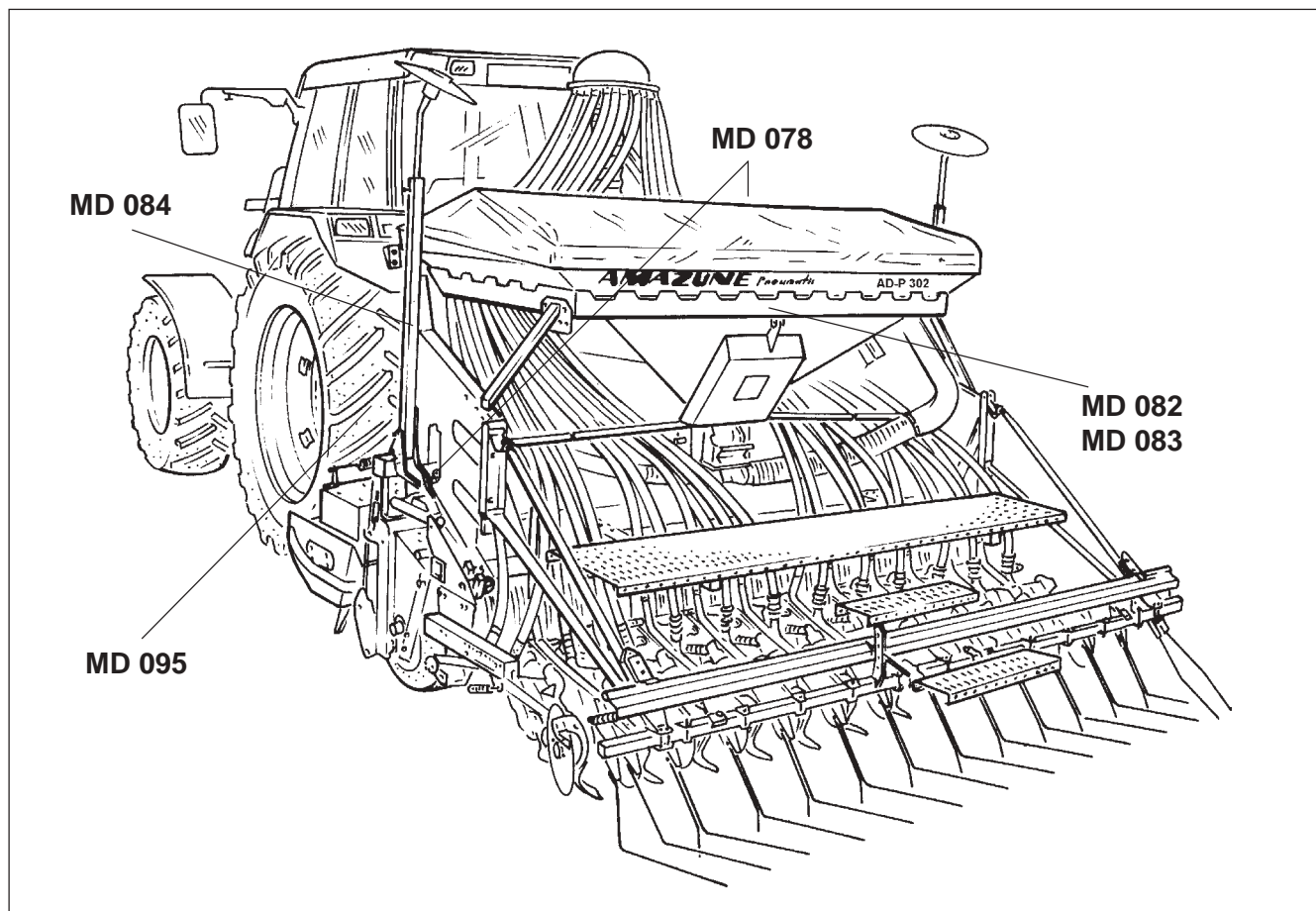


Fig. 4.1

4.10 Warning pictographs and hint stickers on the machine

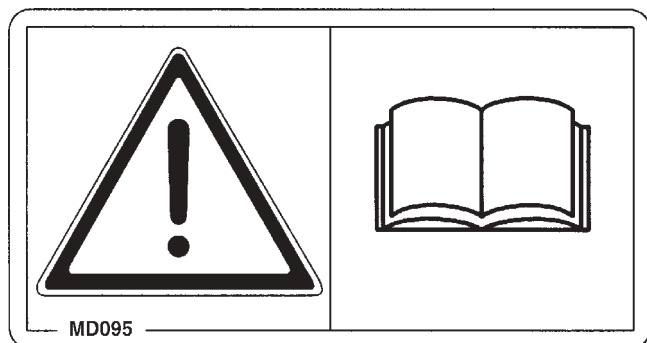


Warning pictographs indicate dangerous points on the machine. Observing them means safety for all persons using this machine. The warning pictographs always come together with safety/warning stickers.

The hint stickers mark machine's specific points which have to be observed to ensure a correct spraying operation.

Fig. 4.1 shows the fixing points of warning pictographs and hint stickers. Please refer to the following pages for relevant explanations.

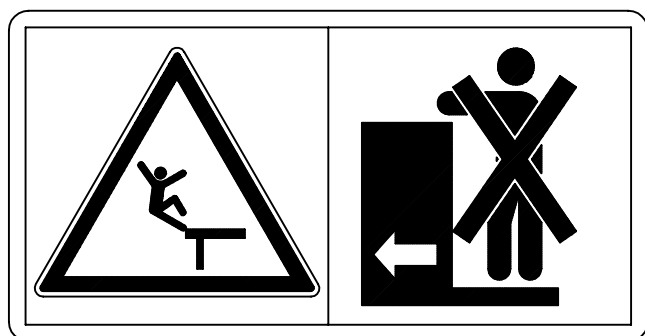
1. Strictly observe all warning and hint stickers.
 2. Please pass on all safety advice also to other users.
 3. Please always keep all warning and hint stickers clean and in well readable condition. Please ask for replacement of damaged or missing signs from your dealer and attach to relevant place (picture No.: = Order-No.).
-



Picture-No.: **MD095**

Explanation:

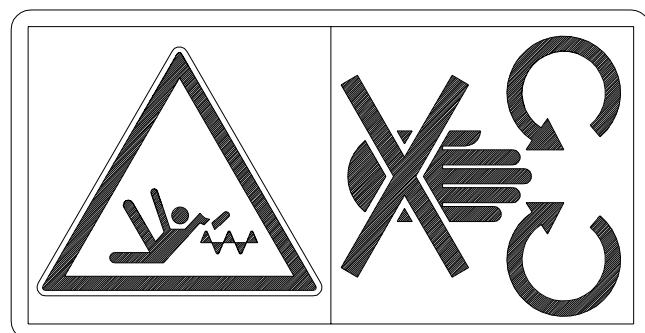
Before commencing operation read thoroughly operation manual and safety advice.



Picture No.: **MD 082**

Explanation

Sitting or standing on the implement during operation or road transport is not permissible.



Picture No.: **MD 083**

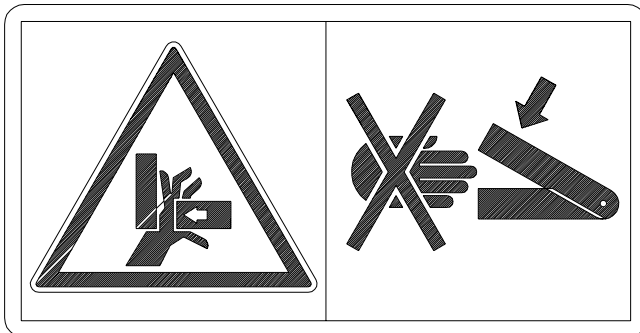
Explanation

Danger of injury.

Never reach inside seed box while tractor engine is running.

Picture No.: **MD 084****Explanation**

Never stay within the swivel area of the marker arms.

Picture-No.: **MD 078****Explanation**

Never touch zone of bruizing danger as long as parts can still be moving.
Advise people to leave the danger area.

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5.0 Putting to operation

- **Carefully read and adhere to the instruction book and safety advice before putting your seed drill to operation.**

Acquaint yourself with the correct handling and with the operating devices. Never allow the machine being operated by inexperienced personnel.

Maintain your machine in a good operational order. Changes to the machine not allowed by the manufacturer may endanger the functionality and/or safety and may reduce the life span of the machine. Claims for free delivery of spare parts will be rejected in case of operational mistakes.

Liability claims can only be accepted if exclusively original spare parts and wearing parts are used for replacement.



Never place any parts inside the seed box as the metering devices may be damaged.

- **Components which are supplied separately with the machine should be mounted:**
 - Markers according to para. 23.1
 - Extra coverage following harrow with loading board according to para. 24.1
- **Mounting a pack top seed drill to a soil tillage implement:**
See para. 6 to para. 9.
- **How to connect a blower with pto drive:**
See para. 11
- **How to connect a blower with a hydraulic drive:**
See para. 12.

- **How to link up connecting valve I to a single acting control valve of the tractor.**

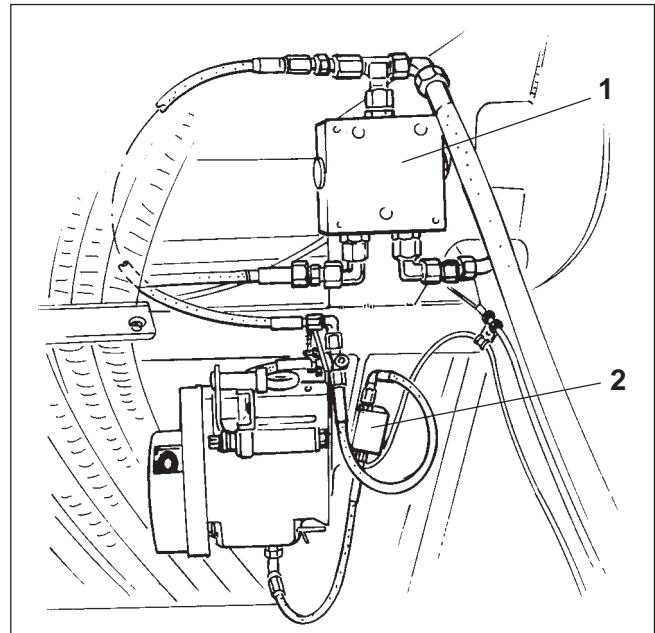


Fig. 5.1

To the connecting valve I (Fig. 5.1/1) the following is connected:

1. Hydraulic ram for actuating the markers (see para. 23.0).
2. The switch box of the metering wheel tramlining control (see. para. 26.1 [option]).



Follow safety advice according to para. 4.7!

Actuate the control valve only from inside the tractor cab!

When actuating the control valve simultaneously the hydraulic rams

- for actuating the markers and
 - for actuating the switch box of the metering wheel tramline control
- are being pressurized.

**Ask people to leave the area of danger!
Danger of injury on moving parts!**

- How to connect connecting unit II to a tractor having a single acting control valve:

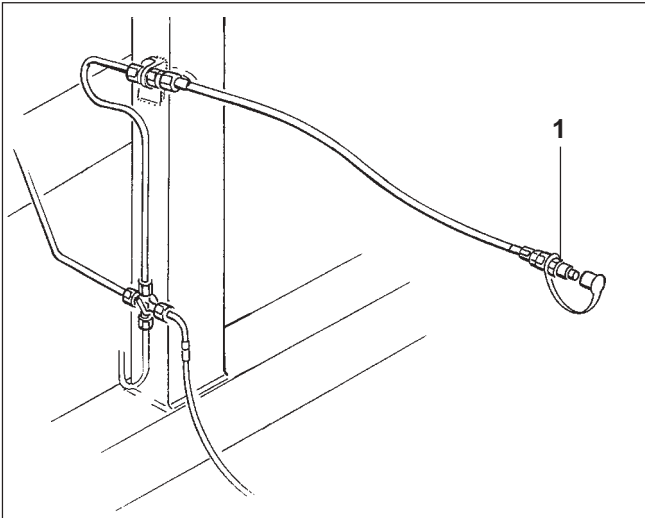


Fig. 5.2

The following is connected to the connecting unit II (Fig. 5.2/1):

1. the hydraulic coultter pressure adjustment (see para. 22.2, option)
2. the seed rate remote control (see para. 31.0, option)



Follow safety advice according to para. 4.7!

Actuate control valve only from inside the tractor cab.

When actuating the control valve simultaneously the hydraulic rams

- for actuating the coultter pressure adjustment,
- for actuating the seed rate remote control are being pressurized.

Ask people to leave the area of danger!
Danger of injury on moving parts!

- Fill seed box (ref. to para. 16.0).
- Set seed drill according to the seeds to be sown (see para. 20.0).
- Determine the gearbox setting position for the desired seed rate (see para. 21.0).

5.2 Setting up the machine in the field

- Bring markers in operation position (see para. 23.2).
- Applicable only to AD-P with star wheel:

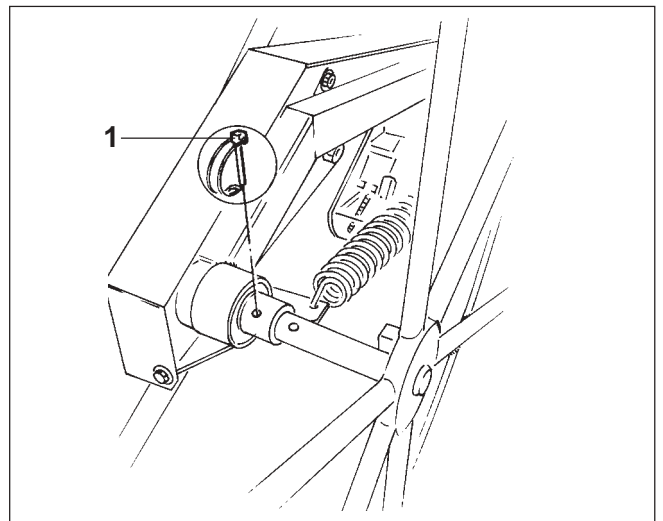


Fig. 5.3

Pull star wheel out of the hollow shaft of the swivelable drive and reinsert with the prior removed clip pin (Fig. 5.3/1) into the second hole..

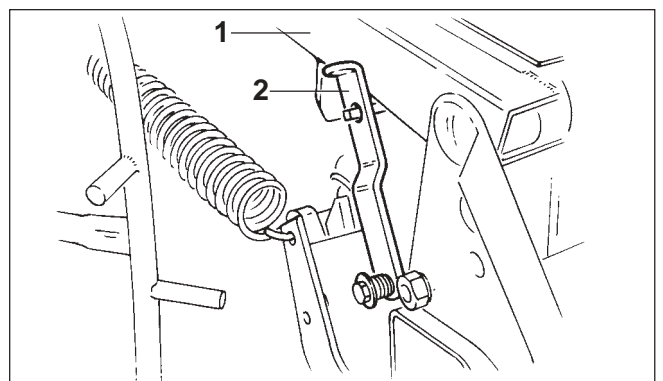


Fig. 5.4

Briefly lift swivelable drive (Fig. 5.4/1), pull the lever (Fig. 5.4/2) and lower the star wheel into the working position.

5 - 4 Putting to operation

- Set markers to the required length (see para. 23.4).
- Travel with the mounted seed drill approx. 30 m in the field in the later forward speed and check the following settings:
 - Sowing depth of the seed, readjust if necessary (see para. 22.0).
 - Check settings of the extra coverage following harrow, if necessary readjust (see para. 24.2 to 24.4).
 - Check working intensity of the marker discs, readjust if necessary.
- Set markers in such a way that they mark on the correct side.
- Set the metering wheel tramlining control to the correct figure in the switch box (see para. 26.2).
- Set hectare meter (option) to "zero" (see separate instructions).

5.3 During operation

The seed level inside the seed box can be checked with the electronic seed level indicator "AMADOS" (option) (see separate instructions).



Refill seed box in due time!

Never empty the seed box completely during operation.

5.4 After the first 10 hours of operation



Check all bolted connections for tightness after the first 10 hours of operation and retighten if necessary.

5.5 Parking the AD-P-combination with tyre packer roller



If you intend to park your tyre packer roller after the operation we recommend to relieve the tyres of the roller from load to avoid damages to the tyres and to the bracing rings.

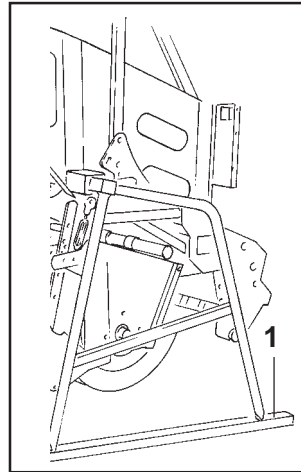


Fig 5.5

If it is intended to park the combination consisting of a soil tillage implement and the tyre packer roller together with a pack top seed drill, please use the parking supports (Fig. 5.5/1) fitting to the seed drill.

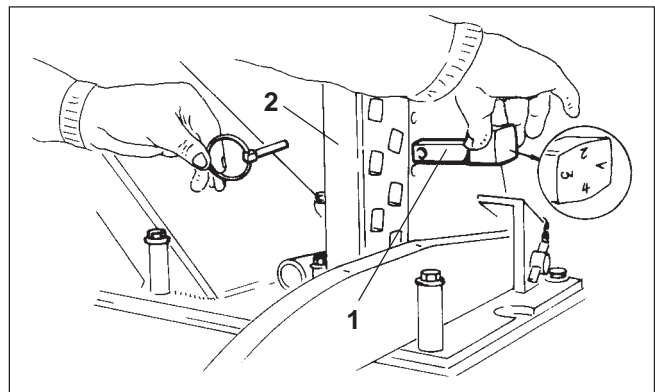


Fig 5.6

Before uncoupling the combination off tractor the depth setting pins (Fig. 5.6/1) of the soil tillage implement have to be inserted **in the upper most** hole of the setting quadrant brackets. (Fig. 5.6/2).



When inserting the depth setting pins (Fig. 5.6/1) please hold them only in such a way that your hand will never get between the pin and the carrying arm. After replacement of the pins secure them with clip pins.



It is intended to park the tyre packer roller without pack top seed drill, the tyres should be relieved from load as it is described in the operating instructions for the tyre packer roller.

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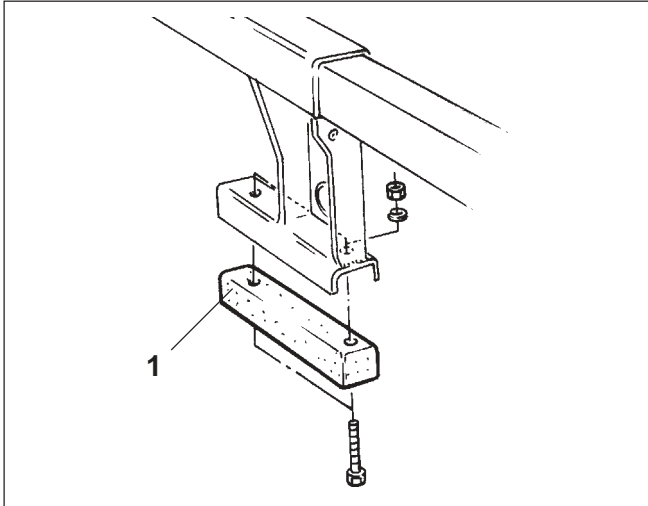


Fig 6.1

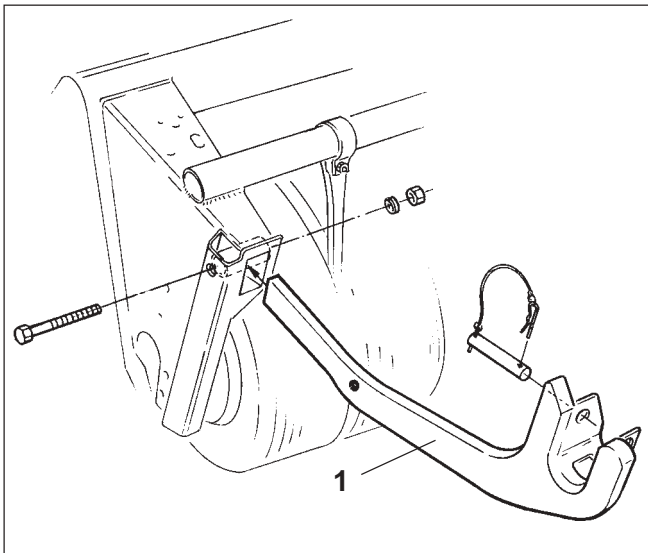


Fig 6.2

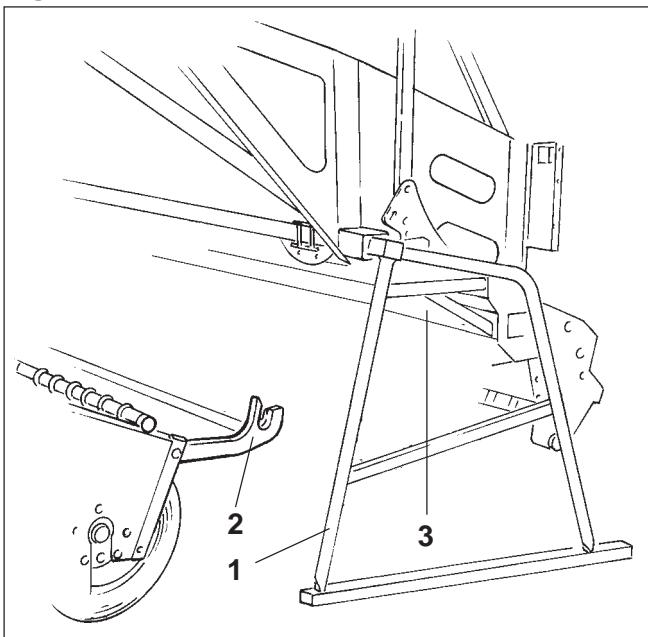


Fig 6.3

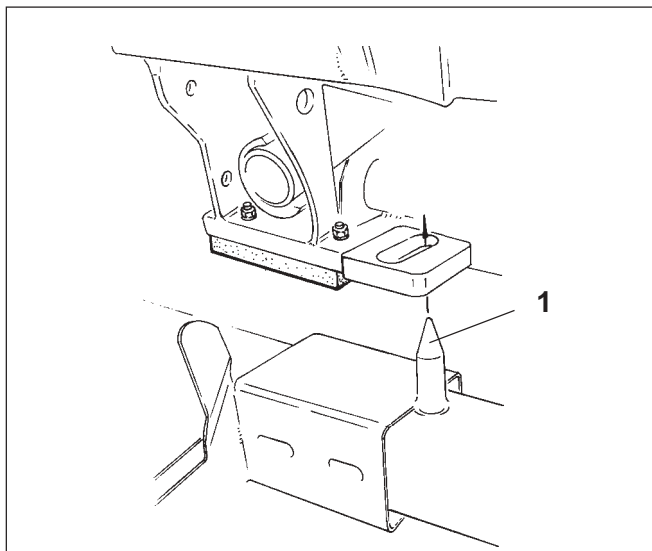
6.0 Combining pack top seed drill with tyre packer roller

Affix two plastic spacers (Fig. 6.1/1) to the brackets of the seed drill.

Affix two catching arms (Fig. 6.2/1) to the tyre packer roller.

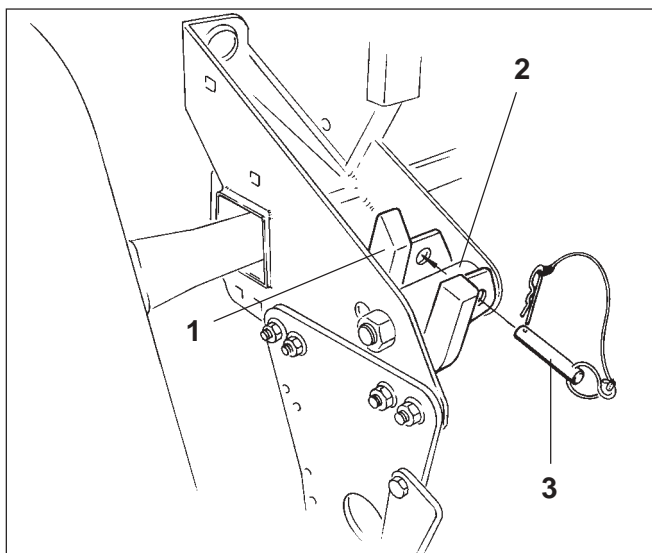
Back up with the mounted combination of soil tillage implement and tyre packer roller towards the pack top drill resting on parking supports (Fig. 6.3/1).

Carefully guide the catching arms (Fig. 6.3/2) below the square tube (Fig. 6.3/3) of the pack top seed drill



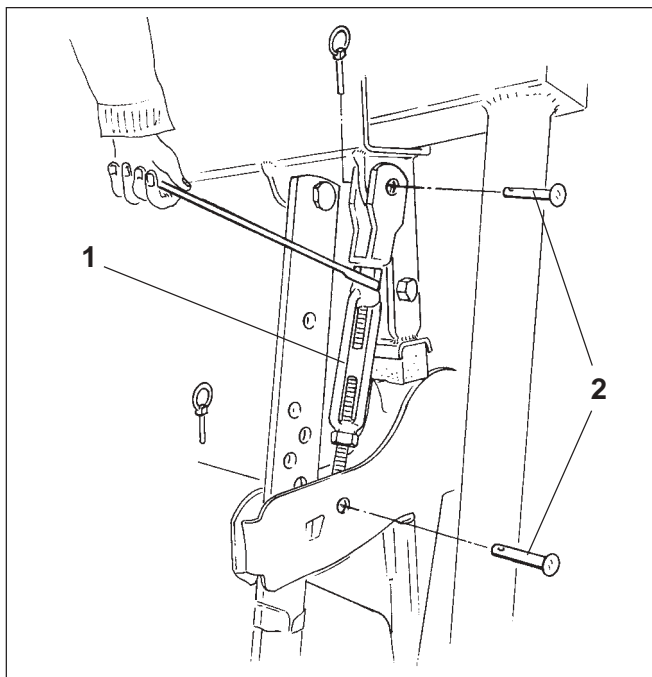
The tyre packer roller is equipped with a centering aid (Fig. 6.4/1) being positioned on the right hand side in front.

Fig 6.4



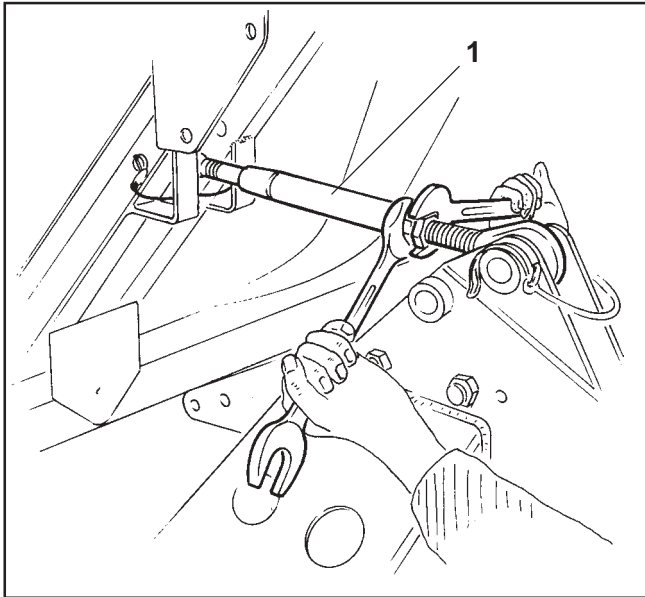
Use the catch hooks (Fig. 6.5/1) of the tyre packer roller to take up the mounting shafts (Fig. 6.5/2) of the seed drill, lock them with pins (Fig. 6.5/3) and secure with spring pins.

Fig 6.5



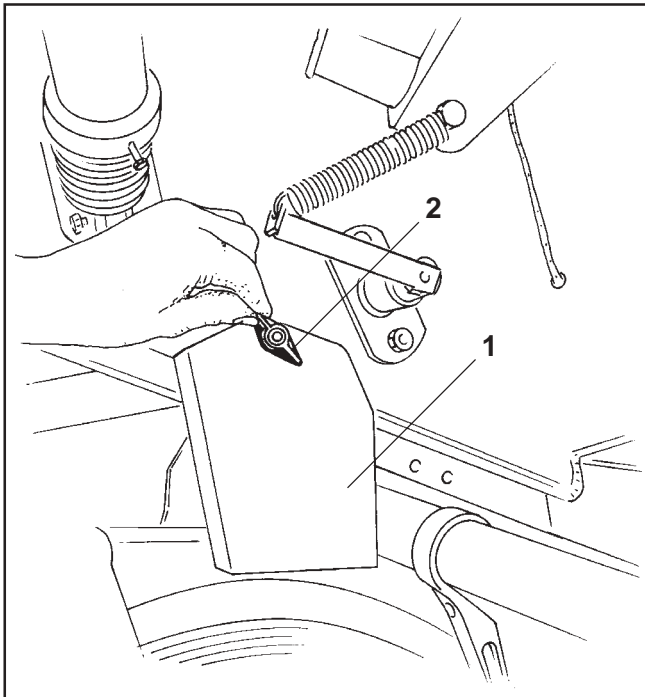
Affix seed drill to tyre packer roller with 2 turnbuckles (Fig. 6.6/1). Secure pins (Fig. 6.6/2) with clip pins.

Fig 6.6

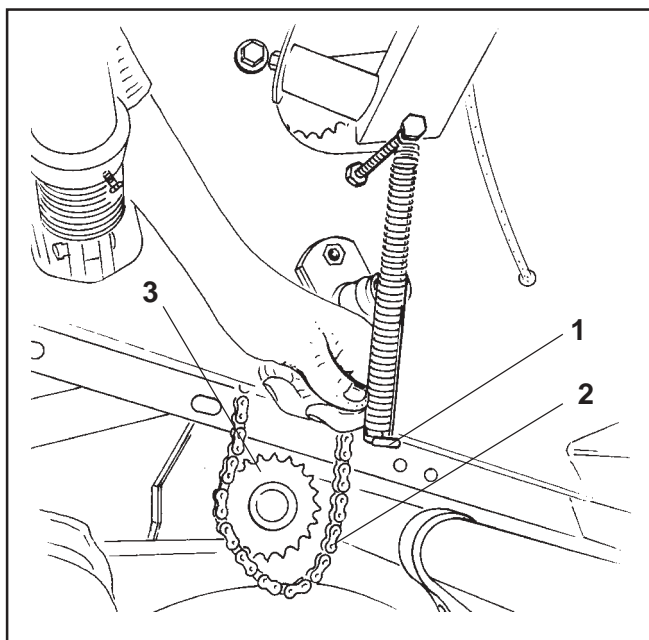
**Fig 6.7**

Insert top link (Fig. 6.7/1) to seed drill and soil tillage implement and secure linking pins with clip pins.

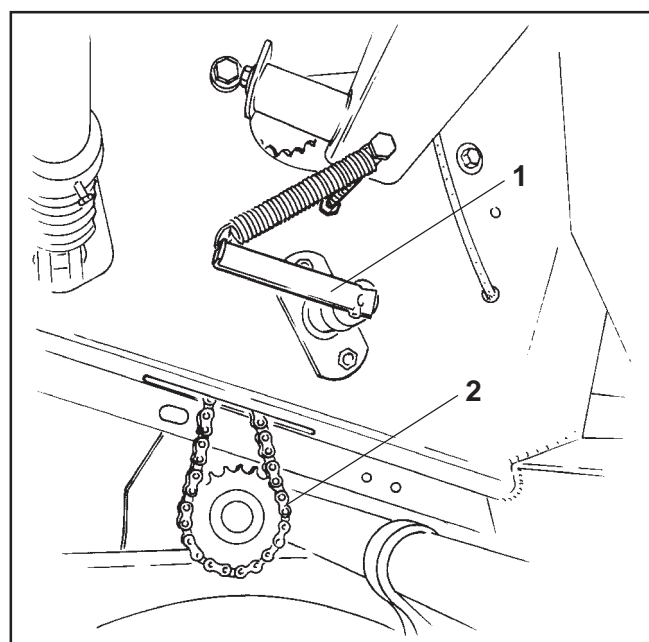
The top link has a setting length of 290 mm to 410 mm.

**Fig 6.8**

Remove the chain guard (Fig. 6.8/1) from the right hand inner side part of the seed drill after undoing the thumb nut (Fig. 6.8/2).

**Fig 6.9**

Press downwards drive chain tensioning lever (Fig. 6.9/1) and place drive chain (Fig. 6.9/1) of the seed drill around the sprocket (Fig. 6.9/3) of the tyre packer roller.

**Fig 6.10**

Carefully swivel upwards lever (Fig. 6.10/1). This causes the drive chain (Fig. 6.10/2) to be tensioned. Reinstall chain guard (Fig. 6.8/1).

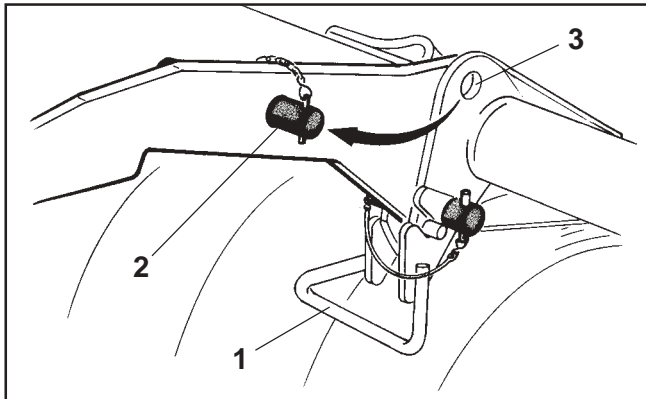


Fig 6.11



The tyre packer roller drives the gearbox and the metering units of the seed drill. In order not to lose any seed when turning on the headlands it is necessary to stop the drive of the metering units as soon as seed drill and tyre packer roller are lifted by the tractor three point hydraulics. When lifting the seed drill the braking shoe (Fig. 6.11/1) is being pressed down onto the running surface of one or several tyres by the carrying arm and this way stops the rotation of the tyre packer roller.

In order that the pack top seed drill can move freely within the parallel linkage and that the braking shoe can become effective **remove both upper carrying arm pins** (Fig. 6.11/2) from the holes (Fig. 6.11/3).

Beforehand adjust top link (Fig. 6.7/1) until both carrying arm pins (Fig. 6.11/2) can be removed without any effort. The pins not needed can be parked in the carrying arms.

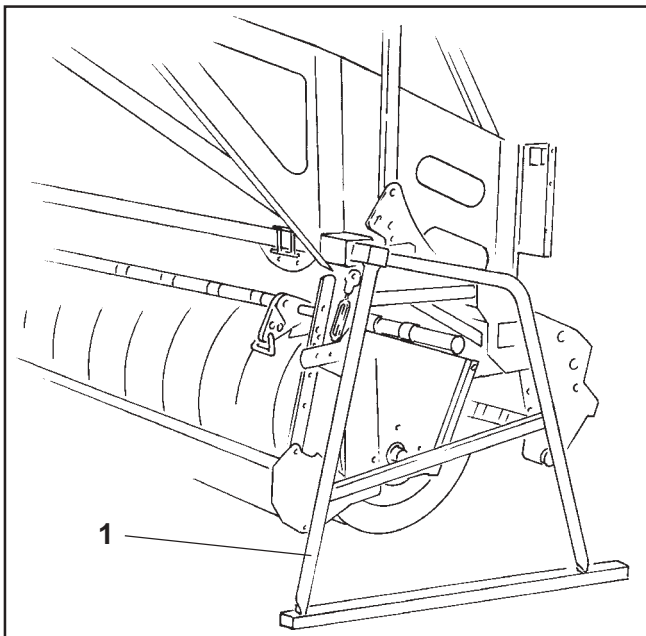


Fig 6.12

Lift the total combination and remove the parking supports (Fig. 6.12/1).

Adjust top link length (Fig. 6.7/1) in such a way that the seed box receives a level position.



The uncoupling of the pack top seed drill is conducted in the vice versa procedure.

Contents

7.0	Combining pack top seed drill with tooth packer rollers.....	7 - 2
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7.0 Combining pack top seed drill with tooth packer roller

Before coupling the pack top seed drill both pack top seed drill and AMAZONE tooth packer roller must be equipped with coupling parts.

7.1 Equipping pack top seed drill with coupling parts

The seed drill should be equipped with the following linking plates:

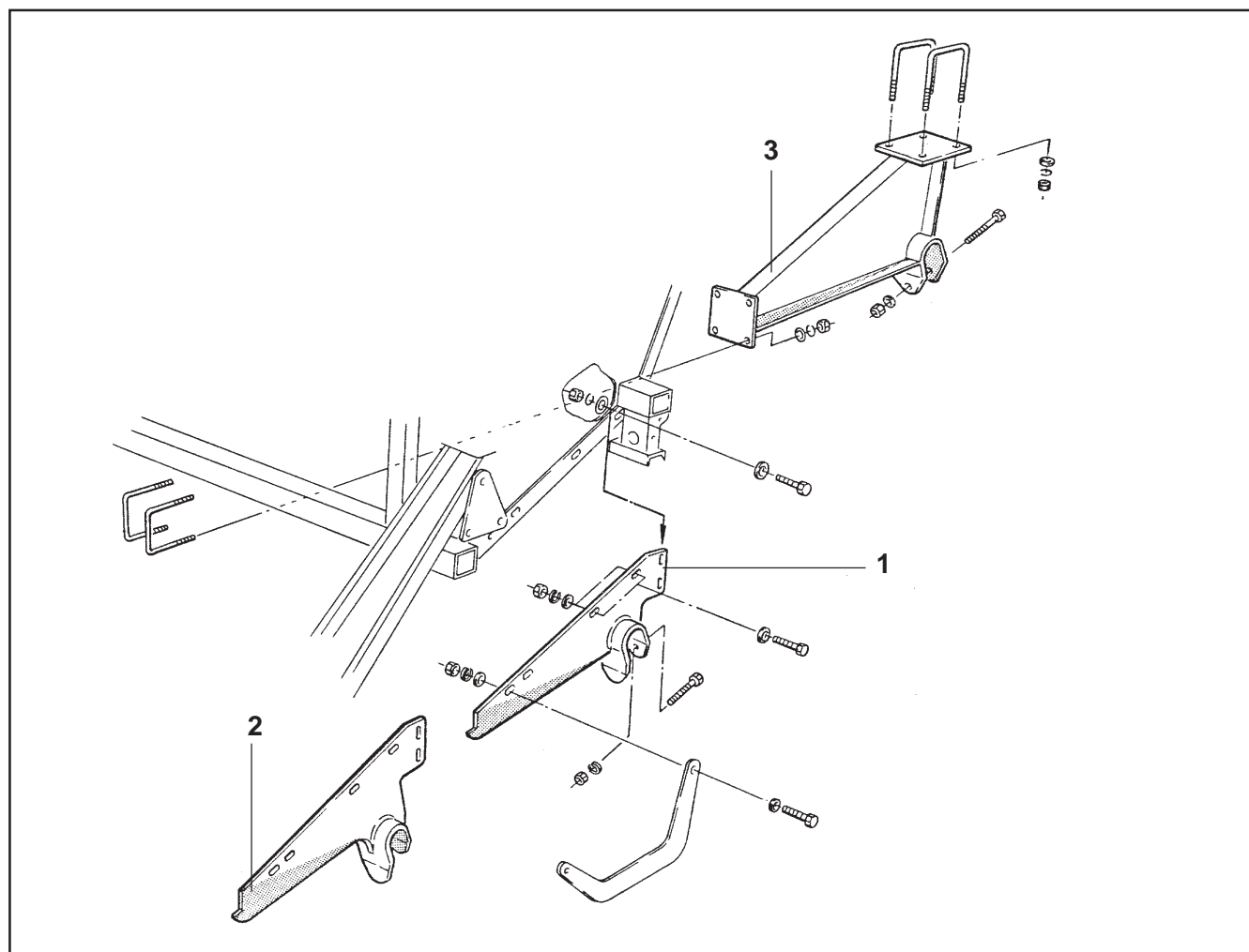


Fig. 7.1

Linking plate (Fig. 7.1/1)

for combinations with tooth packer roller PW 420
(Except 4.50 m working width)

Linking plate (Fig. 7.1/2)

for combinations with tooth packer roller PW 500
(Except 4.50 m working width)

Linking plate (Fig. 7.1/3)

for combinations with tooth packer roller PW 500

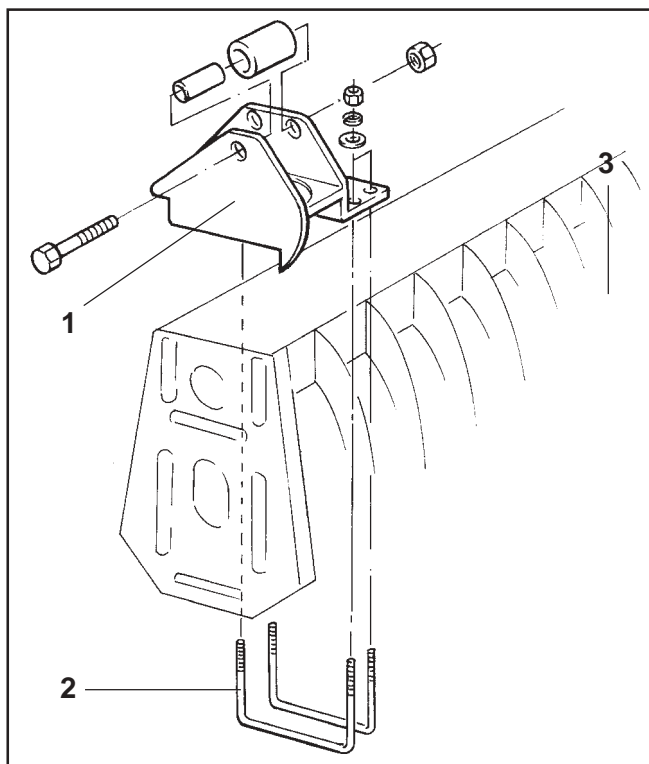


Fig. 7.2

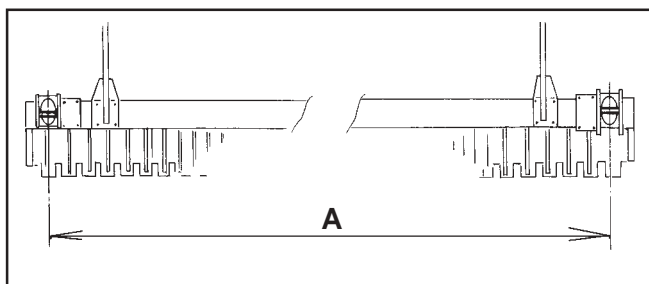


Fig. 7.3

7.2 Equip tooth packer roller with coupling parts

Fit two bearing consoles (Fig. 7.2/1) to tooth packer roller.

Bolt firmly both bearing consoles (Fig. 7.2/1) to the frame of the tooth packer roller with the aid of U-bolts (Fig. 7.2/2) in the right spacing (see Fig. 7.3):

AD-P 302.....Spacing A = 2770 mm

AD-P 402.....Spacing A = 3770 mm

AD-P 452.....Spacing A = 3945 mm

The bearing consoles can either be used on packer rollers PW 420 or also on packer rollers PW 500.

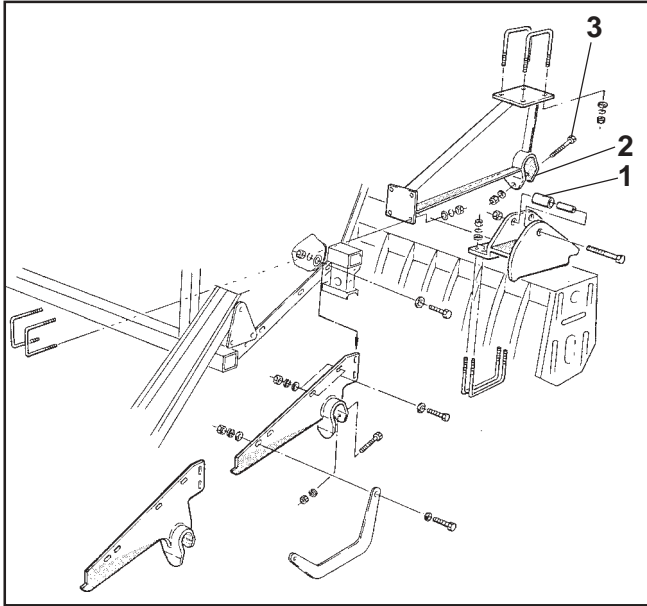


Fig. 7.4

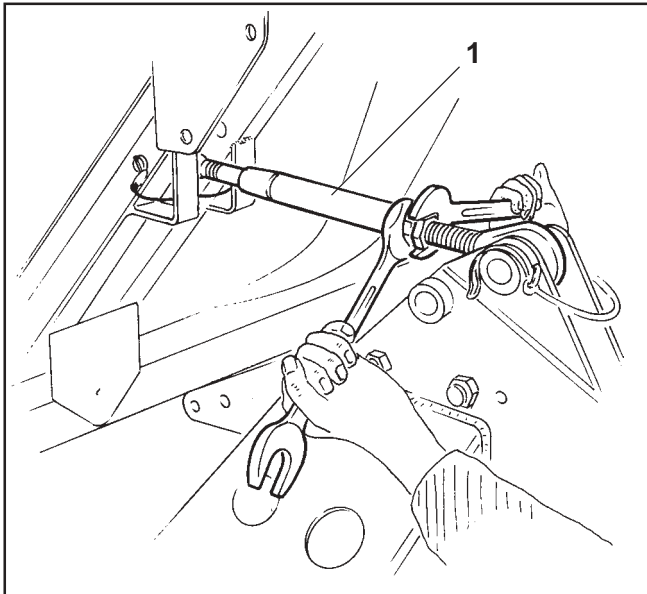


Fig 7.5

7.3 Coupling up seed drill

- For coupling up the pack top seed drill the soil tillage implement and packer roller should be lifted by the tractor hydraulics.
- Back up with the lifted combination towards the pack top seed drill resting on parking supports.
- Bring together bearing shafts (Fig. 7.4/1) and catching pockets (Fig. 7.4/2) secure with pins (Fig. 7.4/3) and counter secure with spring clips.

- Fix top link (Fig. 7.5/1) to seed drill and soil tillage implement and secure the fixing pins with clip pins.
The top link has a setting length of between 290 mm to 410 mm.
- Lift the total combination and remove the parking support (Fig. 6.12/1).
- Set the top link length (Fig. 7.5/1) in such a way that the seed box is placed about level.



UnCoupling pack top seed drill is done in vice versa order.

Contents

8.0	Combining pack top seed drill with wedge shape ring roller	8 - 2
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8.0 Combining pack top seed drill with wedge shape ring roller

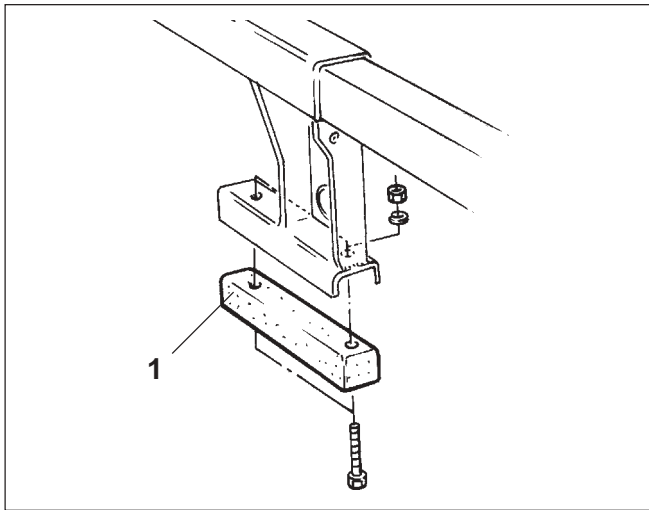


Fig 8.1

Bolt the two plastic spacers (fig. 8.1/1) to the carrying brackets of the seed drill.

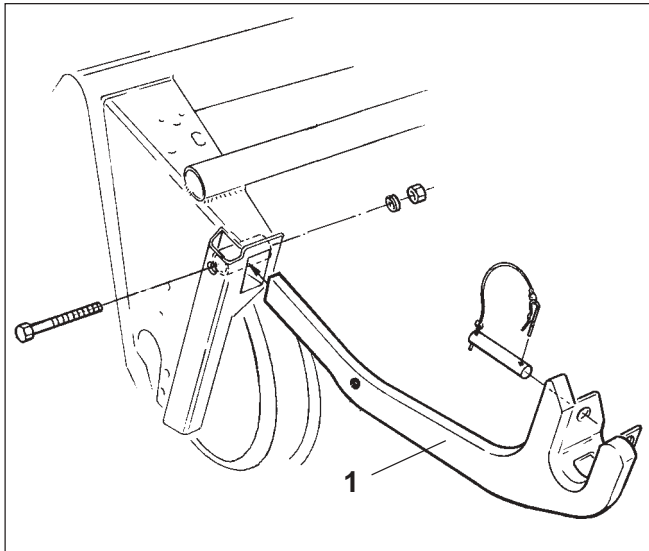


Fig 8.2

Bolt two catching hooks (fig. 8.2/1) to the wedge shape ring roller.

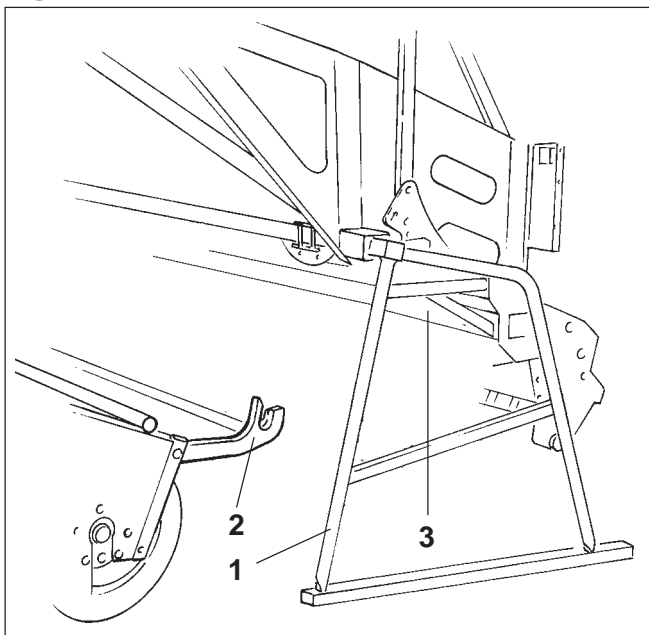
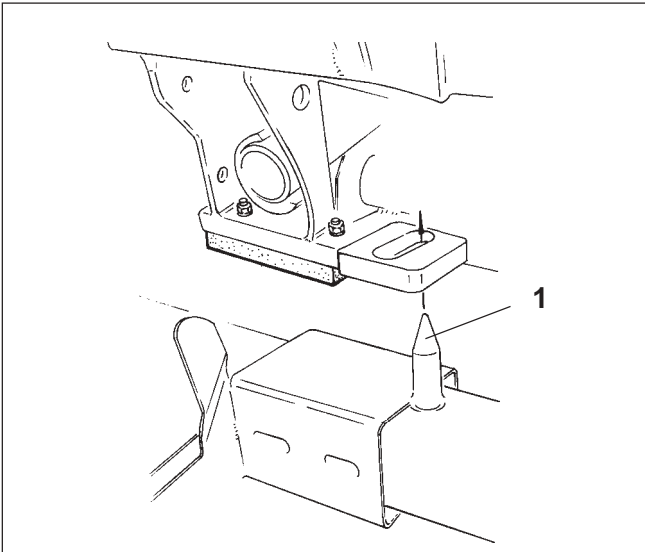


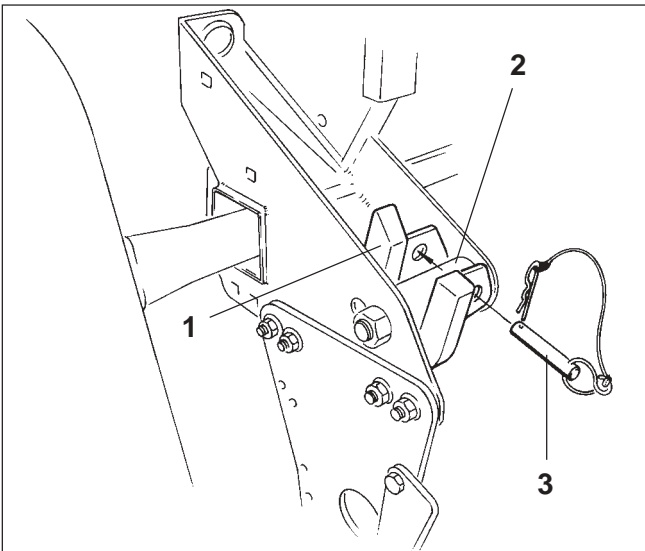
Fig 8.3

Back up with the combination of soil tillage implement and wedge shape ring roller towards the pack top seed drill resting on parking supports (Fig. 8.3/1).

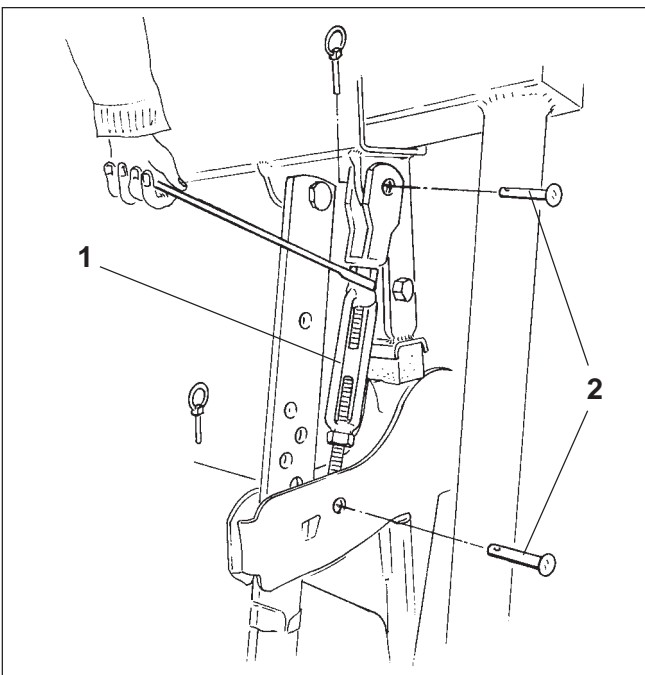
Carefully guide the catching arm pockets (Fig. 8.3/2) below the square tube member (Fig. 8.3/3) of the pack top seed drill.

**Fig 8.4**

The wedge shape ring roller is equipped on the right hand front side with a centering aid (Fig. 8.4/1) which, when coupling up engages in a slotted hole of the seed drill.

**Fig 8.5**

Pick up the pivoting shafts (Fig. 8.5/2) of the seed drill by the catching arms (Fig. 8.5/1) of the wedge shape ring roller, secure with pins (Fig. 8.5/3) and counter secure with spring clips.

**Fig 8.6**

Connect seed drill by two turnbuckles (Fig. 8.6/1) to the wedge shape ring roller. Secure with pins (Fig. 8.6/2) and counter secure with clip pins.

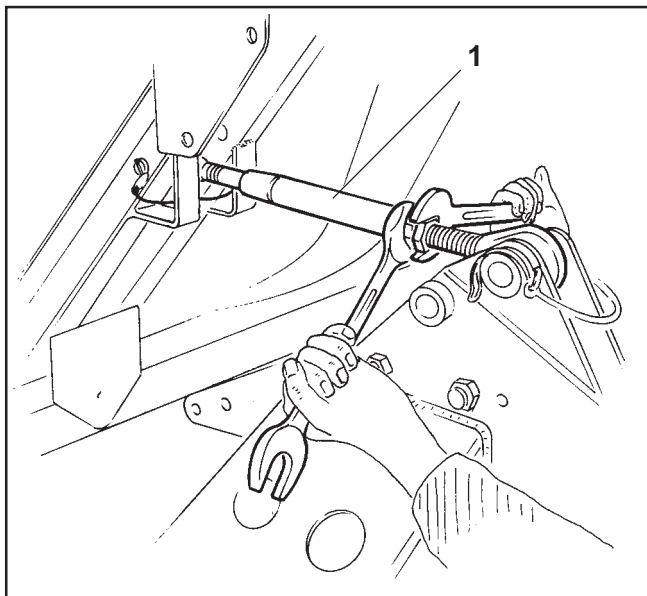


Fig 8.7

Insert top link (Fig. 8.7/1) to seed drill and soil tillage implement and secure the fixing pins with clip pins.

The top link has a setting length of between 290 mm and 410 mm..

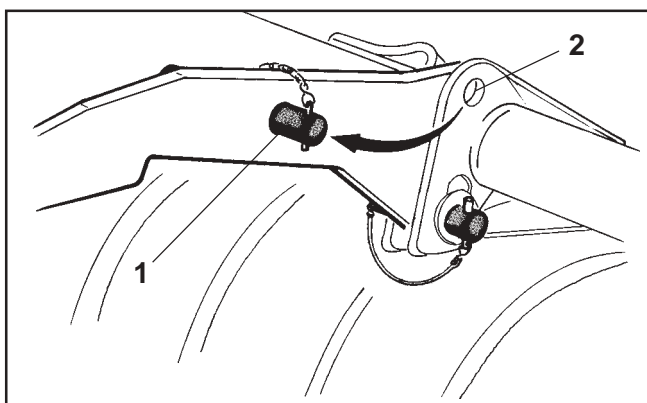


Fig 8.8



To allow the pack top seed drill moving freely in its parallel linkage **remove both upper carrying arm pins** (Fig. 6.8/1) from the holes (Fig. 6.8/2) after having coupled the seed drill to the roller..

Before adjust top link (Fig. 8.7/1) until both carrying arm pins can be removed without effort. The not needed pins may be reinserted into the carrying arm as illustrated.

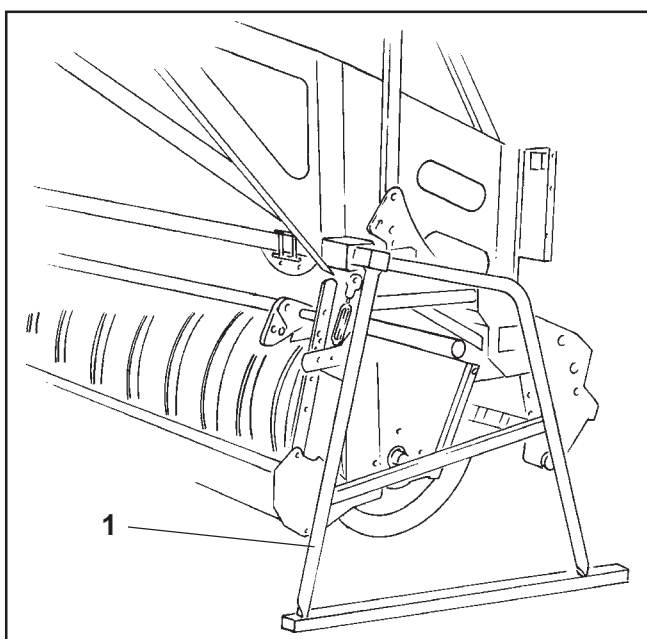


Fig 8.9

Lift the total combination by the tractor three-point linkage and remove the parking supports (Fig. 8.9/ 1).

Set the length of the top link (Fig. 8.7/1) in such a way that the seed box has a vertical position.



Uncoupling the pack top seed drill follows in vice versa order.

Contents

12.0 Blower fan with pto drive

for KE/KG with shift main gearbox12 - 2

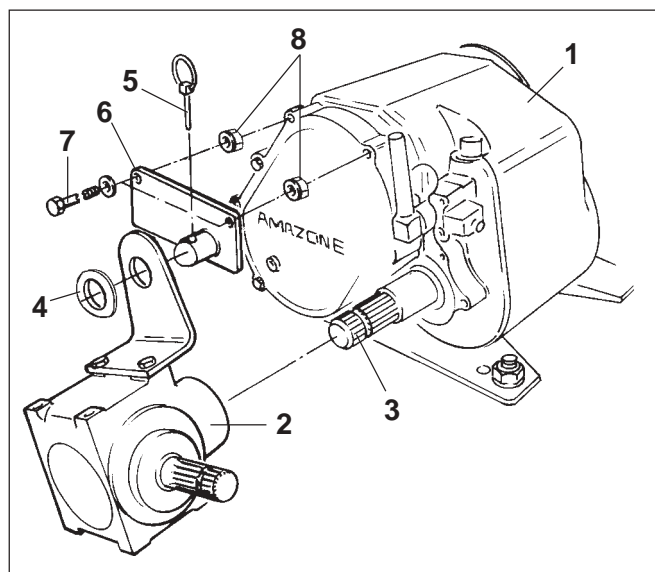


Fig. 11.1

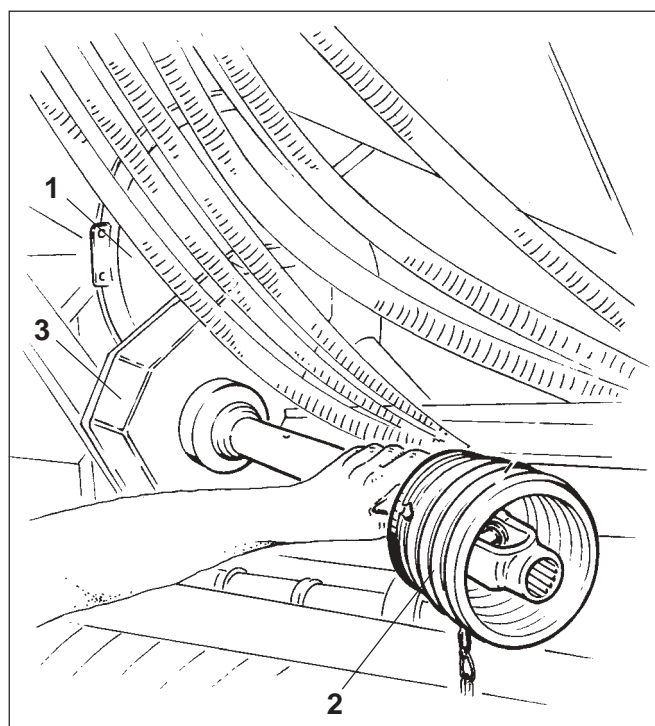


Fig. 11.2

11.0 Blower fan with pto drive for KG/KE with shift main gearbox

Precondition for a continuous flow of seed is a constant speed of the blower fan. When the AD-P is being operated in combination with an AMAZONE rotary cultivator (KG) or an AMAZONE rotary harrow (KE) with shift main gearbox (Fig. 11.1/1) the blower fan (Fig. 11.2/1) can be driven with a constant pto speed via the shift main gearbox.

Necessary for this is that the shift main gearbox is equipped with an angle gearbox (Fig. 11.1/2). The angle gearbox is plugged onto the rear pto through drive shaft (Fig. 11.1/3) of the gearbox and has to be secured with a washer (Fig. 11.1/4) and a clip pin (Fig. 11.1/5). Before doing this affix the mounting plate (fig. 11.1/6) to the gearbox cover by using longer hex. bolts (fig. 11.1/7). The hex. nuts (Fig. 11.1/8) are used as spacers.



Follow the safety advice according to para. 4.9!

Before you connect the pto shaft (Fig. 11.2/2) to the angle gearbox (Fig. 11.1/2):



Switch off the tractor pto shaft, the tractor engine and remove the ignition key.

Before starting bring the tractor pto speed to the required 1000 R.P.M.:

The blower fan speed then is 3600 R.P.M.

The speed of the blower fan can be checked with the electronic monitoring controlling and governing system "AMADOS".

The V-belt drive (Fig. 11.2/3) is equipped with a centrifugal force coupling.

Contents

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12.2.1	Comments re. hydr. circuit plan	12 - 3

12.0 Blower fan with hydrostatic motor drive

For driving the blower fan by a hydrostatic motor (Fig. 12.2/1) it should be connected with the tractor's hydraulics in accordance with the hydraulic circuit (Para. 12.2).

12.1 Blower fan speed

The speed of the blowers' hydrostatic motor can be checked by the electronic monitoring controlling and governing system "AMADOS".


The required blower fan speed you may find in Fig. 12.1. It can be set at the pressure limiting valve (Fig. 12.2/2).

At tractors with controllable hydraulic pump (Fig. 12.2/4) the necessary oil volume should be set and the oil stream control valve of the tractor and the pressure limiting valve (fig. 12.2/2) should be set in such a way that the oil volume is as little as possible. Larger oil volumes then necessary are led back into the oil tank by the pressure limiting valve and lead to unnecessary heating up of the hydraulic oil.


The blower speed is changing until the hydraulic oil has reached its operational temperature. At the first use the blower speed should be corrected until the operational temperature of the hydraulic oil has been reached. If the blower is used after a longer period of standstill, the preset blower speed will only be reached after the hydraulic oil has reached the operational temperature.

952794

AD-P / FRS / FPS



max. 3800



3,0 m	2700	3400
4,0 m	2700	3500
4,5 m	2800	3600
6,0 m	2800	3600
Working width	Blower fan speeds (R.P.M.)	
	Fine seeds (Rape)	Legumes (Grain)

Fig. 12.1

t691-gb14

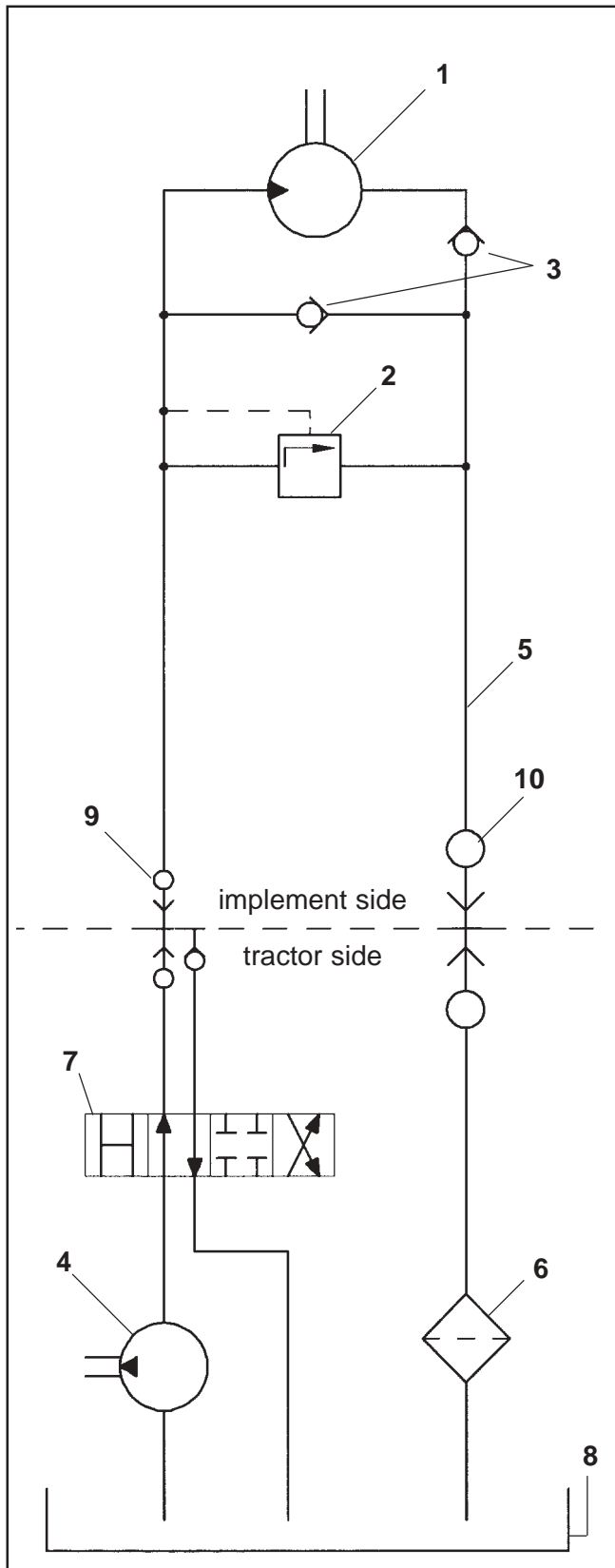


Fig. 12.2

12.2 Hydraulic circuit plan Blower fan with hydrostatic motor drive

- 1 Blower hydrostatic motor
 $N_{max.} = 3800 \text{ R.P.M.}$
- 2 controllable pressure limiting valve
- 3 check-valve
- 4 tractor-hydraulic pump
(the output of the tractor hydraulic pump must be in minimum 400 litres/min. at 150 bar pressure)
- 5 free return flow
 - inner tube diam. DN = Ø16 mm
 - use couplings with sufficient large inner diam.
 - the return pressure in the return flow tube must not exceed 10 bar maximum.
- 6 filter
- 7 single- or double acting control valve
- 8 hydraulic oil tank
- 9 plug coupling
- 10 plug coupling "large"

Do not conduct other connections than shown in this circuit plan.

12.2.1 Explanation for circuit plan

On the pressure side the blower fan hydrostatic motor (Fig. 12.2/1) may be connected to either a single or to a double acting control valve (Fig. 12.2/7).



Follow safety advice according to para. 4.7!

In order not to damage the hydrostatic motor the oil pressure in the return flow (Fig. 12.2/5) must not exceed 10 bar. Therefore never connect the return flow to the control valve (Fig. 12.2/7) but to a pressure-less return flow with a large plug coupling (Fig. 12.2/10)! Should it become necessary to install a new return flow tubing, use only tubes DN 16 (e.g. diam. 20 x 2.0 mm) and short return flow ways.

The hydraulic oil must be guided through an oil filter (Fig. 12.2/6) at any place of choice.

12 - 4 Blower fan with hydrostatic motor drive

The return flow hydraulic oil must never be guided through control valves as the oil pressure would hereby exceed the maximum pressure of 10 bar.

The check valves (Fig. 12.2/3) allow the blower fan to run after as soon as the control valve (Fig. 12.2/7) has been shut off.

The hydraulic oil must never get too hot. Large oil delivery amounts in conjunction with small oil tanks promote the quick heating up of the hydraulic oil. The capacity of the oil tank (Fig. 12.2/8) should at least have the double of the oil delivery amount. If the oil heats up too much, the installation of an oil cooler on the tractor by a professional workshop is necessary.

Particles of dirt can damage the blower hydrostatic motor (Fig. 12.2/1) and the pressure limiting valve (Fig. 12.2/2). For this reason always keep clean the coupling parts when connecting the blower hydrostatic motor to the tractor's hydraulic to avoid the hydraulic oil becoming dirty.

Should it be necessary to drive besides of the blower hydrostatic motor yet another hydrostatic motor both motors should be switched parallel. When switching both motors in line the maximum permissible oil pressure of 10 bar will be always exceeded behind the first motor.

If the blower hydrostatic motor has to be connected to different tractors, one should make sure that the type of oil in the hydraulic circuits is compatible. Unpermissible mixing of various hydraulic oils may lead to defects on hydraulic components.

Contents

16.0

Seed box filling and emptying

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Filling seed box

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16.2

Emptying seed box

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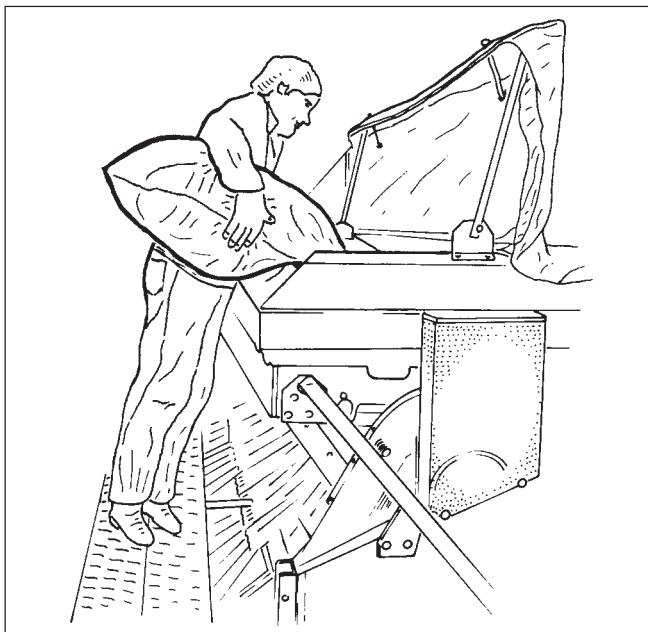


Fig. 16.1

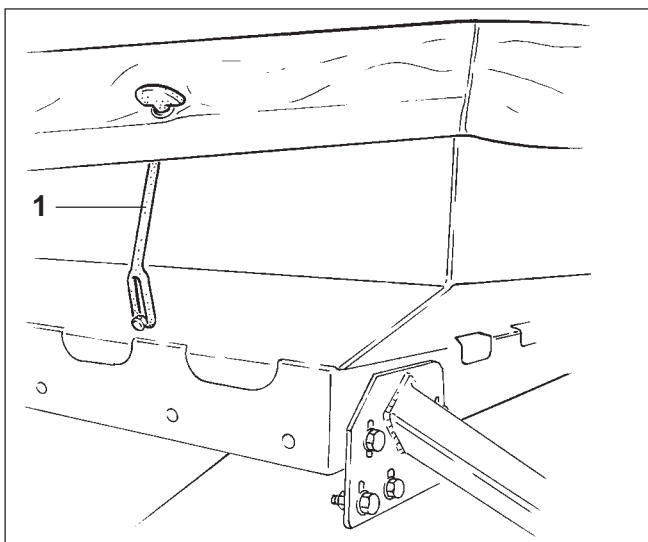


Fig. 16.2

16.0 Seed box filling and emptying



Before filling the seed box couple the seed drill to the soil tillage implement.



First empty the seed box before uncoupling the seed drill.

16.1 Filling seed box

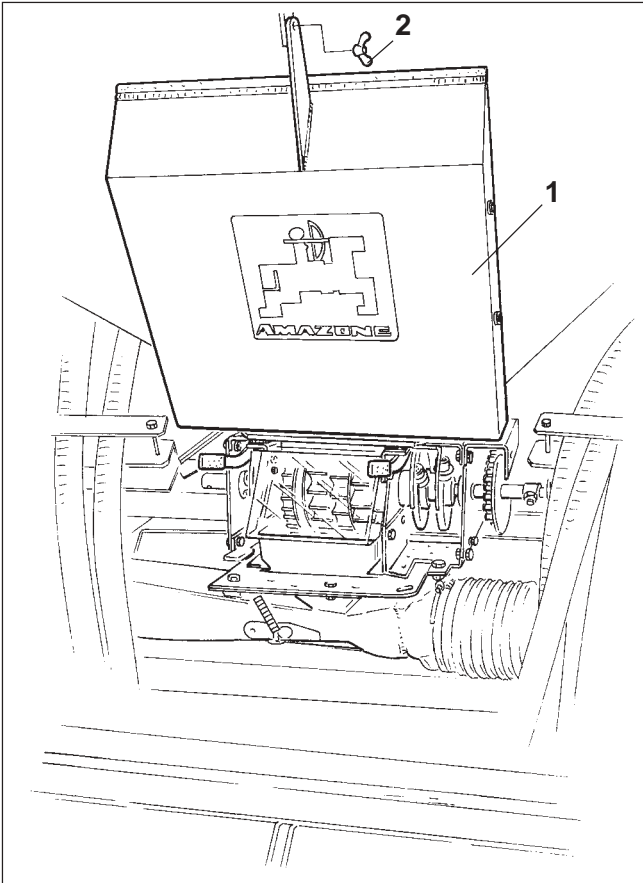
The seed box can be filled from the loading platform (Fig. 16.1) .

The seed box can be rain proof covered by the swivelable cover canvass. The swivelable cover canvass is secured with two rubber strips (Fig. 16.2/1) .



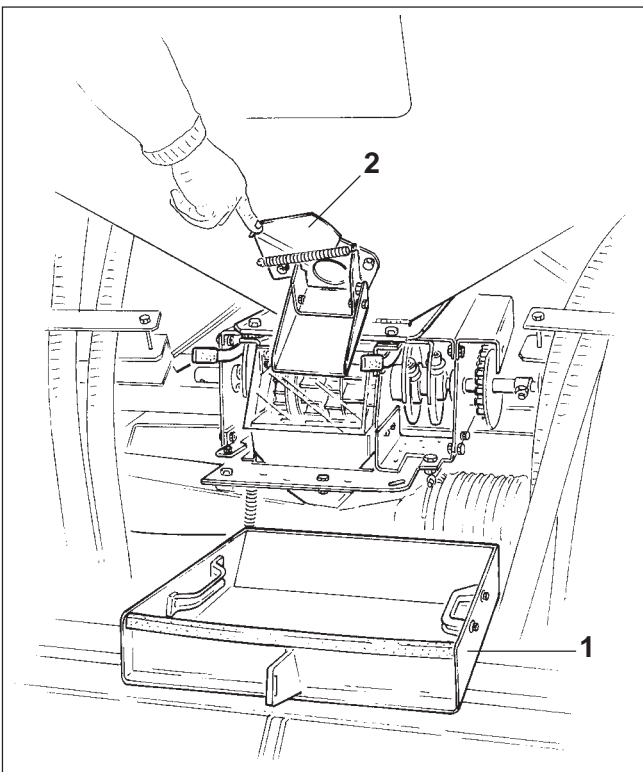
Refill seed box early enough!

Never drive the drill until the seed box is completely empty.

**Fig. 16.3**

16.2 Emptying seed box

Slacken thumb nut (Fig. 16.3/2) and take calibration tray (Fig. 16.3/1) into your hands.

**Fig. 16.4**

Place calibration tray (Fig. 16.4/1) below the metering unit.

Open emptying flap (Fig. 16.4/2) until the calibration tray is filled with seed. Empty calibration tray and repeat procedure until no further seed leaves the emptying flap of the seed drill.

16 - 4 Seed box filling and emptying

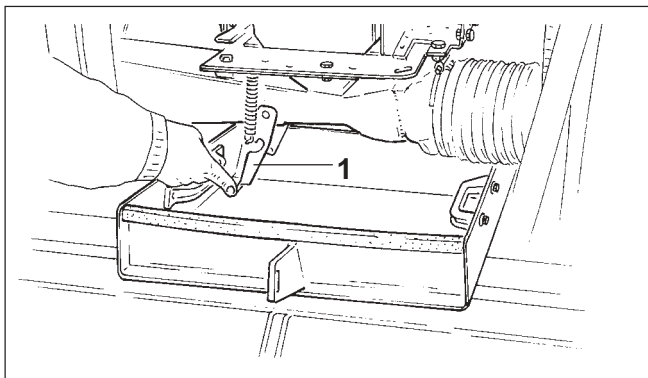


Fig. 16.5

For emptying residue seed open flap (Fig. 16.5/1) and

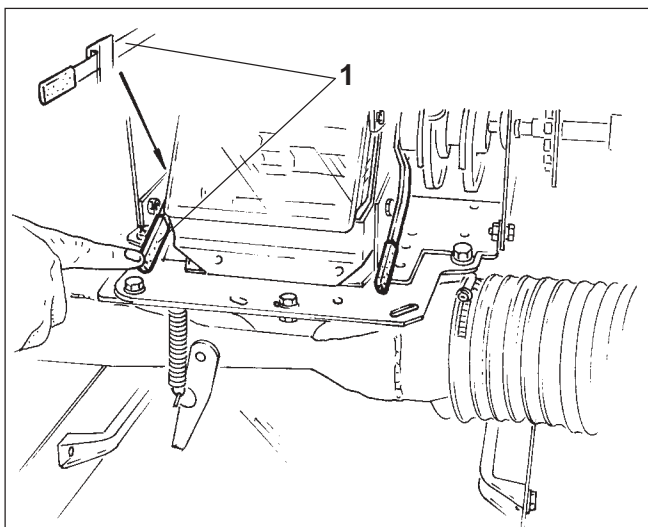


Fig. 16.6

push downwards lever (Fig. 16.6/1) and arrest. A further outlet behind the metering unit will be opened by this lever.

For emptying the metering wheel, drive the metering wheels by the calibration crank in the same way as mentioned for determining the gearbox setting lever position.

Then, let the blower fan briefly run to remove any residue of seed.

Close outlets and place calibration tray to the seed box again.

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20.1.1	Switching on or off the metering wheels	20 - 4
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20.0 Setting the seed drill to a particular seed

In the tables Fig. 20.1 and Fig. 20.2 all settings for the corresponding seed are mentioned.



For seeds which are not mentioned in the tables, you should take the figures of another seed with a similar grain size.

Seed	Metering wheel	Throttle flap position*
Dinkle	Main metering wheel	open
Oats	Main metering wheel	open
Ray up to 80 kg/ha	Fine seed metering wheel	open
Ray from appr. 80 kg/ha	Main metering wheel	shut
Summer barley	Main metering wheel	open
Winter barley	Main metering wheel	open
Wheat	Main metering wheel	open

Fig. 20.1

Seed	Metering wheel	Throttle flap position*
Beans	Main metering wheel	open
Peas	Main metering wheel	open
Flax (dressed)	Main metering wheel	open
Grass seed	Main metering wheel	open
Millet	Main metering wheel	open
Lupine	Main metering wheel	open
Lucerne	Main metering wheel	open
Lucerne	Fine seed metering wheel	shut
Oil linnen (dressed moist)	Main metering wheel	open
Oil linnen (dressed moist)	Fine seed metering wheel	shut
Oil radish	Main metering wheel	open
Oil radish	Fine seed metering wheel	shut
Phacelia	Main metering wheel	open
Phacelia	Fine seed metering wheel	shut
Phacelia	Main metering wheel	open
Rape	Fine seed metering wheel	shut
Red clover	Fine seed metering wheel	shut
Mustard	Fine seed metering wheel	open
Soya	Main metering wheel	open
Sun flower	Main metering wheel	open
Kale	Fine seed metering wheel	shut
Vetches	Main metering wheel	open

Fig. 20.2

*Only seed drills the blower fans of which are driven by the pto-shaft (ref. to para. 11) are equipped with a **throttle flap**.

20.1 Metering unit

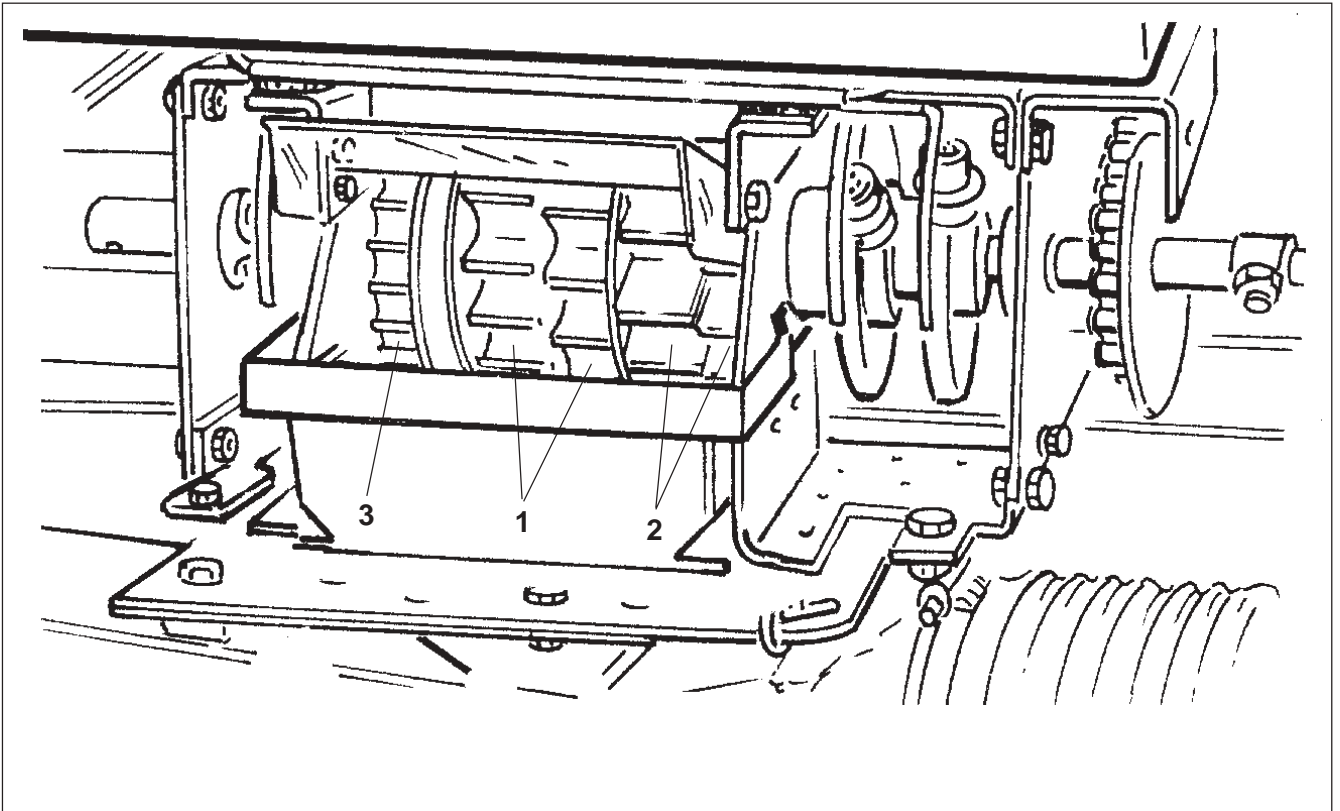


Fig. 20.3

Each metering unit consists of

- one white coloured main metering wheel (Fig. 20.3/1)
- one orange coloured main metering wheel (Fig. 20.3/2) and
- one red/black coloured fine seed metering wheel (20.3/3).



The required metering wheel may be taken from the tables (Fig. 20.1 und Fig. 20.2).

20.1.1 Switching the metering wheels on and off

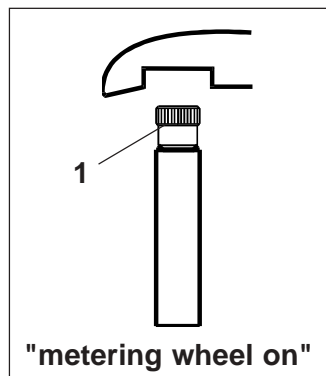


Fig. 20.4

In Pos. "metering wheel on" the coupling screws (Fig. 20.4/1) are driven in till the stop.

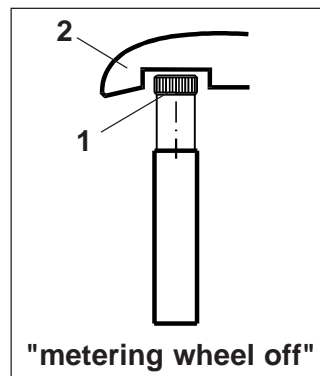


Fig. 20.5

In Pos. "metering wheel off" the coupling screws (Fig. 20.5/1) have been driven out till the stop (Fig. 20.5/2).



Drive the setting bolts either in Pos. metering wheel on" or "metering wheel off".

Never thighten setting bolts too firmly against the stops to either side (Fig. 20.5/2).

Sowing with both main metering wheels (Fig. 20.6/1):

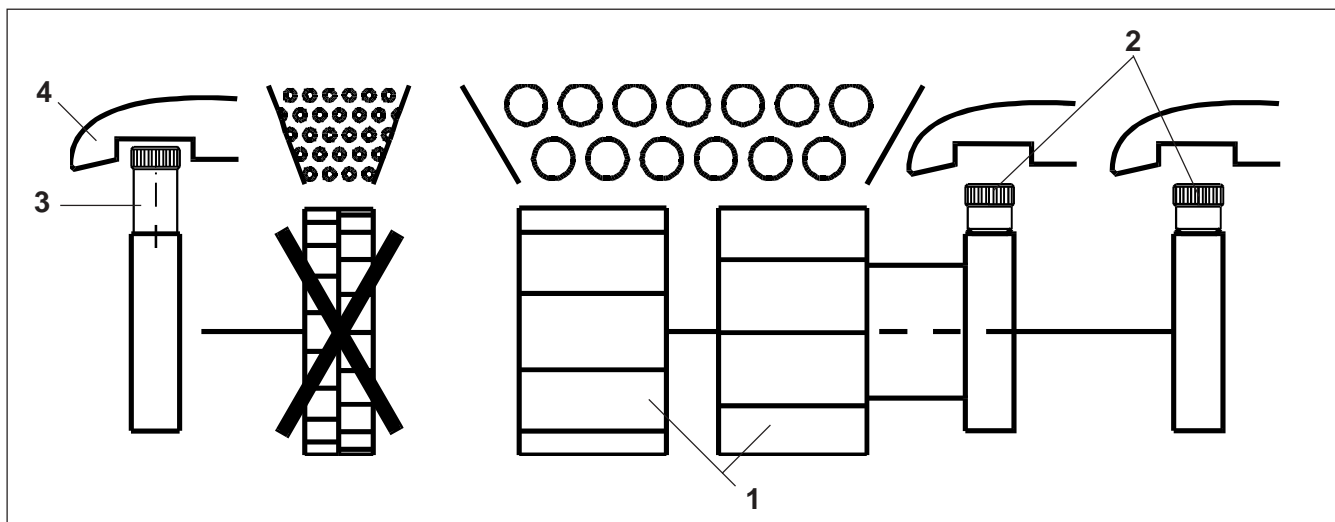


Fig. 20.6

- Move the gearbox setting lever (Fig. 21.1/2) up and down until the coupling screw becomes visible.
- Drive in coupling screws (Fig. 20.6/2) of the main metering wheels.
- Drive out coupling screws (Fig. 20.6/3) of the fine seed metering wheel.

Sowing by the white coloured main metering wheel (Fig. 20.7/1):

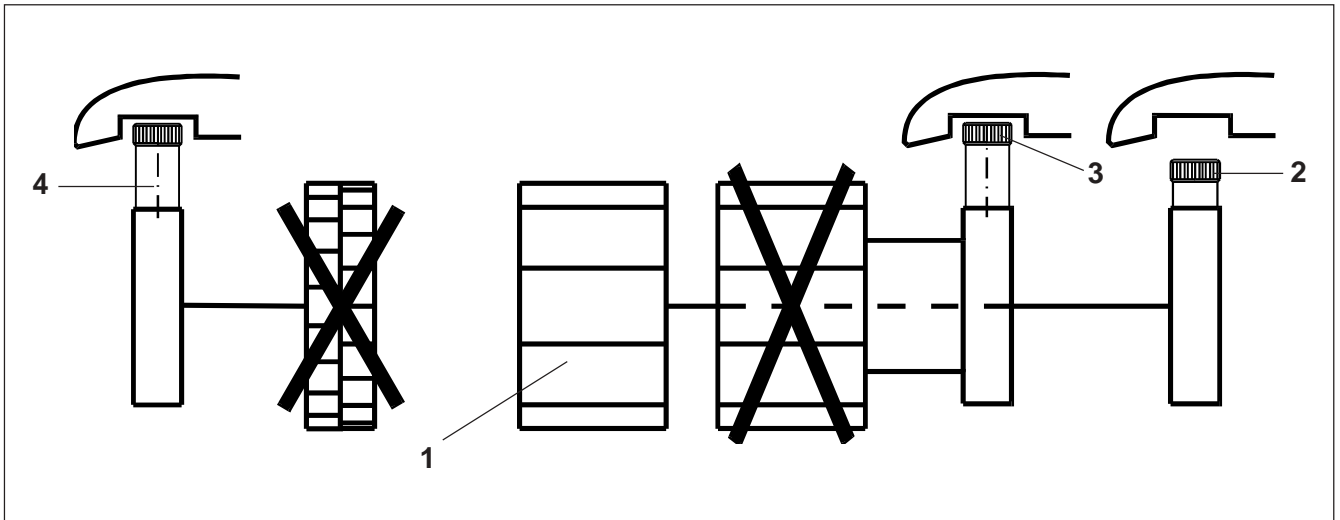


Fig. 20.7

- Move gearbox setting lever (Fig. 21.1/2) up and down until the coupling screws become visible.
- Drive in coupling screws (Fig. 20.7/2) of the white coloured main metering wheel.
- Drive out coupling screw (Fig. 20.7/3) of the orange coloured main metering wheel.
- Drive out coupling screw (Fig. 20.7/3) of the fine seed metering wheel.

Sowing by the fine seed metering wheel (Fig. 20.8/1):

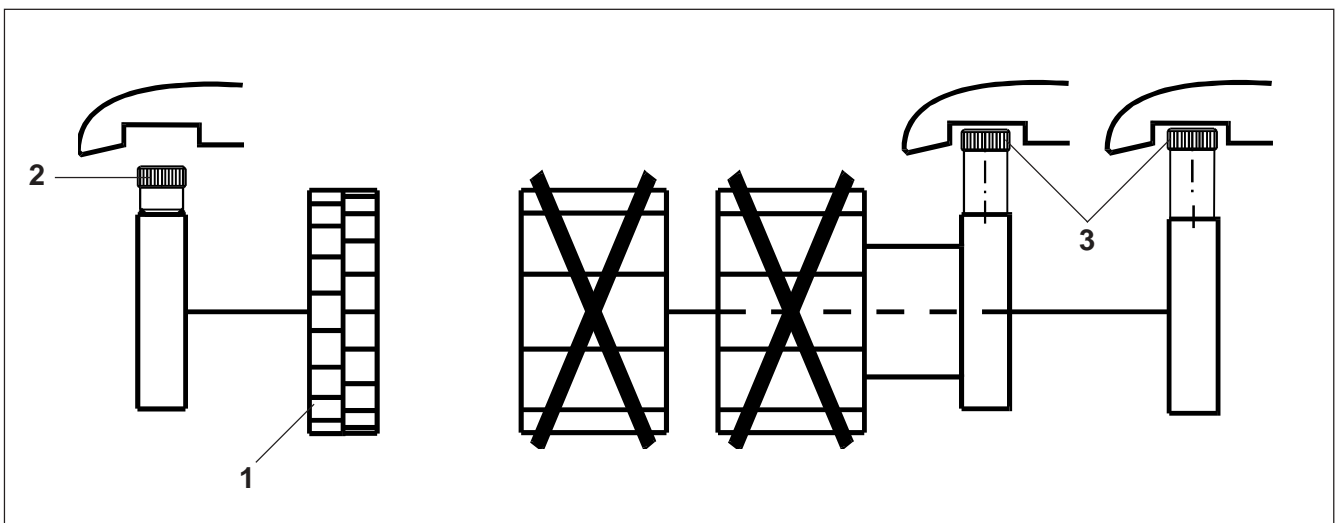


Fig. 20.8

- Move gearbox setting lever (Fig. 21.1/2) up and down until the coupling screws become visible.
- Drive in coupling screws (Fig. 20.8/2) of the fine seed metering wheel.
- Drive out both coupling screws (Fig. 20.8/3) of the main metering wheels.

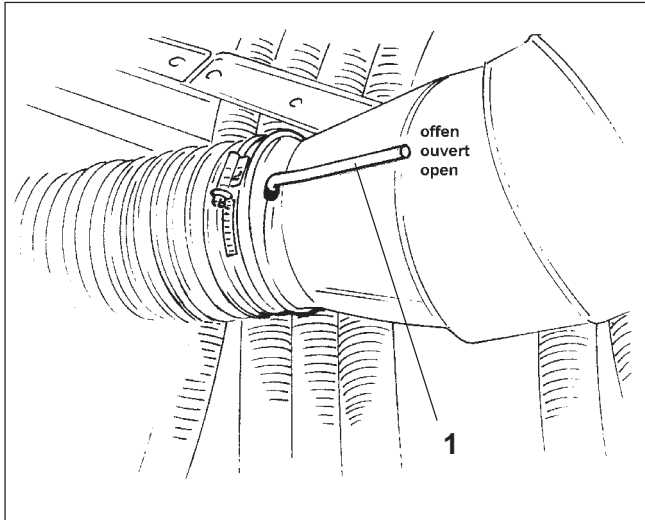


Fig. 20.9

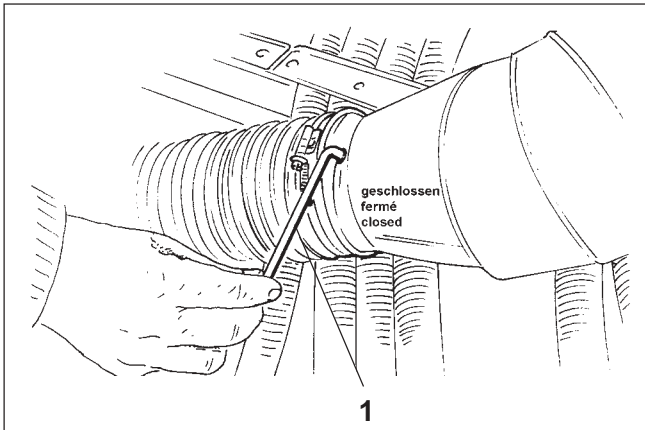


Fig. 20.10

20.2 Setting the throttle flap

As the blower fan speed cannot be changed on blower fans which are driven by a pto-shaft (ref. to para. 11), such seed drills are equipped with a throttle flap.

The throttle flap (Fig. 20.9/1) can be brought into two positions:

open:	(see Fig. 20.9)
shut:	(see Fig. 20.10).



Take the required throttle flap lever position from the tables (Fig. 20.1 and 20.2).

When swivelling the throttle flap lever downwards the amount of air reaching the distributor head is reduced.

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21.0 Determining the gearbox setting for the desired seed rate

Set the machine according to para. 20.0

Fill the seed box with seed to 1/4 of its capacity.

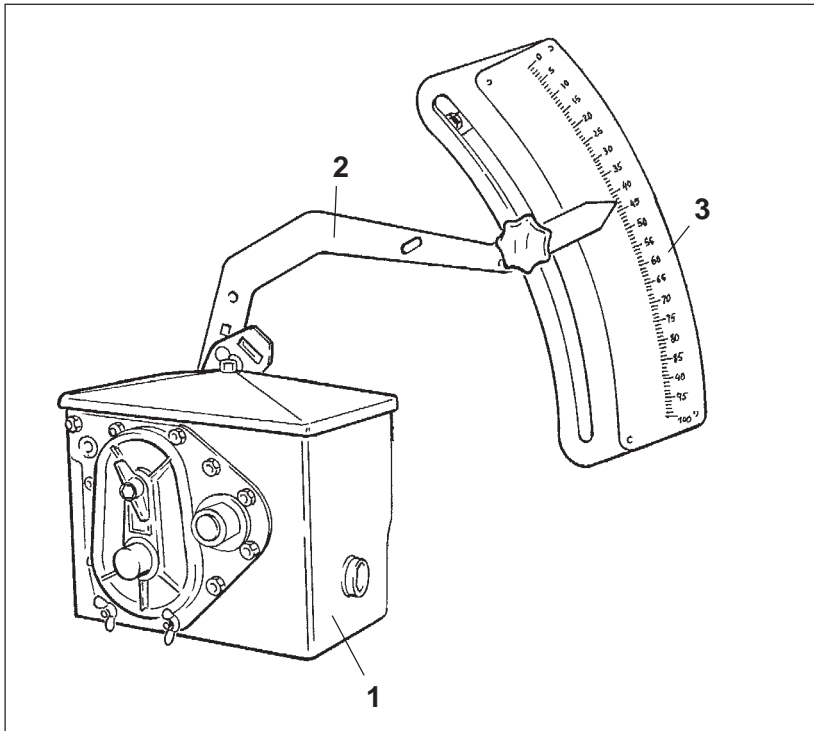


Fig. 21.1

The desired seed rate is set by the gearbox setting lever (Fig. 21.1/2).

By the gearbox setting lever (Fig. 21.1/2) the speed of the metering shaft and thus the seed rate can be set steplessly. The higher the figure on the scale (fig. 21.1/3) has been chosen by the gearbox setting lever, the higher the seed rate will get.



After every setting on the gearbox setting lever a calibration test should be conducted to confirm that at the later sowing the desired seed rate is obtained.

This test should also be conducted

- when changing from the main metering wheel to the fine seed metering wheel or vice versa.
- **Before sowing a new supply of seed (reason: deviations in grain size, grain shape, bulk density and seed dressings).**

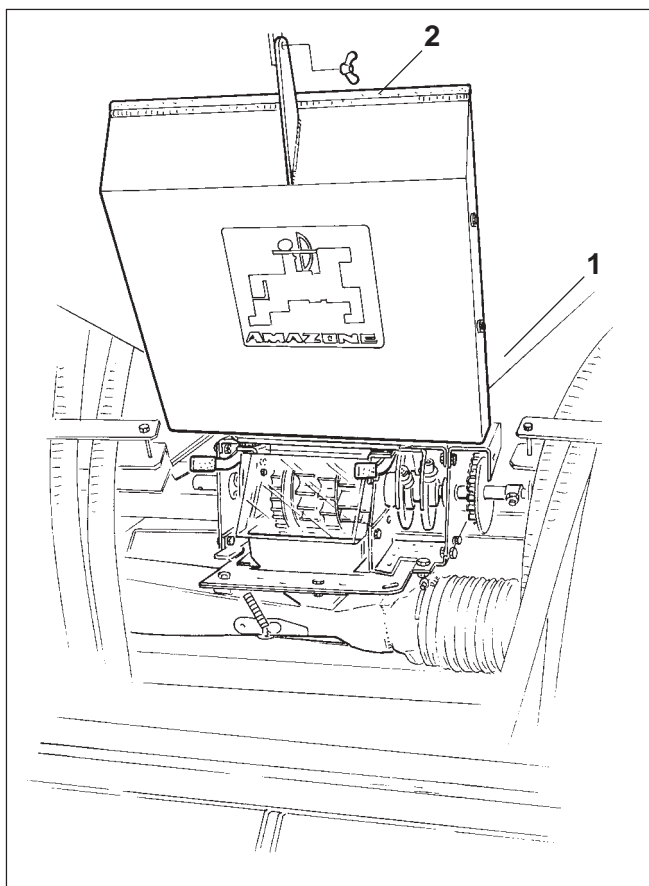


Fig. 21.2

Remove thumb nut (Fig. 21.2/2) which holds the calibration tray (Fig. 21.2/1).

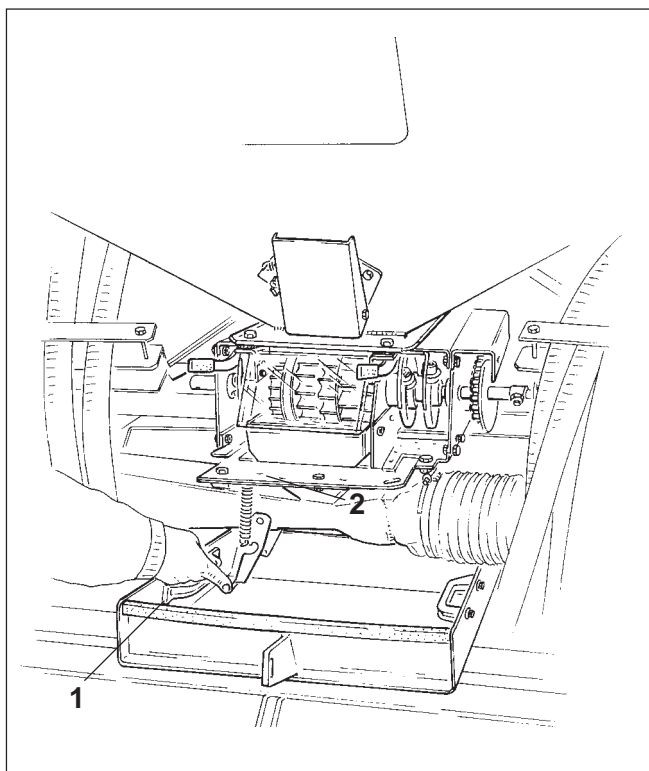


Fig. 21.3

Take this calibration tray (Fig. 21.2/1) and place it below the metering unit as shown in Fig. 21.3/1.

Open flap (Fig. 21.3/2) .

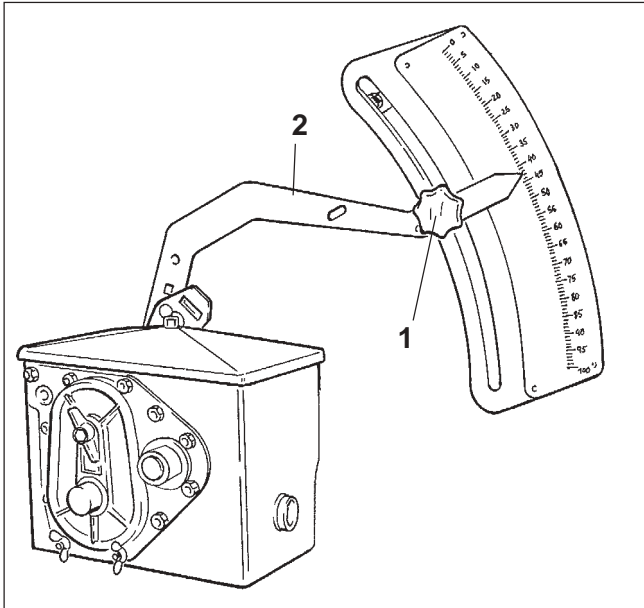


Fig. 21.4

Slacken the star knob (Fig. 21.4/1) of the gearbox setting lever.

Slide from below the gearbox setting lever (Fig. 21.4/2) to the following gearbox settings:

**For sowing by the main metering wheels:
gearbox setting "50"**

**For sowing by the fine seed metering
wheel:
gearbox setting "15"**

Tighten star knob (Fig. 21.4/1).



If your seed drill is equipped with the hydraulic seed rate remote control, set the seed rate according to para. 31.2.

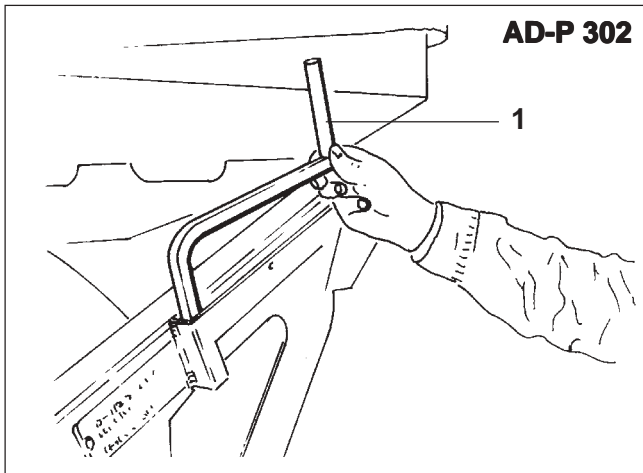


Fig. 21.5

Take the calibration crank. The calibration crank (Fig. 21.5/1 resp. Fig. 21.6/1) is located in a retainer on the right hand part of the frame and is secured with a clip pin.

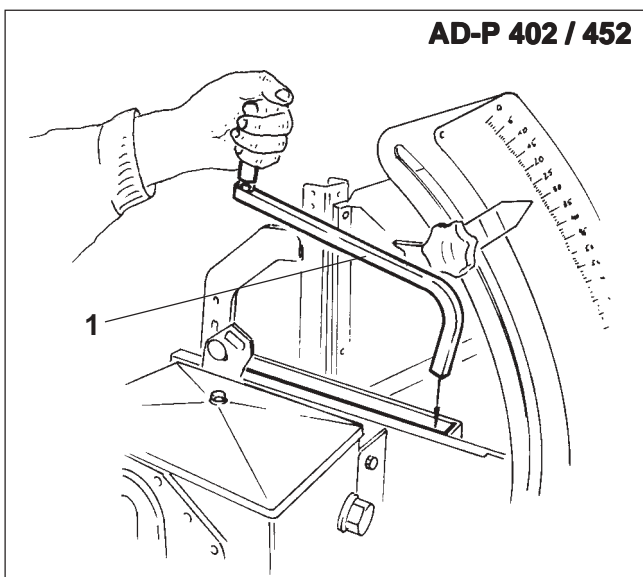


Fig. 21.6

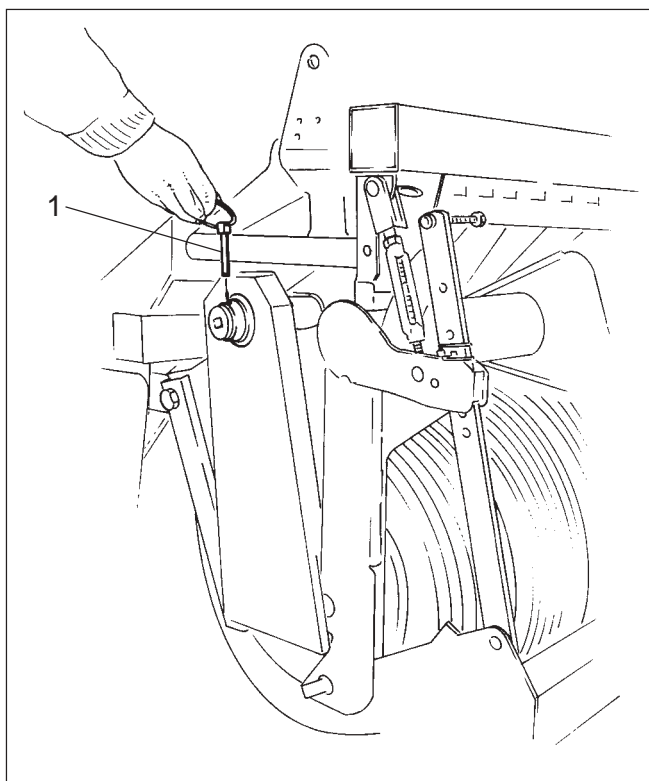


Fig. 21.7

Applicable only for AD-P with tyre packer roller:
To be able to calibrate the pack top seed drill stationary pull out the clip pin (Fig. 21.7/1) off the intermediate drive of the tyre packer.

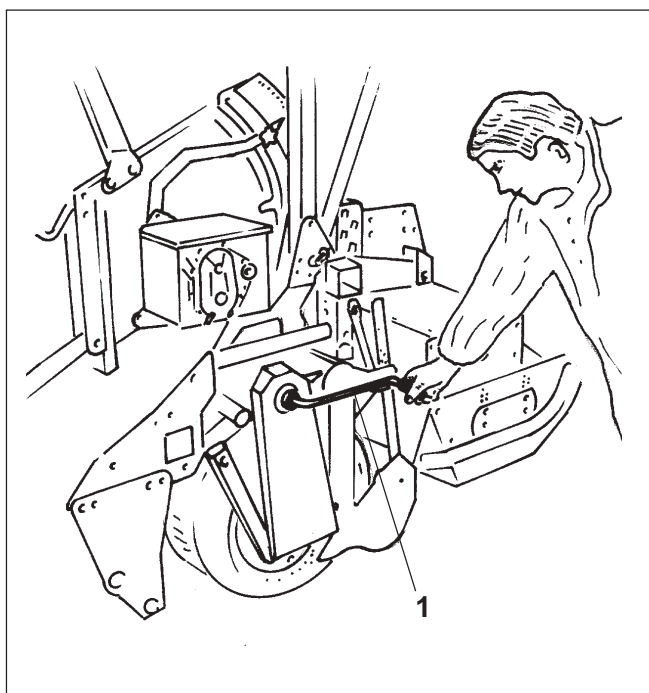


Fig. 21.8

Applicable only for AD-P with tyre packer roller:
Insert calibration crank (Fig. 21.8/1) into the intermediate drive and turn the calibration crank until all metering wheel housings of the metering wheel(s) have been filled and a uniform flow of seed runs into the calibration tray. Empty the contents of the calibration tray into the seed box and turn the calibration crank to the right hand with the number of turns as indicated in the crank turn table (Fig. 21.10).

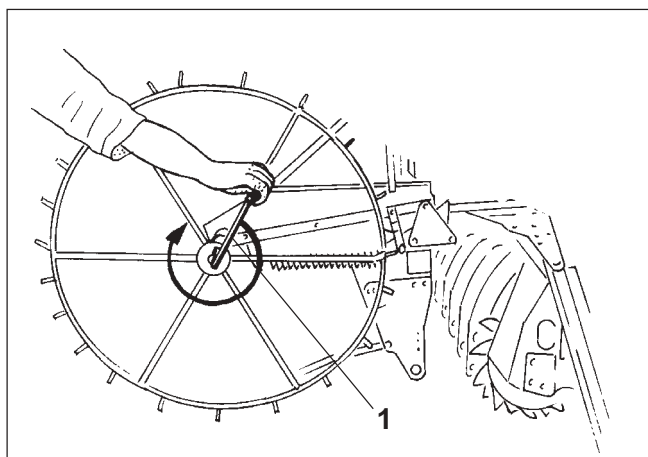


Fig. 21.9

Applicable only for AD-P with star wheel:

Insert the calibration crank (Fig. 21.9/1) into the take-up of the star wheel and turn the crank until all metering wheel housings of the metering wheel(s) have been filled with seed and a uniform flow of seed runs into the calibration tray. Empty the contents of the calibration tray into the seed box and turn the crank clockwise in times taking from the table (Fig. 21.10).

This table is placed on the seed drill.				
Working width 	 Pack Top Seed Drills AD 2 / AD-P 2		 Tyre Packer Pack Top Seed Drills RP-AD 2 / RP-AD-P 2	
	1/40 ha	1/10 ha	1/40 ha	1/10 ha
2,5 m	27,0	108,0	59,0	235,0
3,0 m	22,5	90,0	49,0	196,0
4,0 m	17,0	67,5	37,0	147,0
4,5 m	15,0	60,0	33,0	130,5
6,0 m	-	-	24,5	98,0
Crank turns				
	on the star wheel Ø 1,18 m		on the intermediate drive	
conversion factor	67,5	270,0	147,0	588,0

Fig. 21.10

The number of the crank turns (Fig. 21.10) depends on the working width of the seed drill.

The number of crank turns refers to an area of 1/40 ha (250 m²) rep. 1/10 ha (1000 m²).

Usually the crank turns for 1/40 ha are used. At extremely small seed rates (e. g. for rape or when using scales with a rough division) it is recommended to take the crank turns for 1/10 ha.

For other working widths than stated in the table (Fig. 21.10) the necessary number of the crank turns can be calculated as follows:

Crank turns for 1/40 ha (250 m²)	=	$\frac{\text{Conversion factor}}{\text{working width (m)}}$
Crank turns for 1/10 ha (1000 m²)	=	$\frac{\text{Conversion factor}}{\text{working width (m)}}$

Please take the conversion factor from the table in Fig. 21.10

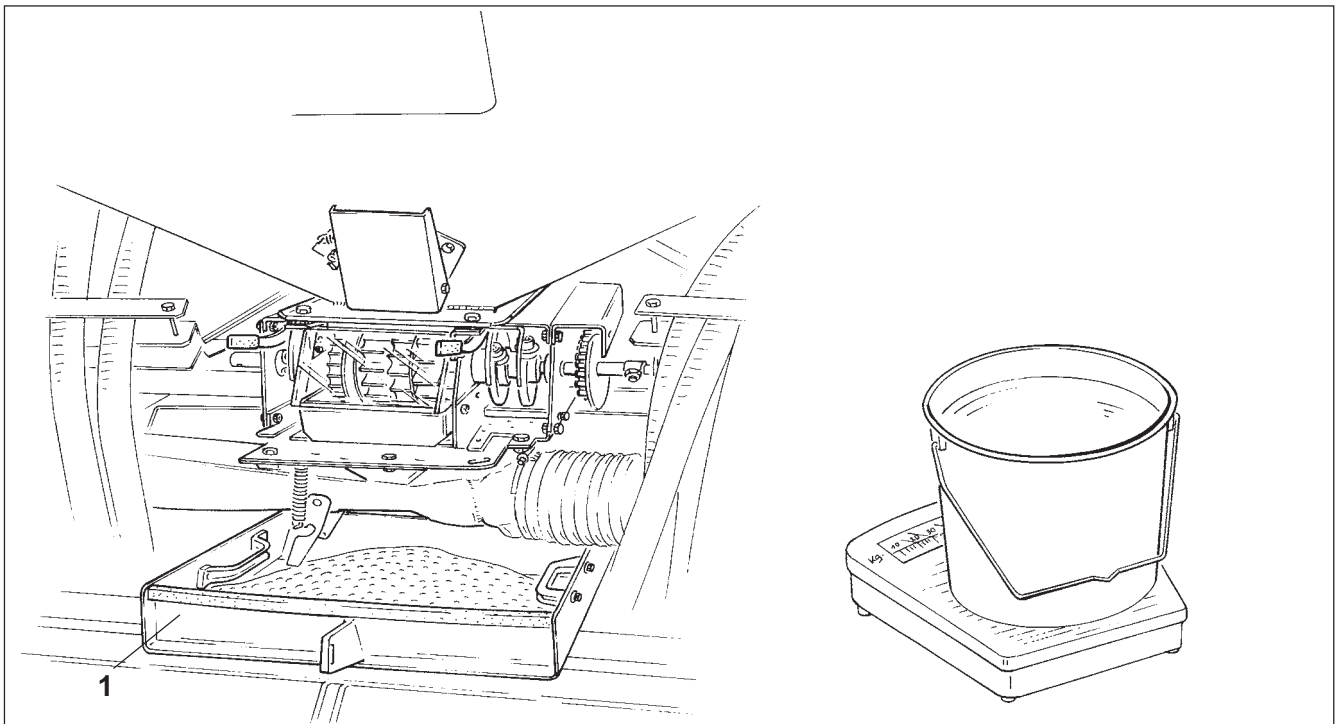


Fig. 21.11

Weight of the seed collected in the calibration tray (Fig. 21.11/1) and multiply either by

- factor "40" (for 1/40 ha) or
- factor "10" (for 1/10 ha).

Calibrating for 1/40 ha:

$$\text{seed rate [kg/ha]} = \frac{\text{collected seed rate (for 1/40 ha) x 40 (factor)}}{\text{ha}}$$

Calibrating for 1/10 ha:

$$\text{seed rate [kg/ha]} = \frac{\text{collected seed rate (for 1/10 ha) x 10 (factor)}}{\text{ha}}$$

Example: Calibrating for 1/40 ha
collected seed 3,2 kg

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



Sowing by the main metering wheels

You should always use both main metering wheels (white and orange) simultaneously as long as the seed rate allows to do so.

If it is required for very small seed rates to use a gearbox setting smaller than "15" one of the two main seed metering wheel should be shut off. The gearbox setting can then be increased.



Disc rule for seed rate calculation

Usually one does not achieve the desired seed rate with the **first** gearbox setting. With the aid of the seed rate calculation disc rule (Fig. 21.12) it is possible to determine the gearbox setting figure with the **first** gearbox setting figure and the calculated seed rate.



Gearbox gear

At unusually large seed rates and wide row spacings it may occasionally happen that with the gearbox setting number "100" the desired seed rate has not been obtained. In this case the "fast gear" has to be set. The procedure for this you may find in the detailed description under para. 21.2.



Seed rate remote control

If the seed drill has been equipped with the hydraulic seed rate remote control, determine the gearbox setting with the pressurized hydraulic ram for the increased seed rate.

After having determined the correct gearbox setting

- place the calibration crank back into the retainer (Fig. 21.5 resp. Fig. 21.6) and secure by clip pin
- fix calibration tray (Fig. 21.2/1) to the seed box
- shut flap (Fig. 21.3/2)
- Insert clip pin (Fig. 21.7/1) into the intermediate drive of the tyre packer roller

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

The desired seed rate usually is not obtained after the **first** setting of the gearbox. However, with the aid of the disc rule it is possible to determine the correct gearbox setting by using the gearbox setting figure of the **first** calibration test at the calculated seed rate.

The disc rule consists of three scales: One outer white scale (Fig. 21.12/1) for all seed rates above 30 kg/ha and an inner white scale (Fig. 21.12/2) for all seed rates below 30 kg/ha. On the central, coloured scale (Fig. 21.12/3) gearbox settings from "1 to 100" are printed.

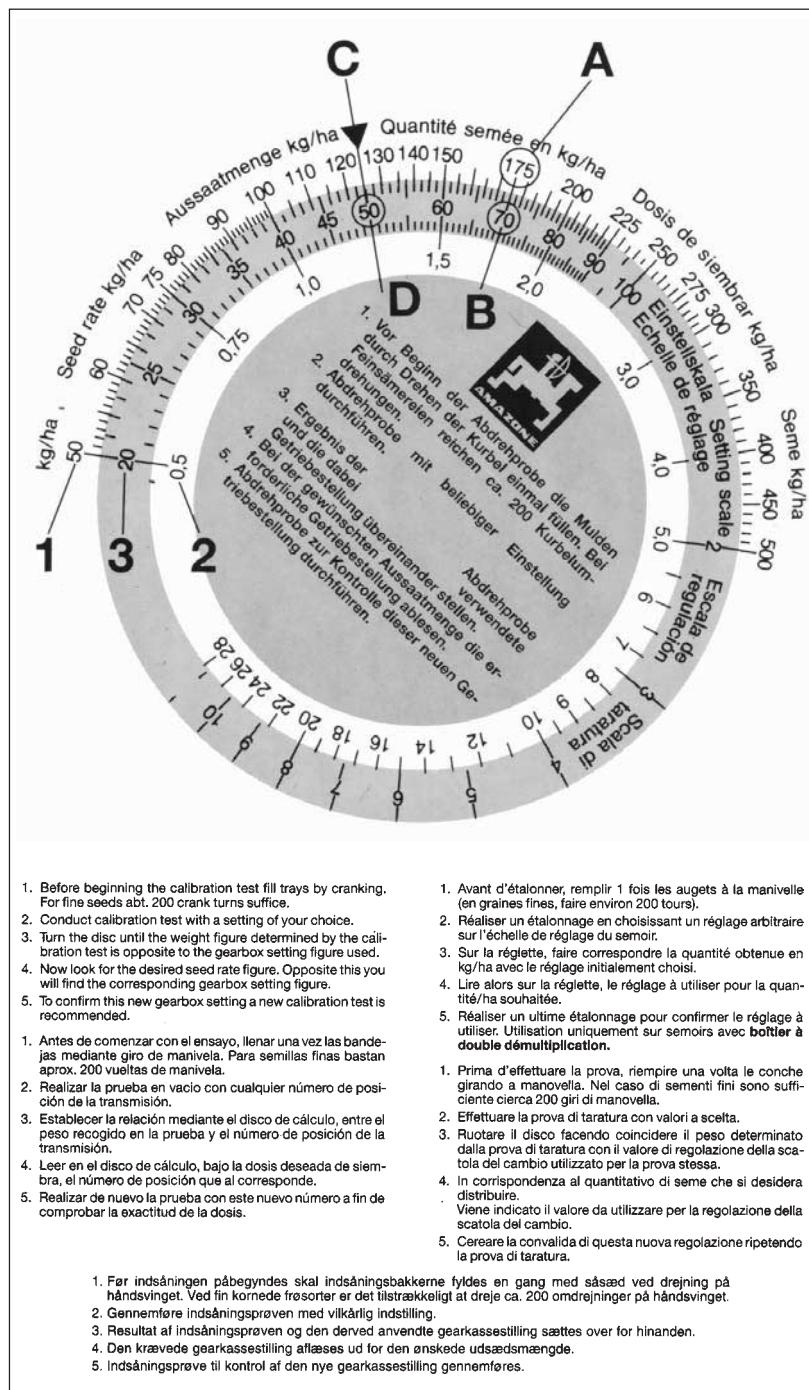


Fig. 21.12

Example:

Wanted is a seed rate of 125 kg/ha.

- At the first setting, the gearbox setting lever is brought to the setting position "70". It is possible to choose also any other gearbox setting figure. In this case a seed rate of 175 kg/ha has been calculated.
- Align the seed rate 175 kg/ha (Fig. 21.12/A) and the gearbox setting figure "70" (Fig. 21.12/B) on the disc rule.
- Now read off the disc rule the gearbox setting figure for the desired seed rate of 125 kg/ha (Fig. 21.12/C). In our example that is the gearbox setting figure "50" (Fig. 21.12/D).
- Recheck the gearbox setting figure which you have determined by the disc rule as described under para. 21.0.

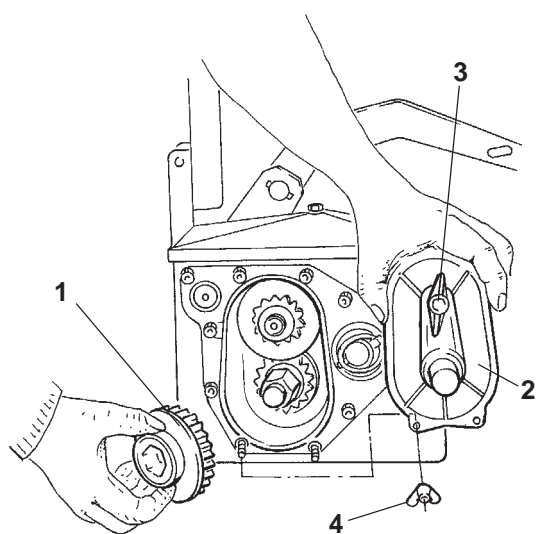
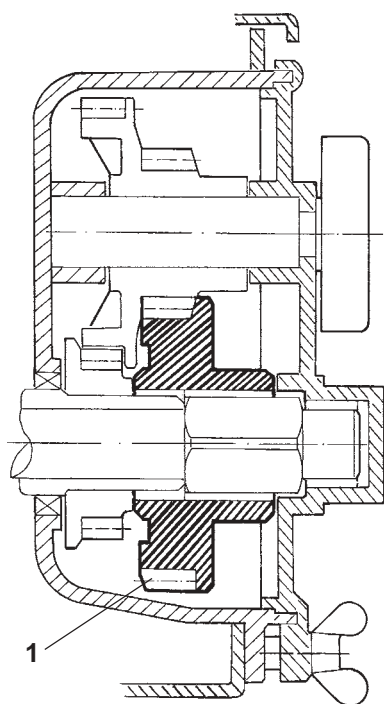
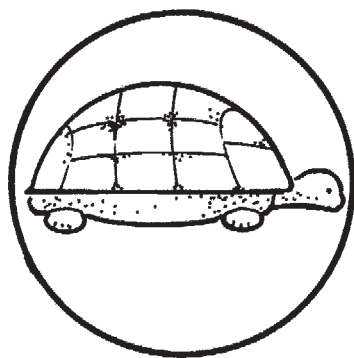


Fig. 21.13

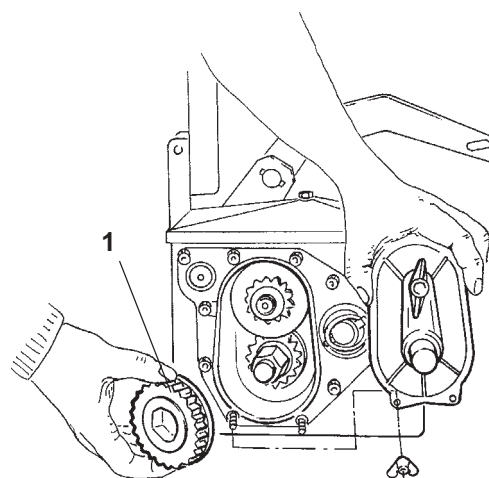
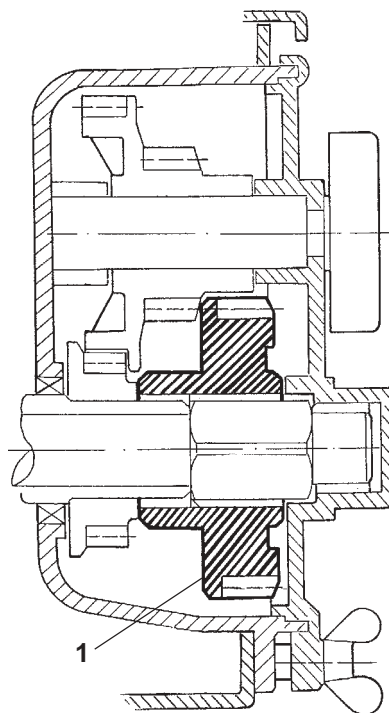


Fig. 21.14

21.2 Setting the gearbox gear ratio

Inside the gearbox a set of exchange pinions is mounted by which two speeds can be set:

<p>slow speed (see Fig. 21.13)</p>	<p>fast speed (see Fig. 21.14)</p>
---	---

Ex works the gearbox is set to the "slow speed" range. In case of unusually large seed rates and wide row spacings it may occasionally happen that the gearbox setting "100" with the slow speed will not bring the desired seed rate. In this case the "fast speed" should be set.



The "fast speed" should only be used if the desired seed rate cannot be obtained in the "slow speed" range .

Changing the gearing

- Open the lid (Fig. 21.13/2) after removing the thumb nut (Fig. 21.13/3) and the two thumb nuts (Fig. 21.13/4) .
- Remove the pinion from the shaft and reinsert after turning:
 - in the "**slow speed**" the pinion (Fig. 21.13/1) is meshing with the second pinion
 - in the "**fast gear**" the pinion (Fig. 21.14/1) runs freely unengaged.
- Put lid (Fig. 21.13/2) back in place.



After any changing of the gearbox into another speed range the desired seed rate should be determined and set as described in para. 21.0.

21.3 Seed rate deviations between the setting and sowing

To avoid deviations between the setting of the seed rate and the later sowing and to achieve a uniform distribution of the seed to all coulters, please note the following hints:

When sowing dressed seeds

The distributor head should regularly be checked and cleaned after every day of operation.

When sowing moist dressed seeds

The seed should "age" at least for one week (better two weeks) after moist dressing and sowing, to avoid deviations between the calibration test and the seed rate.

In case of wheel slip

In case of wheel slip the drive wheel (not at tyre packer rollers) for the metering units turns on very light and loose soil less as at a same distance on very firm cloddy soils. In case of high wheel slippage the number of crank turns for determining the gearbox setting should be newly determined. For this one measures on the field an area of 250 m². This corresponds at a machine with

2,50 m working width	=	100,0 m travelled distance
3,00 m working width	=	83,3 m travelled distance
4,00 m working width	=	62,5 m travelled distance
4,50 m working width	=	55,5 m travelled distance
6,00 m working width	=	41,7 m travelled distance

The number of crank turns is then counted when travelling the measured travelled distance. With this number of crank turns then the gearbox setting should be determined according to para. 21.0.

Contents

22.0	Setting the placement depth of the seed	22 - 2
22.1	Setting the placement depth of the seed by the setting spindle	22 - 2
22.2	Setting the placement depth of the seed by a hydraulic ram (option)	22 - 3
22.3	Setting the placement depth of the seed by adjusting the roll disc coulter depth limiters	22 - 5

22.0 Setting the placement depth of the seed

One of the most important preconditions for high yields is **maintaining the constant placement depth of the seed**.

The placement depth is achieved by the coulter pressure. Your seed drill is equipped as standard with a central coulter pressure adjustment which applies an even pressure to all coulters.



Check the seed placement depth always before starting the operation:

Travel with the seed drill on the field approx. 30 m with the later operational speed, check the placement depth of the seed and readjust if necessary.

The central coulter pressure adjustment can either be conducted by an adjustment spindle (Fig. 22.1) or by a hydraulic ram (Fig. 22.3, option) .

The seed placement adjustment by hydraulic ram (Fig. 22.3) is recommended preferably when having varying types of soil within one plot. It allows to control the coulter pressure from the tractor cab during operation when changing from normal soil to heavier soil or vice versa.

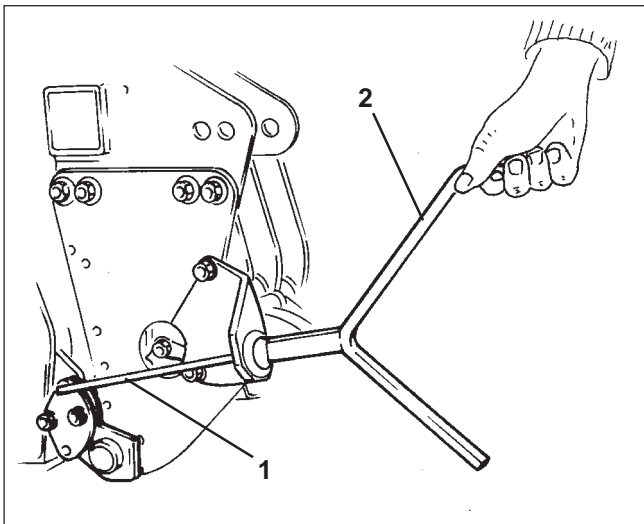


Fig. 22.1

22.1 Setting the placement depth of the seed by the adjustment spindle

The coulter pressure and thus the placement depth of the seed is increased by turning the spindle (Fig. 22.1/1) clockwise, by turning it counter clockwise it is reduced.

In case the machine is equipped with roll disc coulters with depth limiters (option) and if the desired planting depth cannot be achieved by turning the adjustment spindle (Fig. 22.1/1) all roll disc coulters depth limiters would have to be readjusted according to para. 22.3.1.

The fine adjustment then is again conducted by the adjustment spindle.



The placement depth of the seed should be checked after every setting according to para. 22.0!

For actuating the adjustment spindle (Fig. 22.1/1) the coulter pressure adjustment crank (Fig. 22.1/2) has to be plugged onto the square end of the adjustment spindle.

The coulter pressure adjustment crank (Fig. 22.2/1) is placed in a retainer on the left hand frame part.

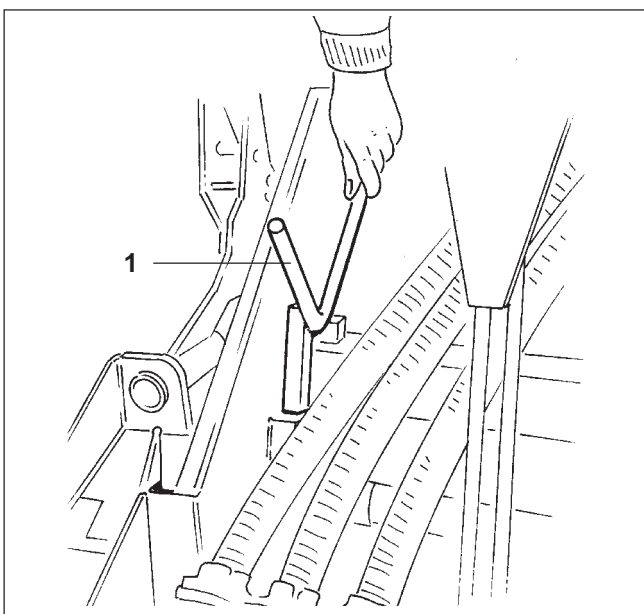


Fig. 22.2

22.2 Setting the placement depth of the seed by a hydraulic ram (option)

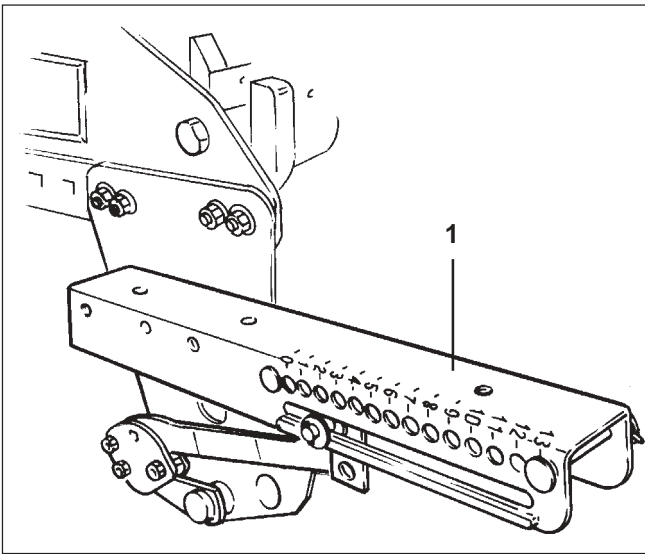


Fig. 22.3

The coulter pressure and thus the placement depth can centrally be set by a hydraulic ram (Fig. 22.3/1). During the operation the coulter pressure can be increased in areas with heavier soils. The hydraulic ram has to be connected to a single acting control valve.



The hydraulic coulter pressure adjustment is coupled with the hydraulic seed rate remote control (if existing). If the coulter pressure is increased automatically also the seed rate will be increased.

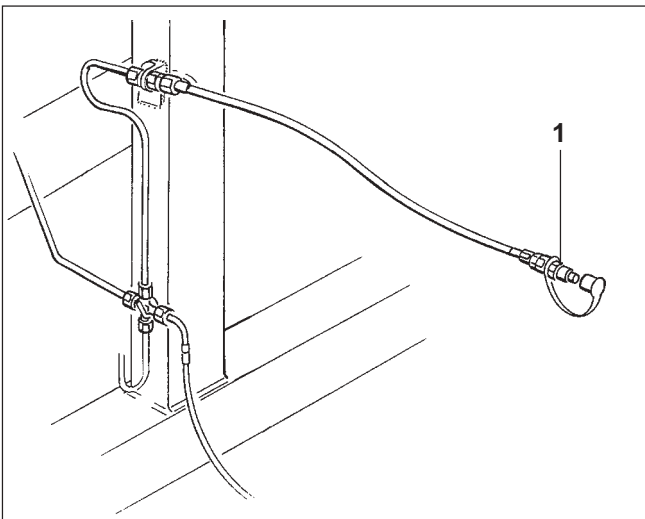


Fig. 22.4

When supplied the setting mechanism is mounted to the seed drill and the hydraulic ram (Fig. 22.3/1) is connected to the connecting unit II" (Fig. 22.4/1), with which your seed drill is also equipped.

Connect the connecting unit II to the single acting control valve on the tractor.



When actuating the control valve simultaneously the hydraulic ram of the coulter pressure adjustment and of the seed rate remote control are pressurised.

**Ask people to leave the area of danger!
Danger of injury on moving parts!**

Two pins (Fig. 22.5/3 and Fig. 22.5/4) function as limiter for the hydraulic ram (Fig. 22.5/1) in the setting segment. When the hydraulic ram is without pressure the top of it rests on the pin (Fig. 22.5/3) and when the hydraulic ram is pressurised it rests on the pin (Fig. 22.5/4)

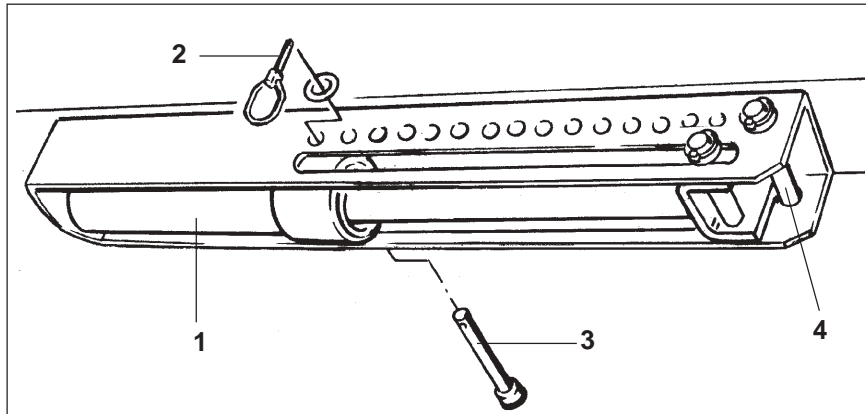


Fig. 22.5

Setting the normal coulter pressure

- Pressurise hydraulic ram (Fig. 22.5/1) .
- Insert pin (Fig. 22.5/3) into one of the holes of the quadrant plate and secure by a clip pin (Fig. 22.5/2) .

The further the pin (Fig. 22.5/3) is inserted into a hole to the right, the higher the coulter pressure will become.

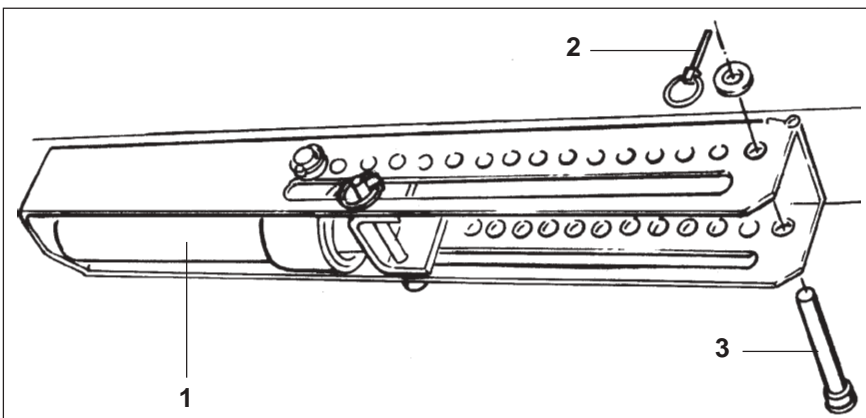


Fig. 22.6

Increasing the coulter pressure

- Relieve the hydraulic ram (Fig. 22.6/1) from pressure.
- Insert the pin (Fig. 22.6/3) into a hole of the quadrant plate and secure with clip pin (Fig. 22.6/2) .

The further the pin (Fig. 22.6/3) is moved to a right hand hole, the higher the coulter pressure will become.

If the roll disc coulters are equipped with depth limiters (option) and if the desired planting depth cannot be achieved by resetting the pins, all roll disc depth limiters will have to be readjusted according to para. 22.3.1.

The fine adjustment then will have to be done by reinserting the pins as described earlier.



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

Travel with the seed drill on the field a distance of approx. 30 m with the later intended forward speed and check the planting depth of the seed and readjust if necessary.

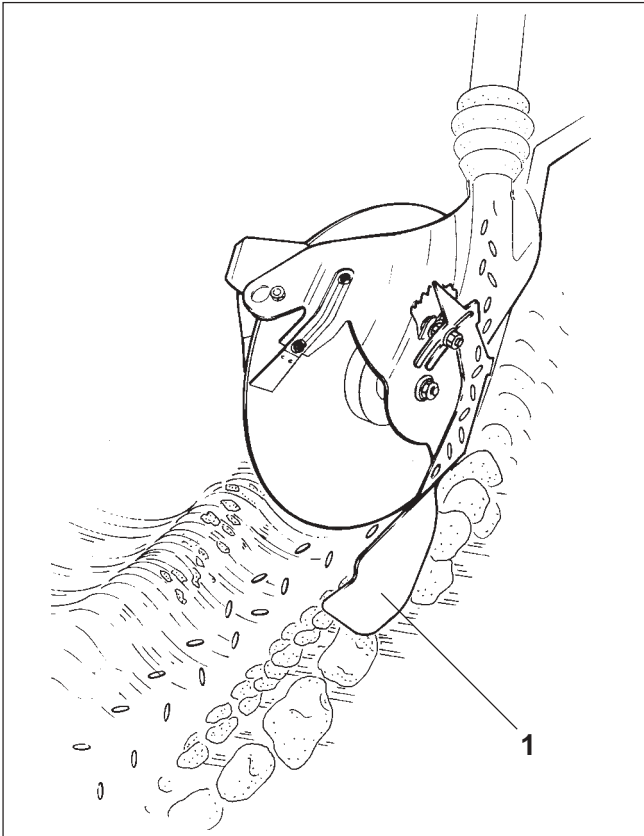


Fig. 22.7

22.3 Setting the planting depth of the seed by resetting the depth limiters of the roll disc coulters

To ensure the seed depth placement will be maintained throughout the field even in changing soil conditions, the roll disc coulters can be equipped with depth limiters (Fig. 22.7/1 [option]).

When having ordered the seed drill with depth limiters they have been fitted by the factory to a placement depth of approx. 2.5 cm for medium heavy soils (Always check the placement depth of the seed before starting the operation!). For **slightly** increasing the planting depth the coulters pressure may be increased according to para. 22.1 resp. para. 22.2.



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

If the desired placement depth cannot be achieved by changing the coulters pressure or if the wear of the depth limiters should be avoided by too high a coulters pressure, all depth limiters (Fig. 22.7/1) should uniformly be readjusted according to para. 22.3.1.

22.3.1 Fitting and setting roll disc depth limiters

First fitting

Insert depth limiter (Fig. 22.8/1) into the hole provided (Fig. 22.8/2) of the roll disc coulters and at first tighten hex. bolt (Fig. 22.8/3) loosely.

Setting the depth limiter

Readjust all depth limiters (Fig. 22.8/1) uniformly, e. g. all pointers (Fig. 22.8/5) should be set into the same position. The V- cuttings (Fig. 22.8/6) of the roll disc coulters function as a setting aid. Slacken (do not remove) hex. nut (Fig. 22.8/4) before and retighten firmly afterwards.

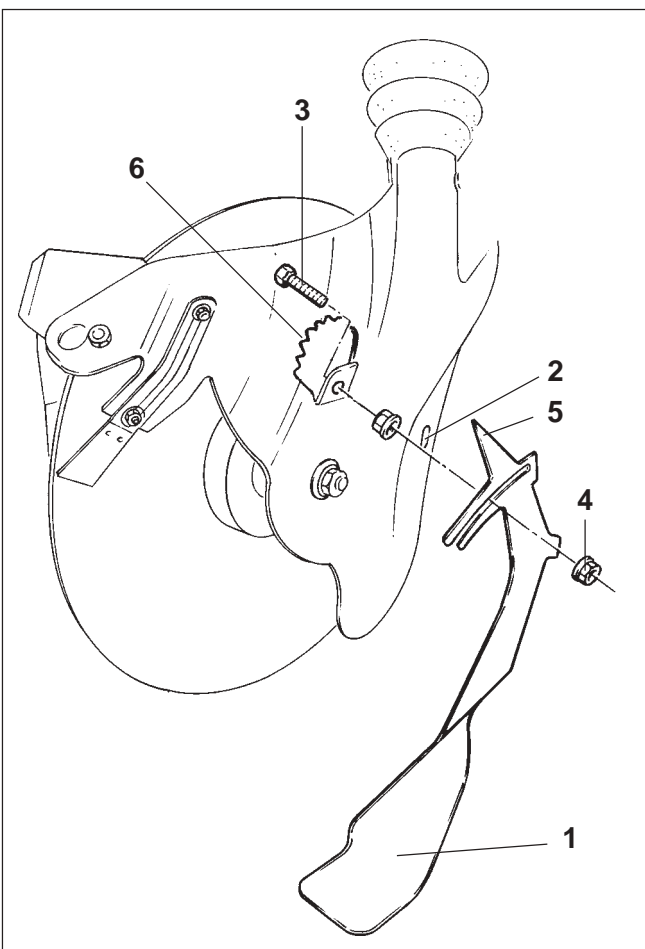


Fig. 22.8

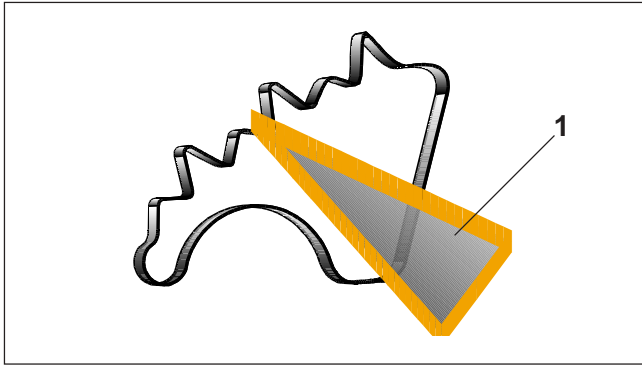


Fig. 22.9

The setting of the depth limiter from one V-cutting (Fig. 22.9) to the next corresponds to a change in the seed placement depth by approx. 1.5 cm on medium heavy soils. The more the pointer (Fig. 22.9/1) is moved to the right hand, the deeper the seed placement will become.

The setting as shown in Fig. 22.9 corresponds to a seed placement depth of approx. 2.5 cm on medium heavy soil.



Check the seed placement depth on the field after every setting!

Slight changes in the placement depth of the seed may then be set with the aid of the coulter pressure adjustment according to para. 22.1 resp. para. 22.2!

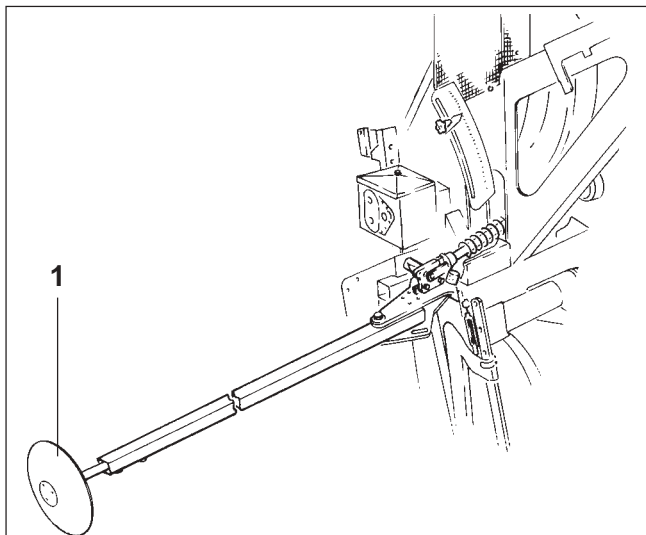
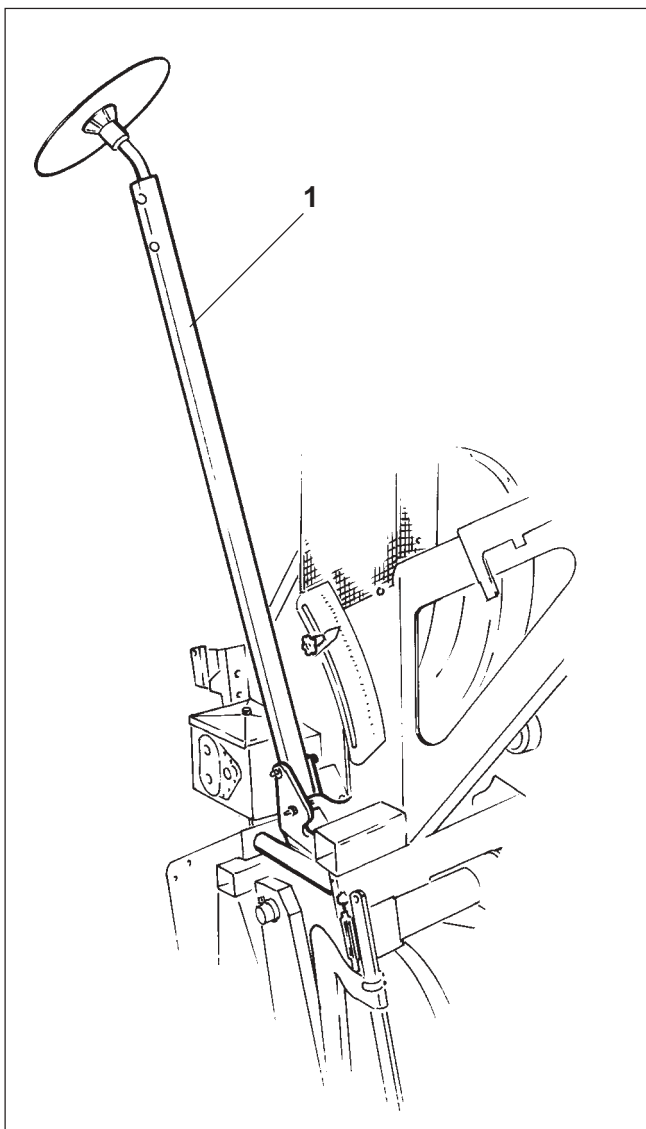


In sticky soil conditions

set your depth limiter in such a way that one has to operate with high coulter pressure. The seed placement depth will not change, even if soil sticks to the front side of the roll disc coulter.

Contents

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23.4	Setting the marker arms to the correct length	23 - 7
23.5	Obstacles in the field	23 - 8
23.6	Safety shear pins	23 - 8

**Fig. 23.1****Fig. 23.2**

23.0 Markers

The seed drill is equipped with two markers (Fig. 23.1) for **marking a trace in the tractor centre**. After turning on the headland the tractor follows the centrally marked trace when travelling the next bout.

The trace is marked during sowing from one marker disc (Fig. 23.1/1).

After turning on the headland the marker (Fig. 23.2/1) is lifted and the opposite marker begins to operate.

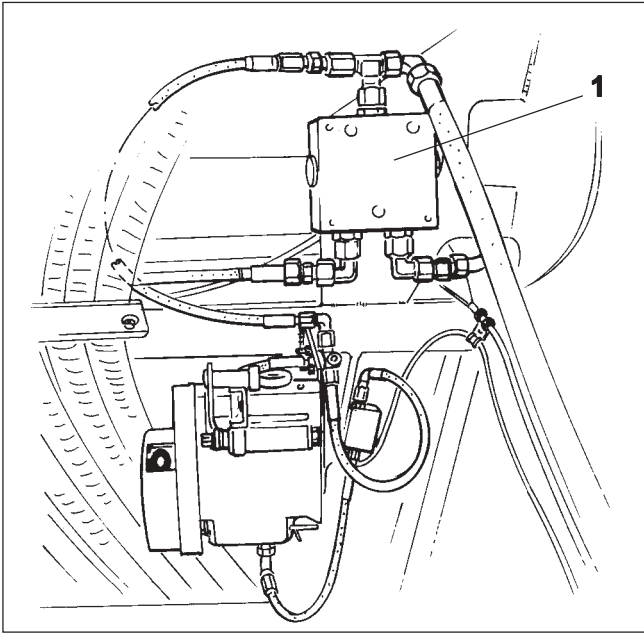


Fig. 23.3

On the field end the markers are switched over by the connecting valve I (Fig. 23.3/1) which is equipped by a single acting control valve inside the tractor cab.

If, e. g. when turning on the field's end the tractor valve is actuated, the markers are switched over and the switch box of the metering wheel tramlining control (if existing) switches to the next figure.

If the switch box indicates the figure "0" the shutter slides inside the distributor head close the outlets to the tramline coulters and the marker discs of the pre-emergence marker (if existing) are being lowered.

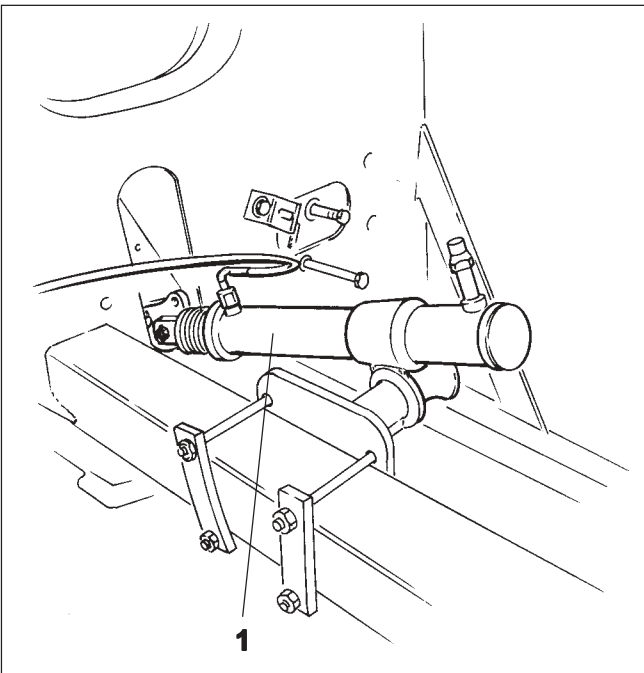


Fig. 23.4

Every marker is being brought by a hydraulic ram (Fig. 23.4/1)

- from transport position (Fig. 23.2) into operation position (Fig. 23.1) or vice versa
- is lifted on the field end prior to turning
- is lifted prior to obstacles and after passing the obstacles being lowered into working position again.



The hydraulically actuated track markers and the hydraulically actuated switch box for the metering wheel tramlining control (if existing) is coupled to one another and connected to the connecting valve I.



When actuating the control valve simultaneously the hydraulic ram of the hydraulically actuated marker and of the hydraulically actuated switch box is pressurised!

Danger of injury on moving parts!

Before actuating the tractor control valve, ask people to leave the danger area!

It is prohibited to stay within the swinging area of the marker arms!

23.1 Fitting marker arms

The markers supplied loosely with the machine have to be fitted as follows:

Applicable only for seed drills up to 3 m working width:

The hydraulic ram (Fig. 23.5/1) has to be fitted to the bracket (Fig. 23.5/2) in the longer slotted hole (Fig. 23.5/3). It may be necessary to bolt the link (Fig. 23.5/2) into another hole.

Bolt marker arms (Fig. 23.5/4) to it by:

- one hex. bolt M6 x 90, 8.8 DIN 931 (Fig. 23.5/5),
- two washers 6,4 x 18 x 1,6 DIN 9021 (Fig. 23.5/6) and
- one securing nut M6, 8 DIN 980V (Fig. 23.5/7).

- one hex. bolt M14 x 100, 8.8 DIN 931 (Fig. 23.5/8),
- two expansion pins 14 DIN 6796 (Fig. 23.5/9) and
- one securing nut M14, 8 DIN 980V (Fig. 23.5/10).

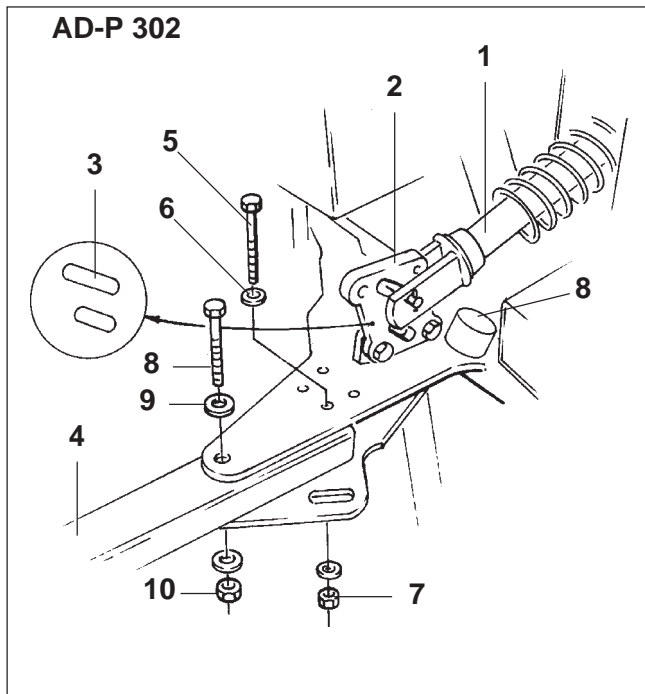


Fig. 23.5

Applicable only for seed drills from 4.0 m working width:

The hydraulic ram (Fig. 23.6/1) has to be fitted to the link (Fig. 23.6/2) into the short slotted hole (Fig. 23.6/3). Bolt link (Fig. 23.6/2) perhaps into another hole.

Affix marker arms (Fig. 23.6/4).



The fixing material as described above (3 m working width) should be used. Bolt on marker arms (Fig. 23.6/4) with hex. bolt M6 x 90, 8.8 DIN 931 (Fig. 23.6/5) into hole "B" (Fig. 23.6) .

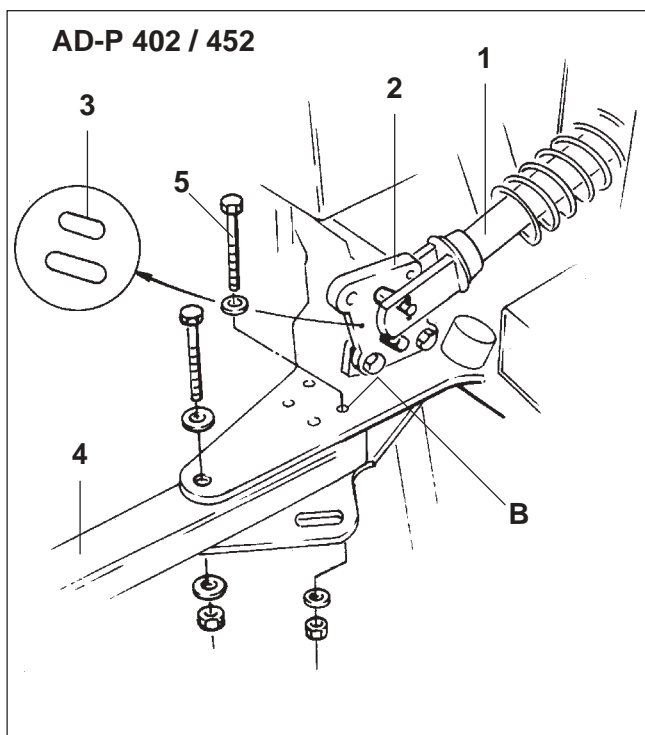


Fig. 23.6

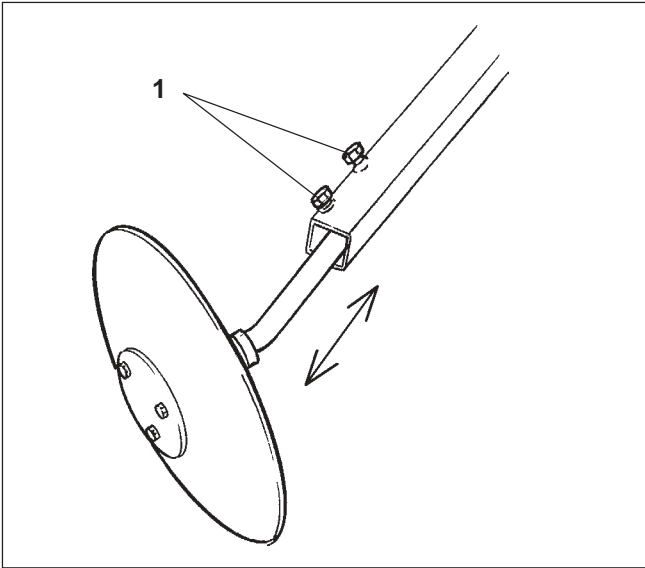


Fig. 23.7

Insert marker disc shafts (Fig. 23.7) into the marker arms and clamp tightly by two hexagon bolts (Fig. 23.7/1).

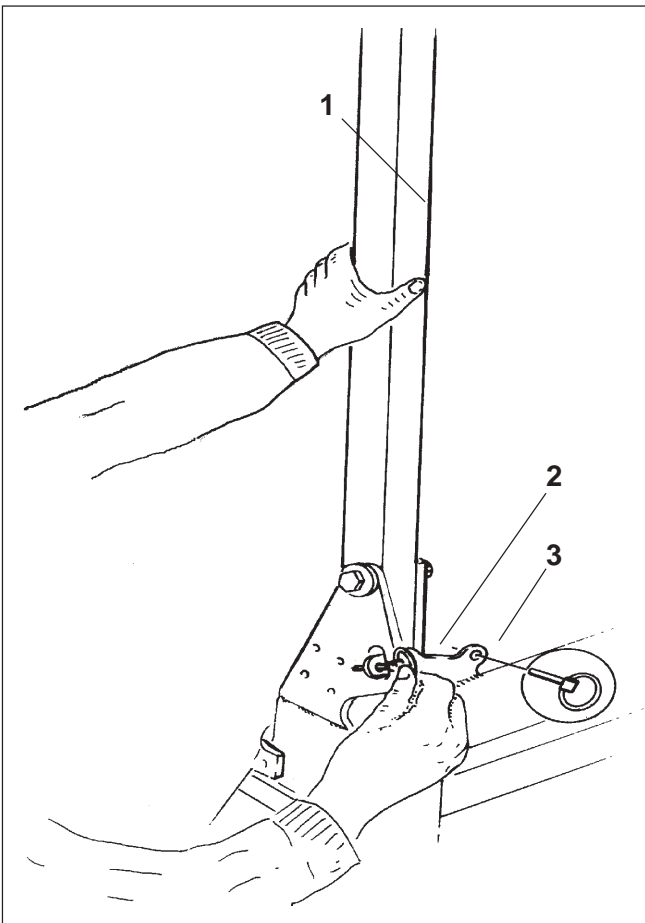


Fig. 23.8

23.2 Bring markers into operational position

Connect connecting valve (Fig. 23.3/1) to a single acting tractor control valve.

Every marker arm (Fig. 23.8/1) is fixed for transporting position by a clip pin (Fig. 23.8/2) ,

- remove clip pin (Fig. 23.8/2) only immediately prior to the operation in the field
- when not needed, insert the clip pin (Fig. 23.8/2) into one of the holes (Fig. 23.8/3) .



After removal of the clip pin (Fig. 23.8/2) the marker arm is tilting slightly to the side.



Ask people to leave the danger area and bring the marker arms to operational position by actuating the tractor control valve inside the tractor cab.

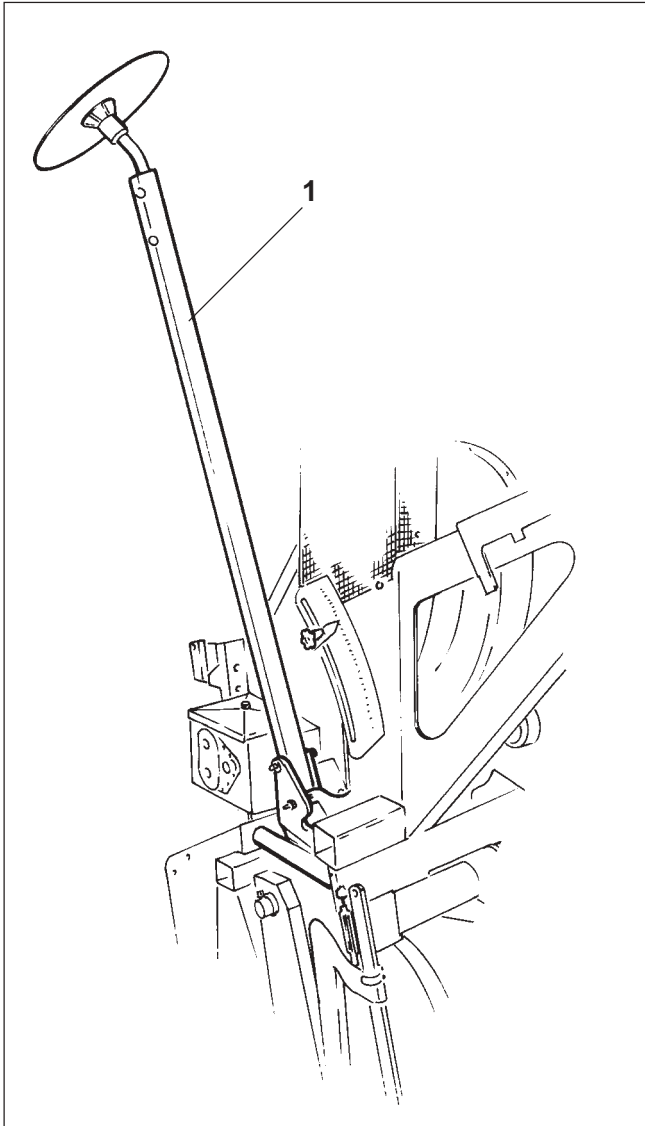


Fig. 23.9

When the **tractor control valve is applying pressure** to the ram of the markers (Fig. 23.9/1) both markers are leaning closely to the seed box:

1. for transport
2. for turning on the headland
3. when passing an obstacle in the field.

When the **tractor control valve is brought into floating position**, one of the markers (Fig. 23.10/1) is lowering:

1. when starting to operate
2. after turning on the headland.

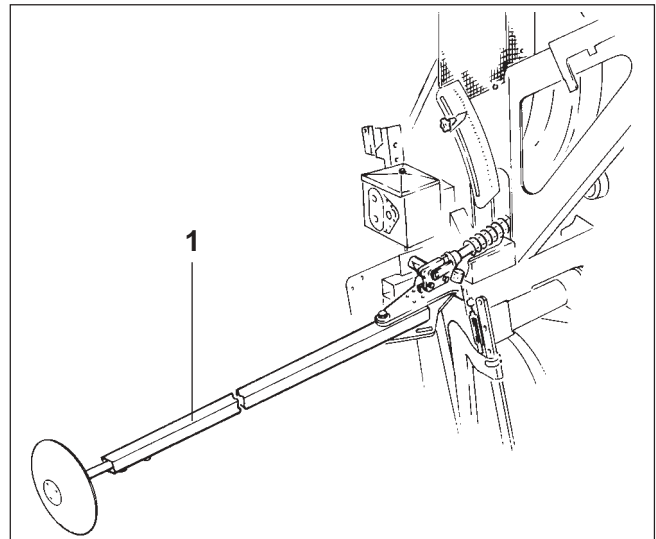


Fig. 23.10

23.3 Bring markers into transport position

Before transport, both marker arms will have to be fixed to the seed drill in vice versa order as mentioned in para. 23.2.



The buffer blocks (Fig. 23.5/8) must never be removed and in case of wear must be replaced!

The buffer blocks prevent the transport securing of the markers by the clip pins to be forgotten.

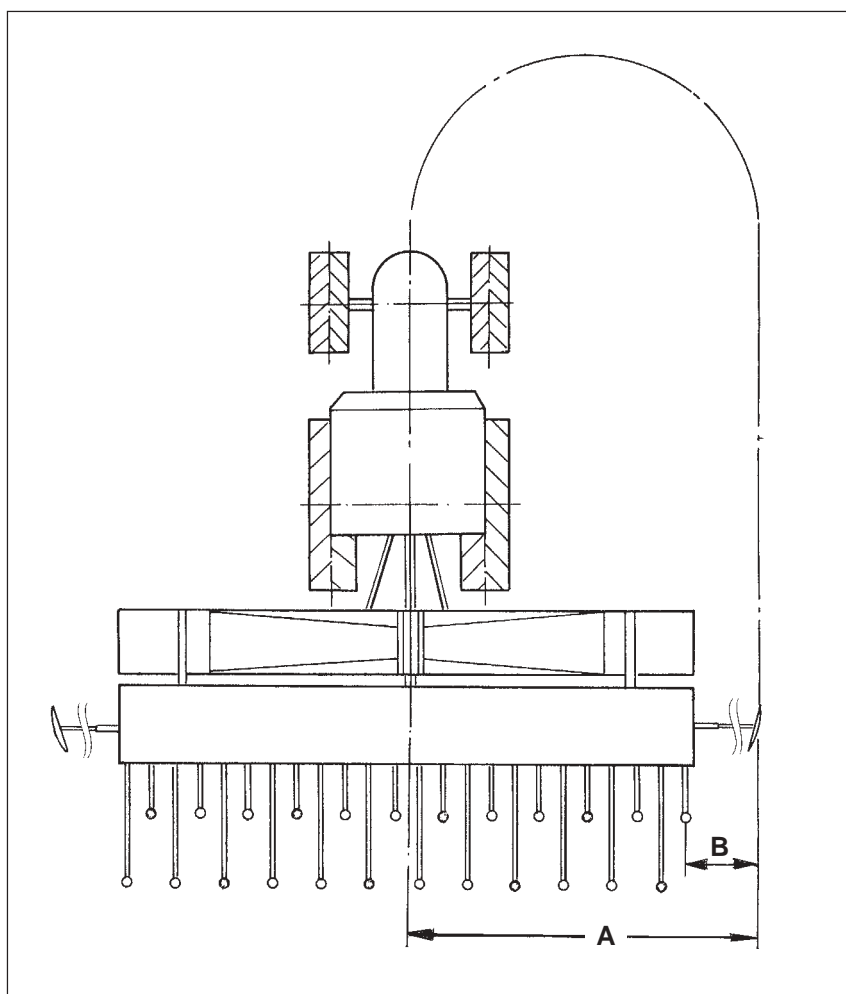


Fig. 23.11

23.4 Setting the markers to the correct length

The seed drill is equipped with markers for **marking a trace in the tractor centre**.

The spacing is measured either from the centre of the machine or from the outer sowing coulters (see Fig. 23.11).

The **Spacing "A"** (Fig. 23.11) from marker disc to the machine's centre is at the seed drills:

AD-P 302 with 24 rows / 12,5 cm row spacing: **Spacing A = 300,0 cm**

AD-P 402 with 32 rows / 12,5 cm row spacing: **Spacing A = 400,0 cm**

AD-P 452 with 36 rows / 12,5 cm row spacing: **Spacing A = 450,0 cm.**

The **Spacing "B"** (Fig. 23.11) from marker disc to the outer sowing coulters is at the seed drills:

AD-P 302 with 24 row / 12,5 cm row spacing: **Spacing B = 156,0 cm**

AD-P 402 with 32 row / 12,5 cm row spacing: **Spacing B = 206,0 cm**

AD-P 452 with 36 row / 12,5 cm row spacing: **Spacing B = 231,0 cm.**

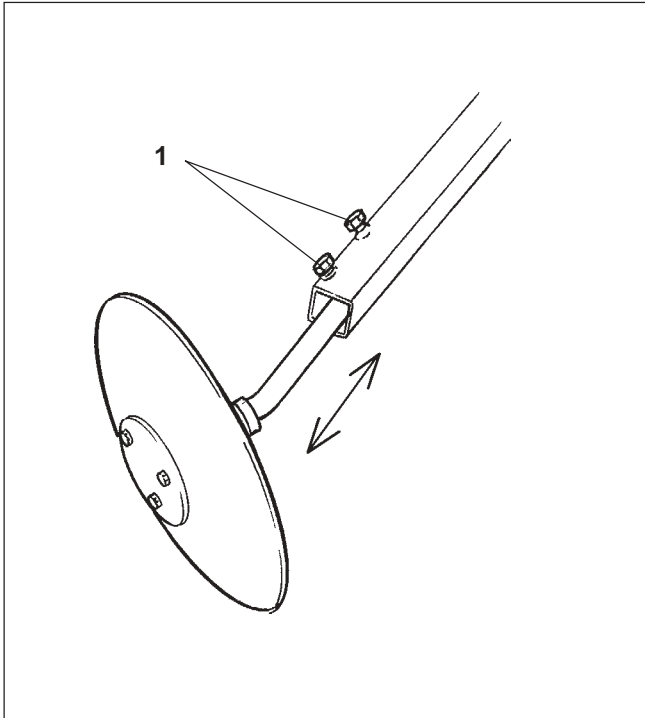


Fig. 23.12

The marker discs (Fig. 23.12) can be moved into or out of the marker arms. Prior to it two hex. bolts (Fig. 23.12/1) should be slackened and retightened.



When setting up the angle of the marker discs (Fig. 23.12), please note that they should be set for light soil about parallel with the direction of operation and more "on grip" on heavier soils.

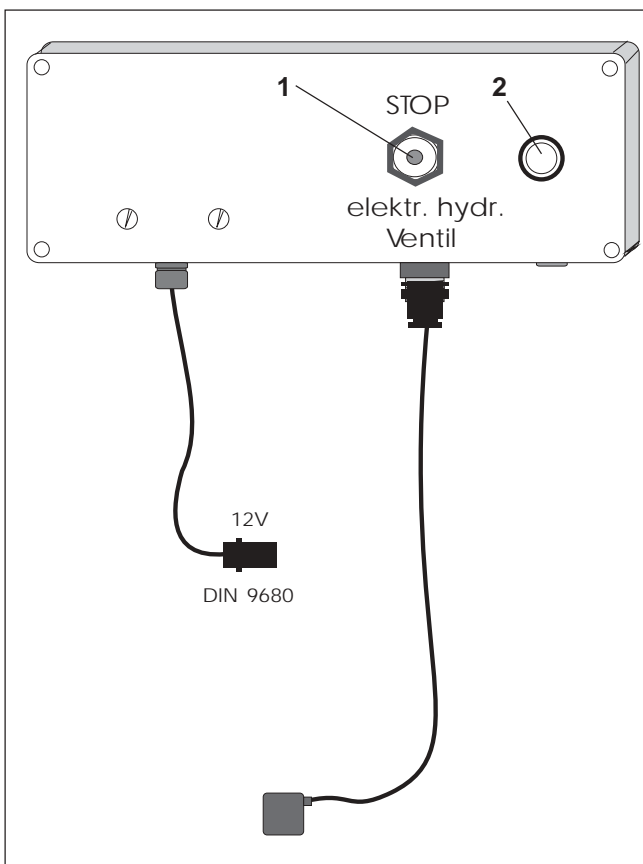


Fig. 23.13

23.5 Obstacles in the field

To avoid damages, the markers should be raised before hitting an obstacle in the field. Behind this obstacle the marker should be lowered again. However, when actuating the tractor control valve the opposite marker is lowered.

Apply again pressure to the tractor control valve and as soon as the markers are raised, bring the control valve to floating position so that the correct marker is lowered.



To prevent that the switch box of the metering wheel **tramlining control** (if existing) continues to shift on, the lever (Fig. 23.13/1) of the solenoid valve inside the tractor cab should be brought to the "stop" position before raising. In this position the red checking lamp (Fig. 23.13/2) lights up..

After having lowered the correct marker behind the obstacle the solenoid valve has to be set into position "**electro hydraulic valve**". The figure visible in the window of the switch box must not change when passing an obstacle.

23.6 Safety shear pins

If a marker hits an obstacle during operation, the marker arm can give way to the obstacle by moving to the rear. In this case a **hex. shear bolt M6 x 90, 8.8 DIN 931**, (Fig. 23.5/5 resp. 23.6/5) will shear off.

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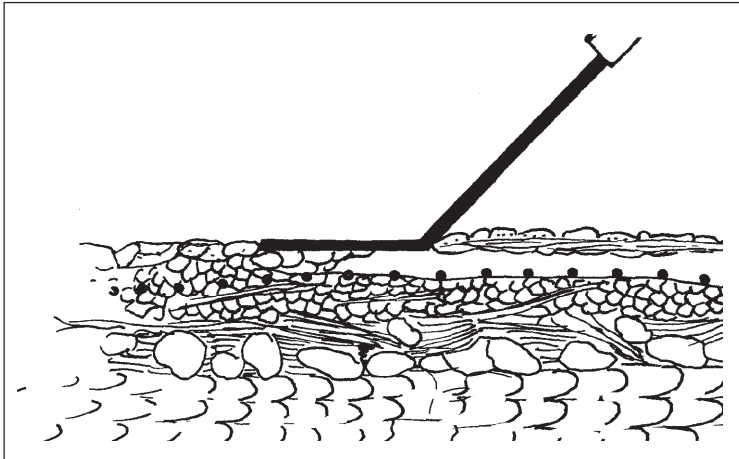


Fig. 24.1

24.0 Extra coverage following harrow

The extra coverage following harrow (Fig. 24.1) evenly covers the seed sown with soil.

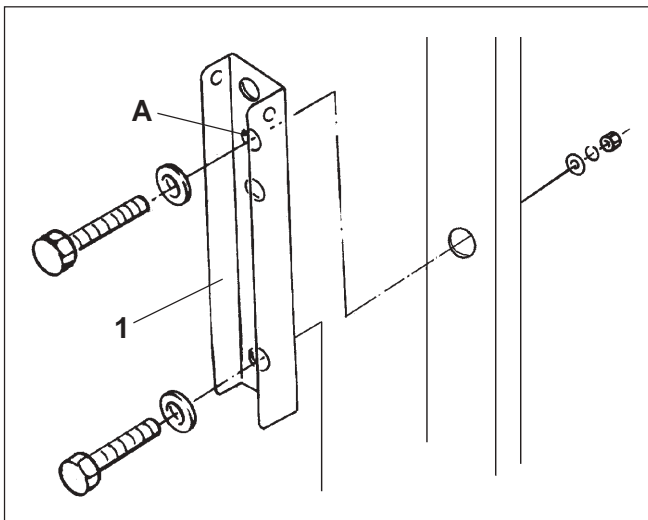


Fig. 24.2

24.1 Mounting the extra coverage following harrow to the seed drill

Bolt the chanel irons (Fig. 24.2/1, through hole "A") to the edges of the seed box.

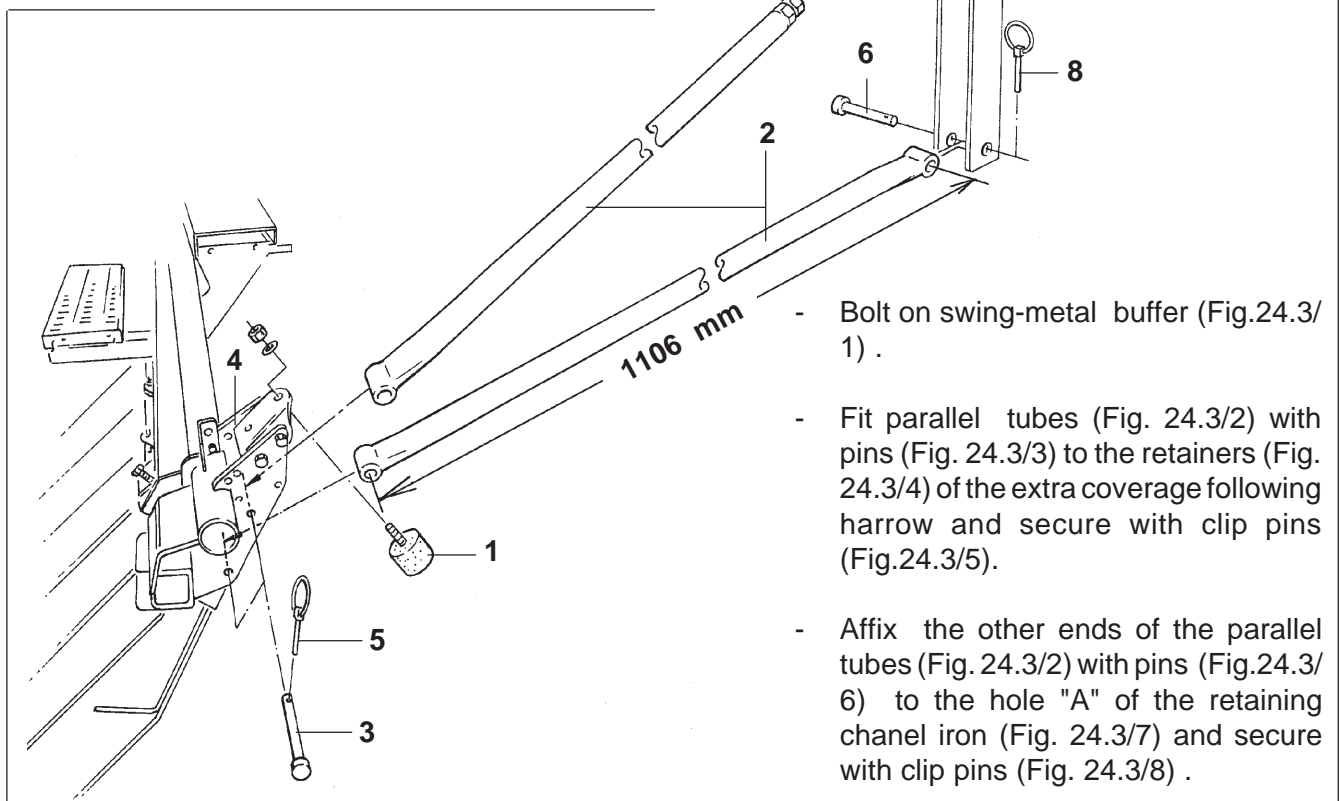


Fig. 24.3

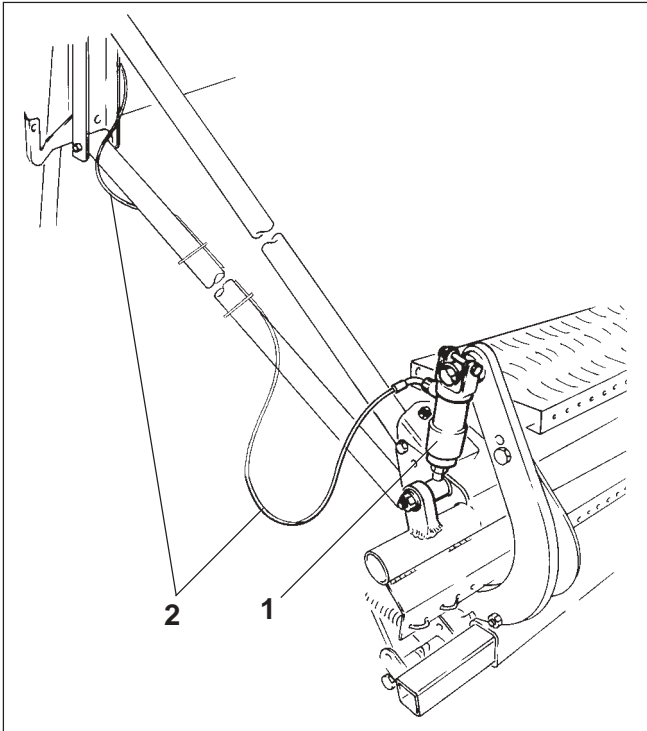


Fig. 24.4

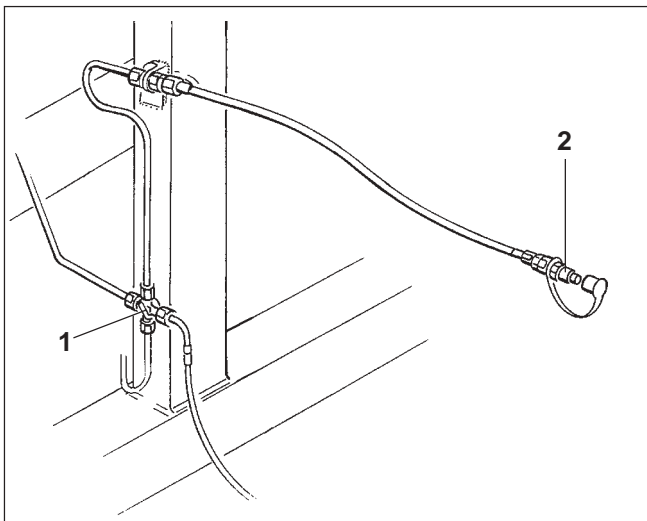


Fig. 24.5

24.1.1 Connecting hydraulic ram (option)

The hydraulic ram (Fig. 24.4/1) is fitted to the extra coverage harrow when supplied. Connect the hydraulic hose (Fig. 24.4/2) to the hydraulic ram (Fig. 24.4/1) and to the "connecting unit II" (Fig. 24.5/1) with which your seed drill also has been equipped.



Allow the hydraulic hose (Fig. 24.4/2) to have a sufficiently large bend when fitting to the pivoting points of the link arms of the extra coverage following harrow to prevent the hose being torn apart by movement of the extra coverage following harrow.

Connect the hydraulic hose (Fig. 24.5/2) of the "connecting unit II" (Fig. 24.5/1) to a single acting control valve and actuate the valve only from the tractor cab.



The hydraulic pressure adjustment of the extra coverage following harrow is coupled to the hydraulic coulter pressure adjustment and the hydraulic seed rate remote control (if existing) and linked to the "connecting unit II" (Fig. 24.5/1). If the coulter pressure is increased simultaneously also the seed rate and the pressure of the extra coverage harrow tines is increased.



When actuating the control valves in the tractor cab simultaneously the hydraulic rams of the coulter pressure adjustment, of the pressure control for the extra coverage following harrow and of the seed rate remote control are pressurised!

Ask people to leave the area of danger!
Danger of injury on moving parts!

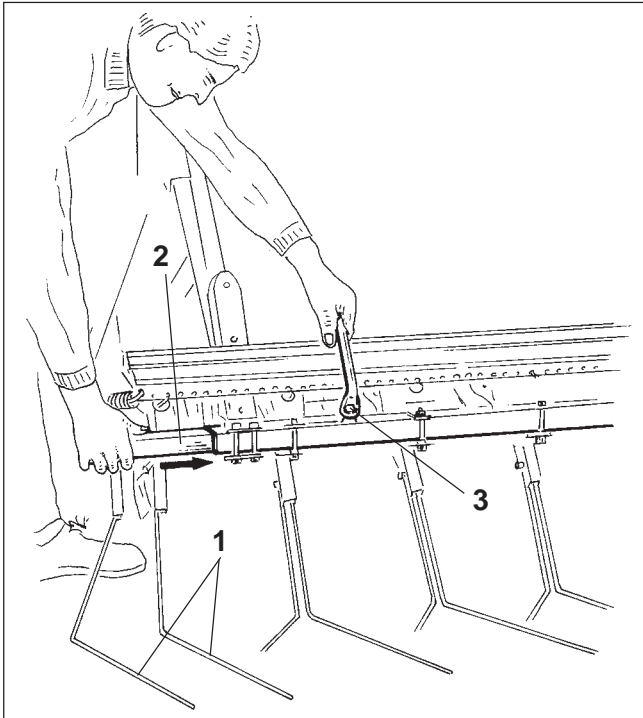


Fig. 24.7

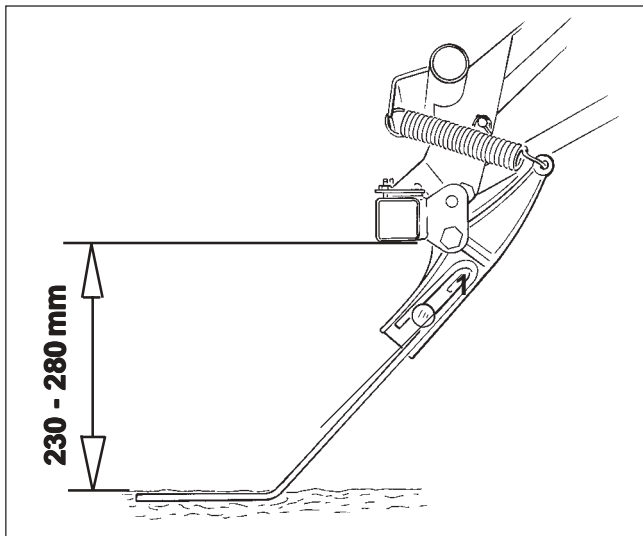


Fig. 24.8

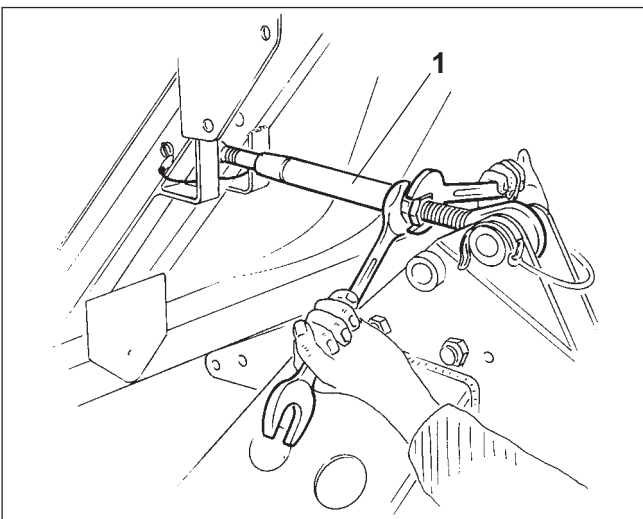


Fig. 24.9

24.2 Bring outer following harrow tines into operating position

Packer rollers and coulters of the seed drill throw the soil in different distances to the sides, depending on the forward speed and soil condition.

The outer following harrow tines (Fig. 24.7/1) have to be set in such a way that the soil is being guided backwards behind the seed drill for achieving a wheel mark-free seed bed..

The higher the forward speed the more the square tube (Fig. 24.7/2) with the outer harrow tines has to be moved outwards.

The square tubes with the outer harrow tines have to be fixed in position after every setting by the clamping bolts (Fig. 24.7/3).



Check the setting prior to beginning the operation! Travel with the later operational speed a distance of approx. 30 m with the mounted seed drill across the field.

24.3 Position of harrow tines

The spring tines (Fig. 24.8) of the extra coverage following harrow have to be set on the field in such a way that they lay about horizontally on the soil and still can 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.

This setting is being conducted by lengthening or shortening the top link (Fig. 24.9/1) by which the seed drill is coupled to the soil tillage implement.

If the seed drill hereby is slightly tilted forwards or backwards this has **no** influence on the seed rate sown.

Should the settability of the top link (Fig. 24.1/1) be insufficient, the length of the upper parallel linkage tubes (Fig. 24.3/2) should be readjusted.

24.4 Setting harrow pressure on extra coverage following harrow without hydraulic ram

The pressure by which the spring tines (Fig. 24.10/1) of the extra coverage following harrow are pressing onto the soil should be set in such a way that after the seed coverage no ridge of soil remains visible on the field.

Set the extra coverage following harrow pressure as follows:

Pull the stop lever (Fig. 24.10/2) **upwards**. Insert the pin (Fig. 24.10/3) into a hole **below** the stop lever (Fig. 24.10/2) and secure by a clip pin (Fig. 24.10/4). The higher the pin is inserted into the quadrant plate, the higher the pressure of the extra coverage following harrow will be. The stop lever (Fig. 24.10/2) is actuated with the coulter pressure adjustment crank (Fig. 24.10/5).

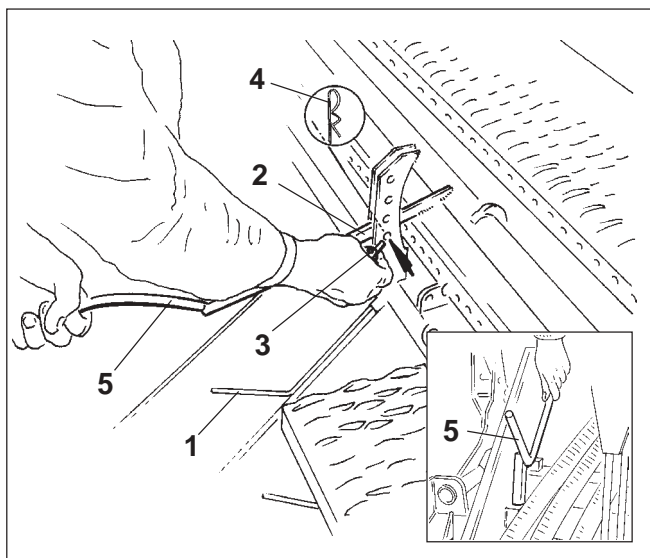


Fig. 24.10



Check the settings:

Before starting the operation the following harrow pressure should be checked.

Travel at the later operational speed a distance of approx. 30 m in the field to be sown. Check whether the seed is uniformly covered with soil. Otherwise repeat the setting as described above.

24.5 Setting harrow tine pressure on the extra coverage following harrow with hydraulic ram

The pressure by which the spring tines (Fig. 24.10/1) of the extra coverage following harrow are pressed onto the ground should be set in such a way that after the seed coverage no ridge of soil is visible on the field.

On fields with frequently changing soil conditions it is possible with the aid of the hydraulic extra coverage following harrow pressure adjustment to increase the harrow pressure in areas with heavier soils.

When changing from normal soils to heavy soils or vice versa, the coulter pressure is readjusted by a hydraulic ram (Fig. 24.11/1).

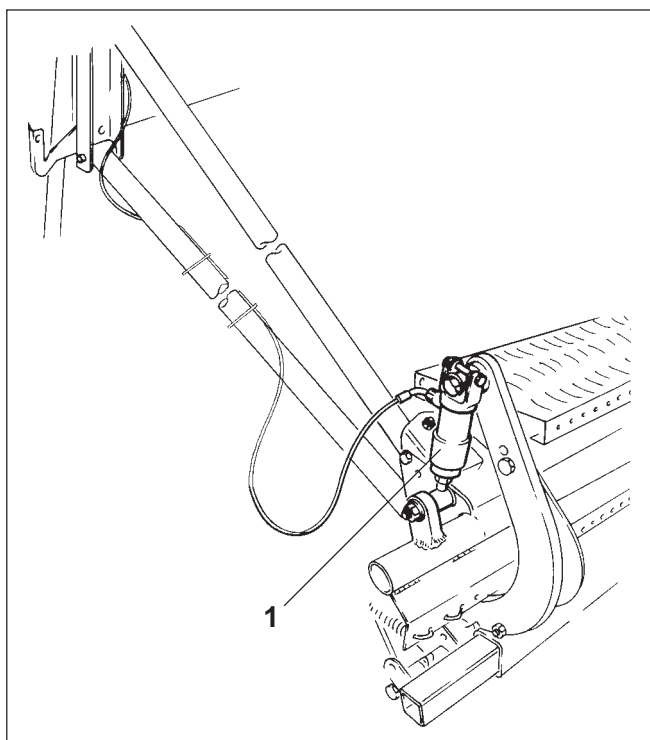
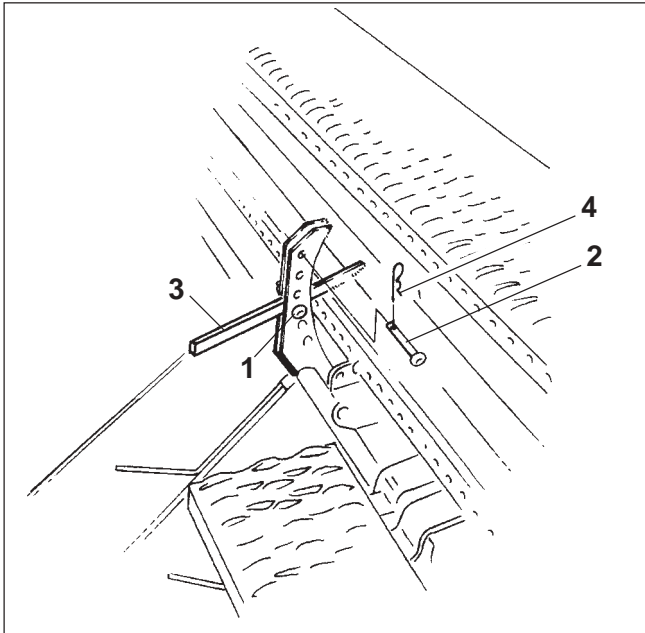


Fig. 24.11


Fig. 24.12

Two pins (Fig. 24.12/1 and Fig. 24.12/2) are placed as a stop for the lever (Fig. 24.12/3) in the setting segment. The lever (Fig. 24.12/3), which is actuated by the hydraulic ram (Fig. 24.11/1) lays on the pin I (Fig. 24.12/1) when the hydraulic ram is without pressure and it lays on pin II (Fig. 24.12/2) when the hydraulic ram has been pressurised.

For setting an increased harrow pressure

- make the hydraulic ram (Fig. 24.11/1) pressure-less.
- place pin II (Fig. 24.12/2) into a hole **above** the lever (Fig. 24.12/3) and secure with a clip pin (Fig. 24.12/4) .

For setting the normal harrow pressure

- Pressurise hydraulic ram (Fig. 24.11/1) .
- Place pin I (Fig. 24.12/1) into a hole of the setting segment **below** the lever (Fig. 24.12/3) and secure with a spring pin (Fig. 24.12/4).

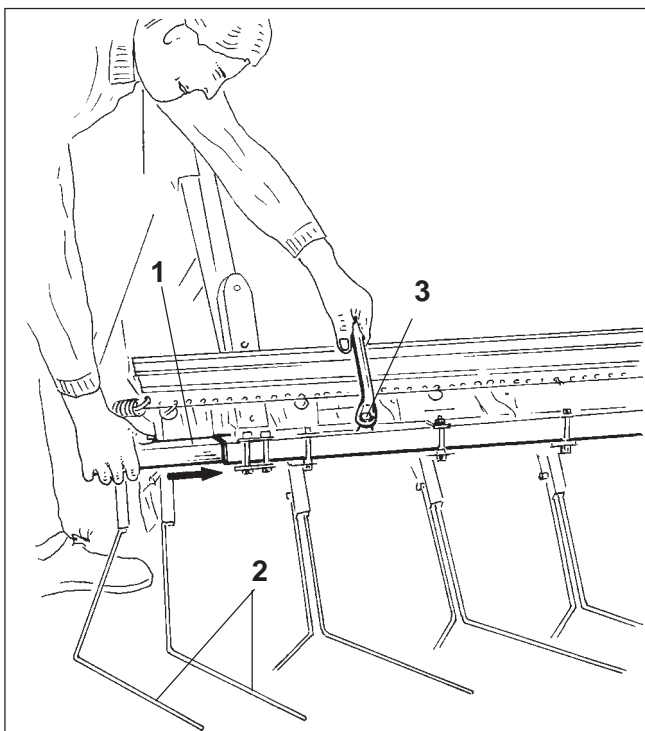


The higher you place a pin into the hole segment, the higher the harrow pressure will get.



Check settings prior to operation!

Travel with your seed drill a distance on the field of approx. 30 m with the later intended operational speed and check whether the seed on light to medium heavy soils is covered with a normal harrow pressure and on heavy soils with increased pressure evenly with soil and that no ridge of soil is noticeable.


Fig. 24.13

24.6 Road transport

For transport on public roads the outer square tubes (Fig. 24.13/1) with the outer harrow elements (Fig. 24.13/2) should be inserted till the stop into the larger carrier tube. Prior to this slacken clamping bolt (Fig. 24.13/3) and retighten.

In the field the outer harrow elements (Fig. 24.13/2) should be brought back into operational position according to para. 24.2



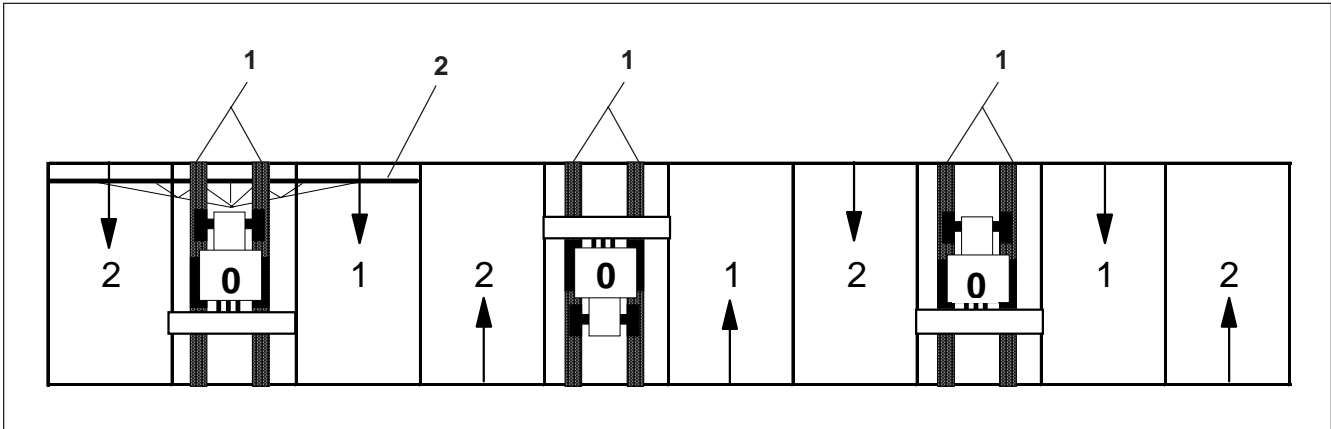
Insert outer square tubes (Fig. 24.13/1) all the way to the stop and secure with clamping bolts before transporting on public roads.

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26.0 Tramlining control, hydraulically actuated

With the aid of the tramline control tramlines are created in the field in which later on tractors and machines can operate, e. g. fertiliser broadcasters or sprayers.

**Fig. 26.1**

Tramlines are marks (Fig. 26.1/1), in which no seed is being sown. **The spacing of the marks** corresponds to the wheel base of the husbandry tractor. For creating the marks the seed supply to the tramlining coulters is interrupted. **The spacing of the tramlines** corresponds e. g. to the working width of a sprayer (Fig. 26.1/2) or of a fertiliser broadcaster.

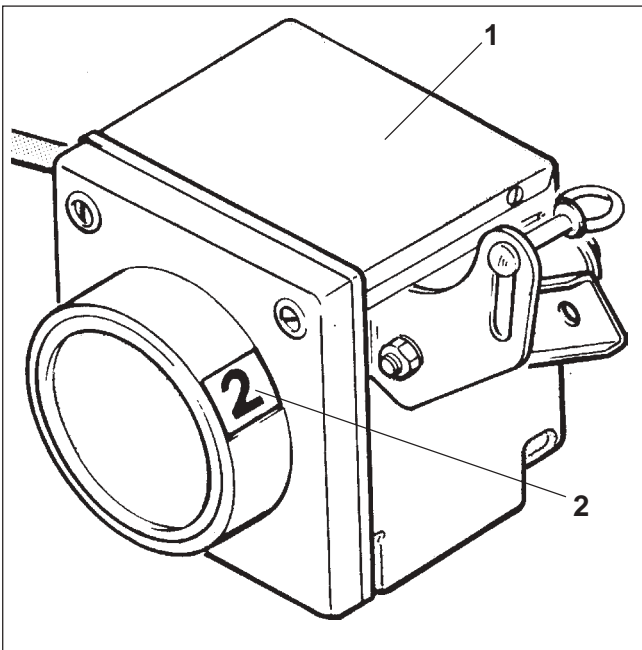


Fig. 26.2

The rhythm for creating tramlines is being controlled by the switch box (Fig. 26.2/1). The number (Fig. 26.2/2) in the switch box indicates to the tractor operator the switching position of the switch box. When the switch box shows "3" (see Fig. 26.1) the switch box shows after starting the operation the figures 2, 0, 1, 2, 0, 1 etc. When the switch box shows the figure "0" the drill is creating a tramline.

The spacing of the tramline depends on the switching by the switch box and on the working width of the seed drill.:

Switching rhythm of the Switch box	Working width of the seed drill				
	2,5 m	3,0 m	4,0 m	4,5 m	6,0 m
	Spacing of the tramlines				
3		9 m	12 m		18 m
4	10 m	12 m	16 m	18 m	24 m
5		15 m	20 m		30 m
6	15 m	18 m	24 m	27 m	
7		21 m	28 m		
8	20 m	24 m	32 m		
9		27 m			
2	10 m	12 m	16 m	18 m	
6 plus	15 m	18 m	24 m	27 m	36 m
5 / 13 right hand			18 m		
5 / 13 left hand					

Fig. 26.3

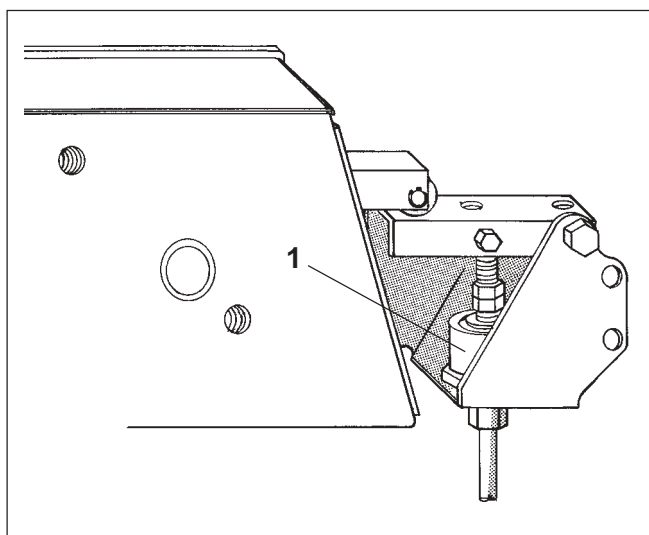


Fig. 26.4

The hydraulic ram (Fig. 26.4/1) inside the switch box is operated by a single acting control valve in the tractor cab. If the control valve is actuated on the edge of the field, the switch box sprocket is shifted ahead and the next figure (Fig. 26.5/1) appears in the window.

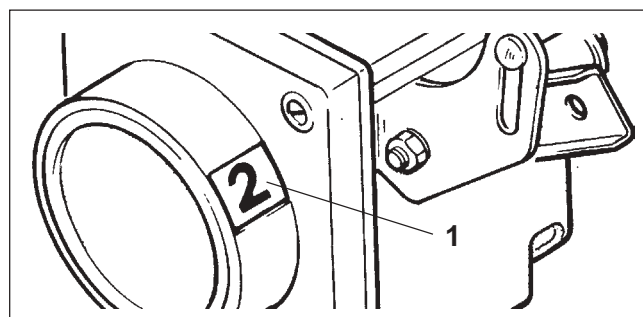


Fig. 26.5



The hydraulically actuated markers and the hydraulically actuated switch box for the tramline control are coupled to one another and connected to the connecting valve I (Fig. 26.6/1).

If the control valve is actuated when turning on the headland, the markers are switched over and the switch box switches to the next figure.

When the switch box shows the number "0" the shutter slides inside the distributor head are closing the outlets to the hoses leading to the tramlining coulters and the marker discs of the pre-emergence markers (if existing) are lowered.



When actuating the control valve, the hydraulic rams of the hydraulically actuated markers and the hydraulically actuated switch box are applied with pressure simultaneously!

Ask people to leave the area of danger!

Danger of injury on moving parts!

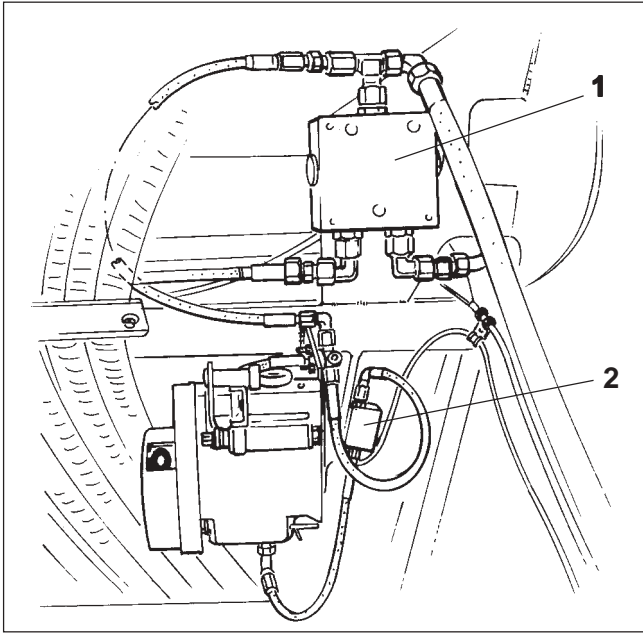


Fig. 26.6

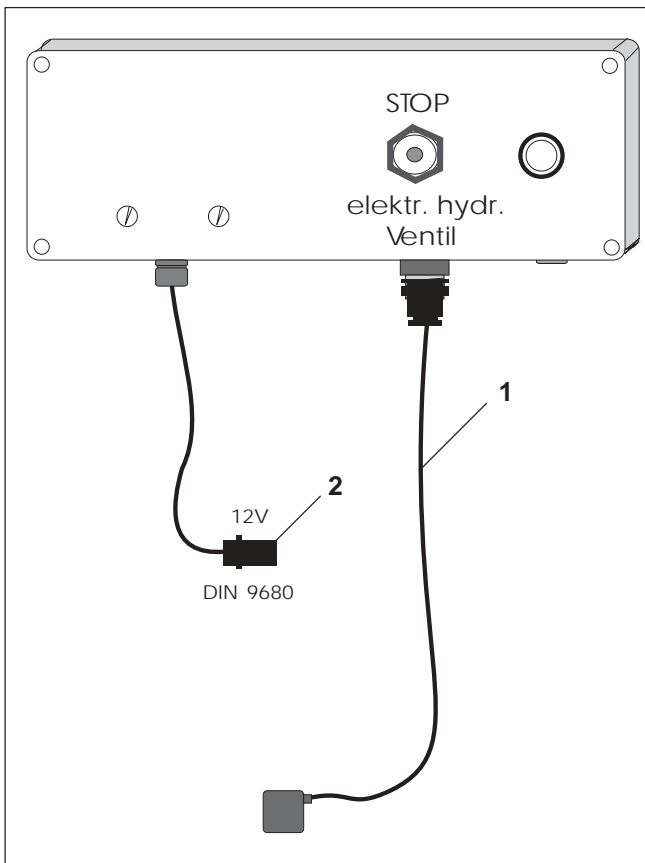


Fig. 26.7

26.1 Fitting

On delivery of your seed drill the tramlining coulters are set to the wheel marks of your husbandry tractor and the switch box has been equipped with the switching rhythm as ordered by you.

The hydraulic ram inside the switch box is connected to the connecting valve I (Fig. 26.6/1), which your seed drill is also equipped with. Connect the connecting valve I to a single acting control valve on the tractor.

Affix the control box (Fig. 26.7) of the solenoid valve in the tractor's cab.

Affix control box (Fig. 26.7) and the solenoid valve (Fig. 26.6/2) by cable (Fig. 26.7/1) .

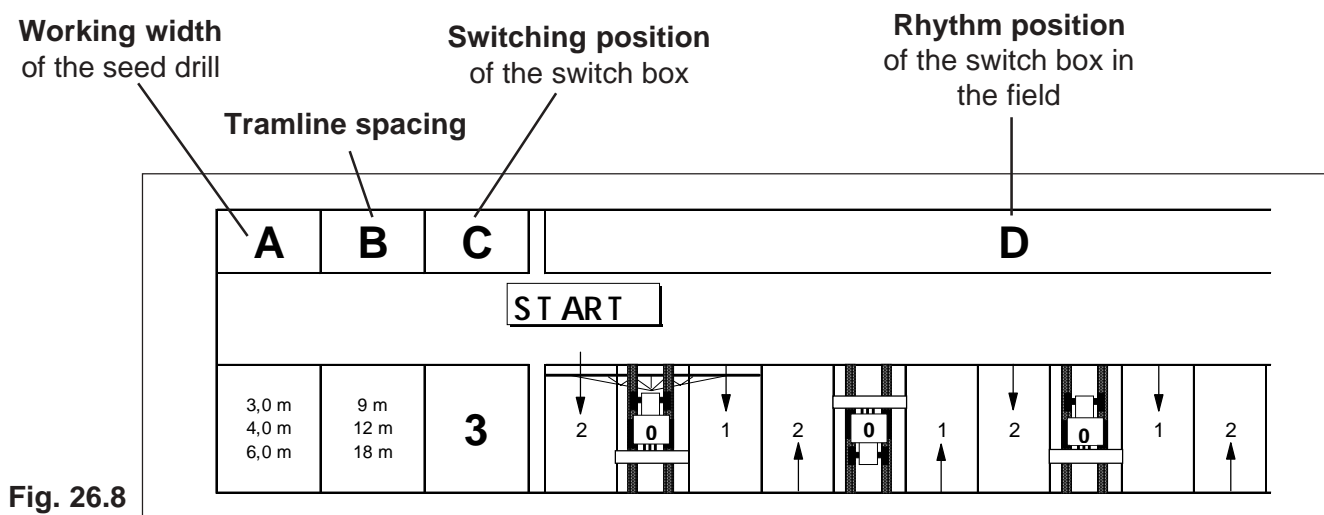


Place cable in such a manner that it cannot be damaged during operation.

Connect the plug (Fig. 26.7/2) of the control box to a 12 V-socket of the tractor.

26.2 Settings prior to the begin of operation

Prior to starting the operation the switch box should be set to the correct figure (Fig. 26.5/1). On the pages 13 - 6 and 13 - 7 you will find examples for creating tramlines. The columns "A" to "D" include:



Move to column "C" of the control of your switch box and set the first figure in column "D" below "START" in the window of the switch box - as described on page 26-8.

Example: Figure 26.8 shows creating tramlines with a **3-fold rhythm**.

In column "C" you move to figure "3" (3rd rhythm). Now change to column "D". The operation in the field starts with the first figure below the letters "START" in column "D". In our example with "3-fold-rhythm" the operation starts with the figure "2". Now set the determined figure before starting the operation in the control window of the switch box.

Example for creating tramlines

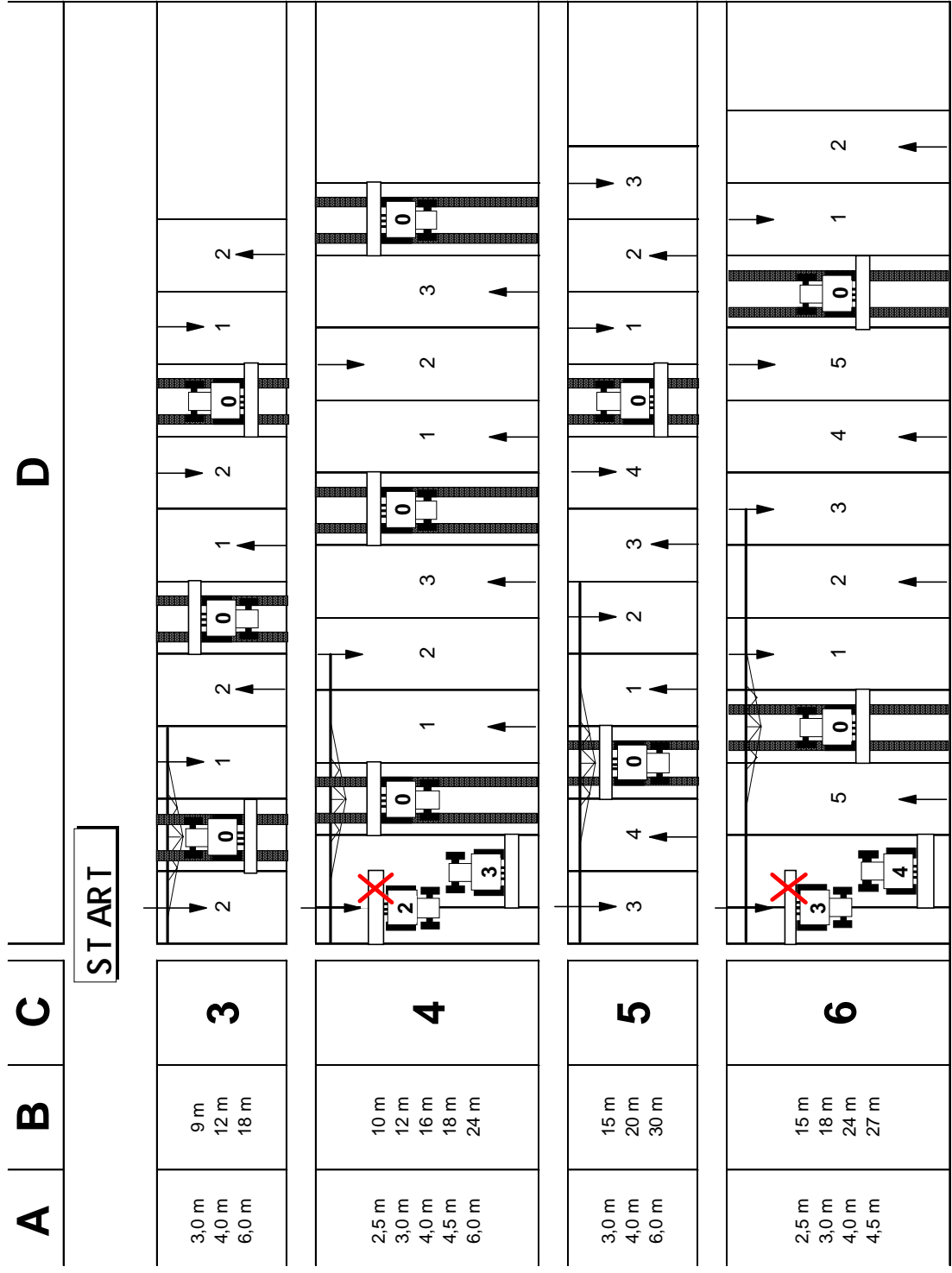


Fig. 26.9

Example for creating tramlines

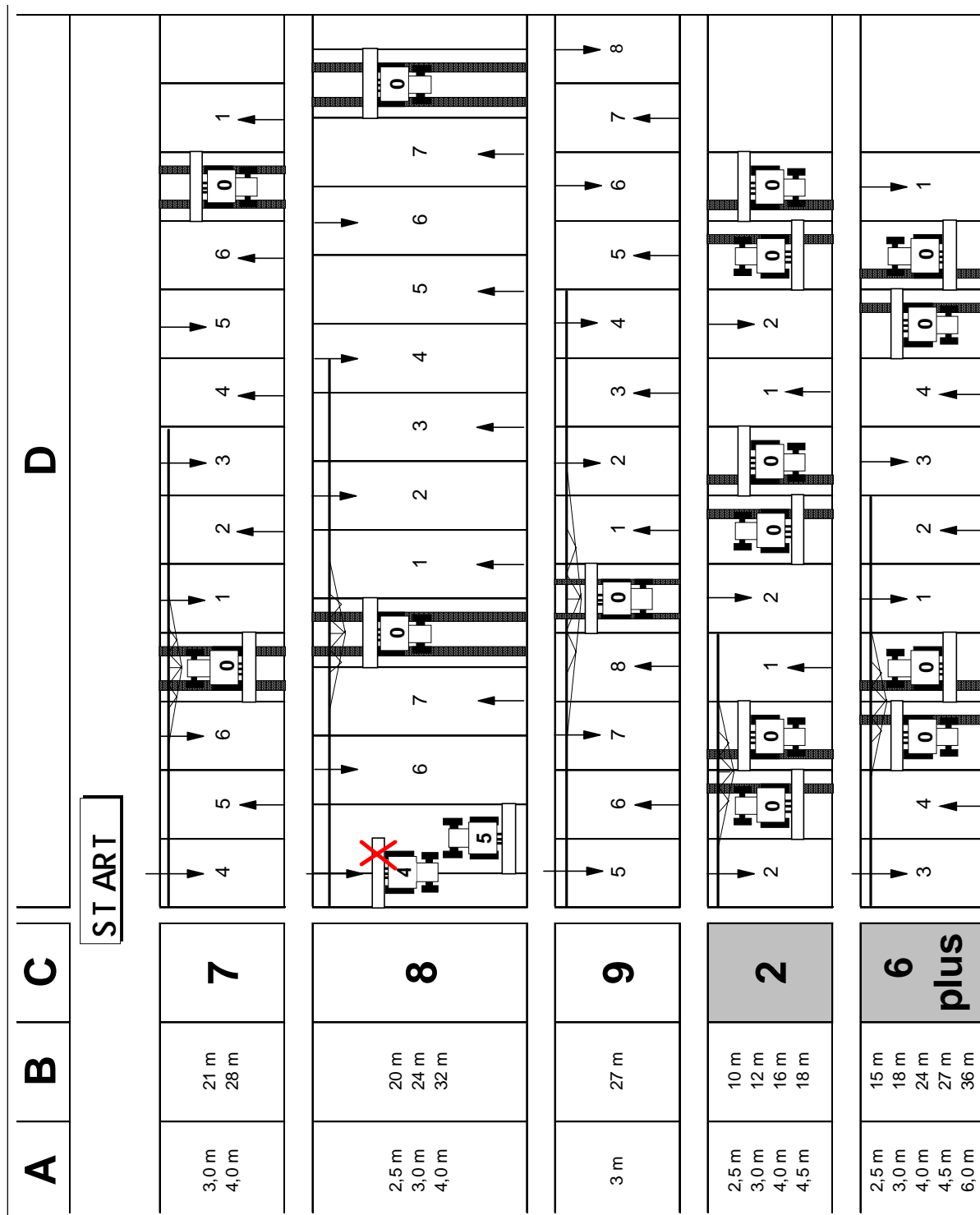


Fig. 26.10

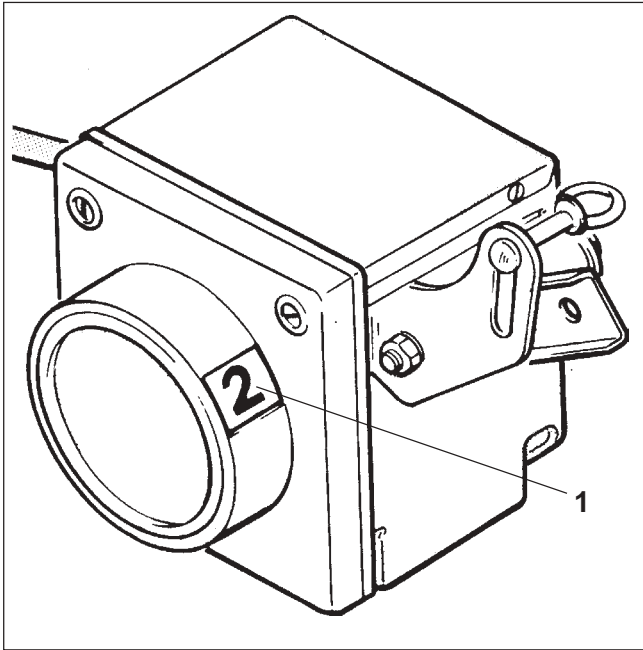


Fig. 26.11

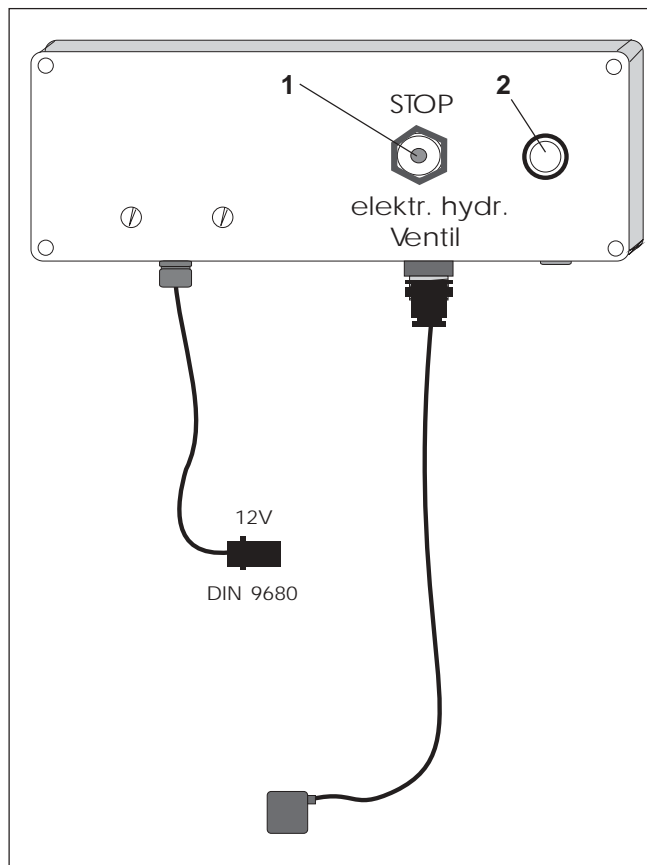


Fig. 26.12

For setting the correct figure (Fig. 26.11/1) actuate control valve in the tractor cab so often until the correct figure is shown in the window of the switch box.



Danger of injury! When actuating the control valve also the markers are actuated!

Ask people to leave the area of danger!



Please pay attention that **the desired marker** is lowered when you have set the switch box onto the correct figure - otherwise actuate control valve once more. To prevent that the switch box of the tramlining unit switches on, the lever (Fig. 26.12/1) of the solenoid valve inside the tractor cab has been set to "**Stop**" before. In this position the red control lamp (Fig. 26.12/2) is lighting up.

After having lowered the correct marker the solenoid valve has to be set into position "**electro hydraulic valve**" ("elektr. hydr. Ventil").

26.3 Switching off tramlining control

The hydraulically actuated markers are coupled to the hydraulically actuated switch box for the tramlining control. In case no tramlines should be created, however, the markers should be operating, the switch box should not switch on when actuating the control valve.

To prevent that the switch box of the tramlining unit is switching on, the lever (Fig. 26.12/1) of the solenoid valve inside the tractor cab has to be set in position "**Stop**". In this position the red control lamp (Fig. 26.12/2) is lighting up..



In case the tramlining control has been switched off the figure (Fig. 26.11/1) in the switch box window must **not show "0"** as otherwise tramlines will continuously be created.

26.4 Hints for creating tramlines with 4-, 6- and 8-fold switching rhythm

On the pages 26-6 and 26-7 the creating of tramlines with 4-, 6- and 8-fold switchings is illustrated. The seed drill operates during the **first run on the field** with half its working width. As it is impossible to operate the seed drill **AD-P up to 4,5 m working width** with their half working width, the **first run in the field** may also start with the creating of a tramline (see Fig. 26.13):

- Before the beginning the first run in the field, set the switch box to figure "0".
- The seed drill always operates with the full working width.
- During the first run in the field, fertiliser spreaders spread to one side with boundary spread disc or border spreading devices.
- During the first run in the field, one boom section of field sprayers will be switched off.

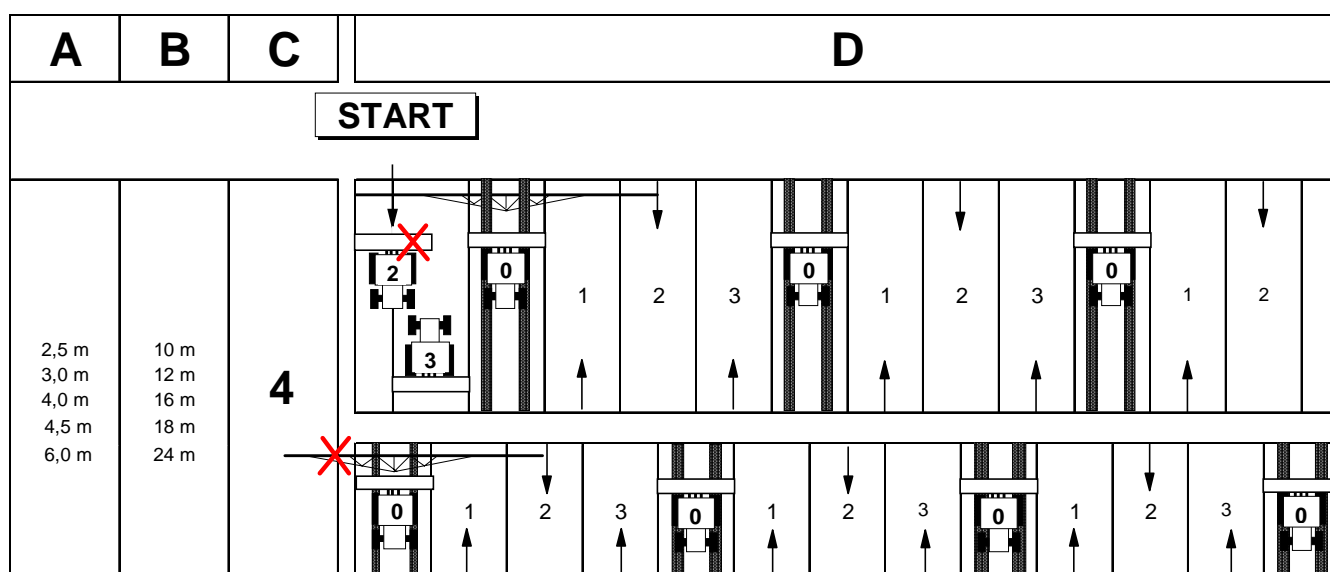


Fig. 26.13



Please do not forget **after the first run in the field** to reset the fertiliser broadcaster or the sprayer to their full working width.

26.5 Hints for creating tramlines with 2-fold and 6-plus switching rhythm

The tramlines (see Figure 26.14) are created during one travel in the field to and fro.

The flow of seed to the coulters responsible for creating tramlines must only be interrupted on seed drills with

- 2-fold switching rhythm only on the **right hand side** of the drill
- 6-plus switching rhythm only on the **left hand side** of the drill

The operation has always to start on the right hand side of the field.

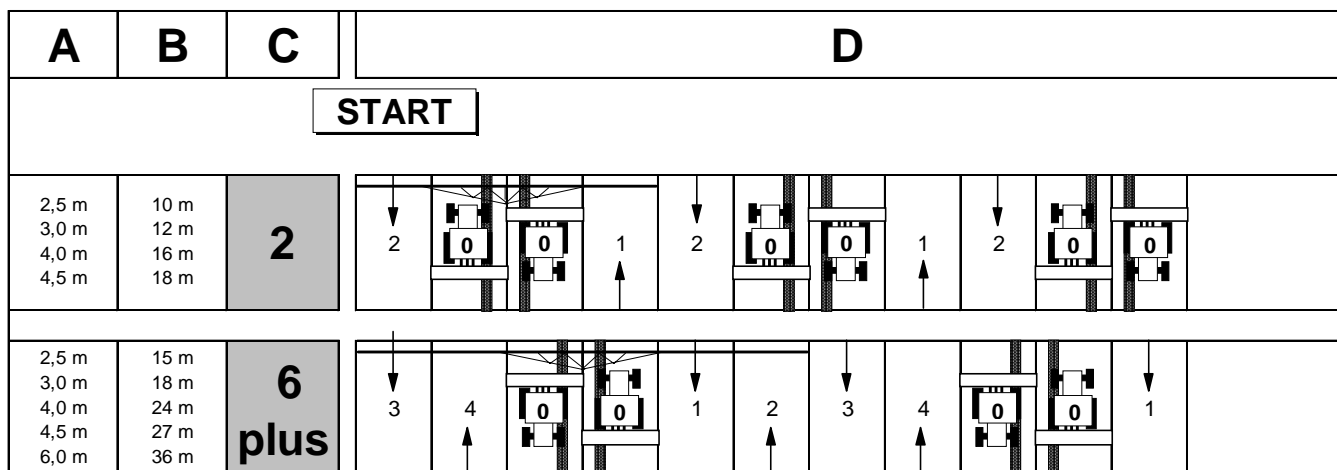


Fig. 26.14

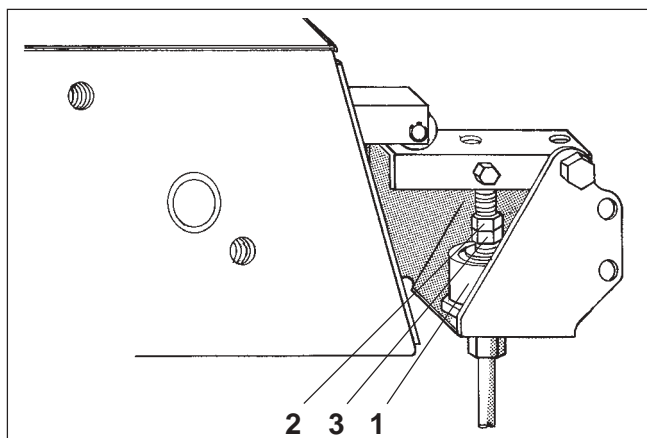


Fig. 26.21

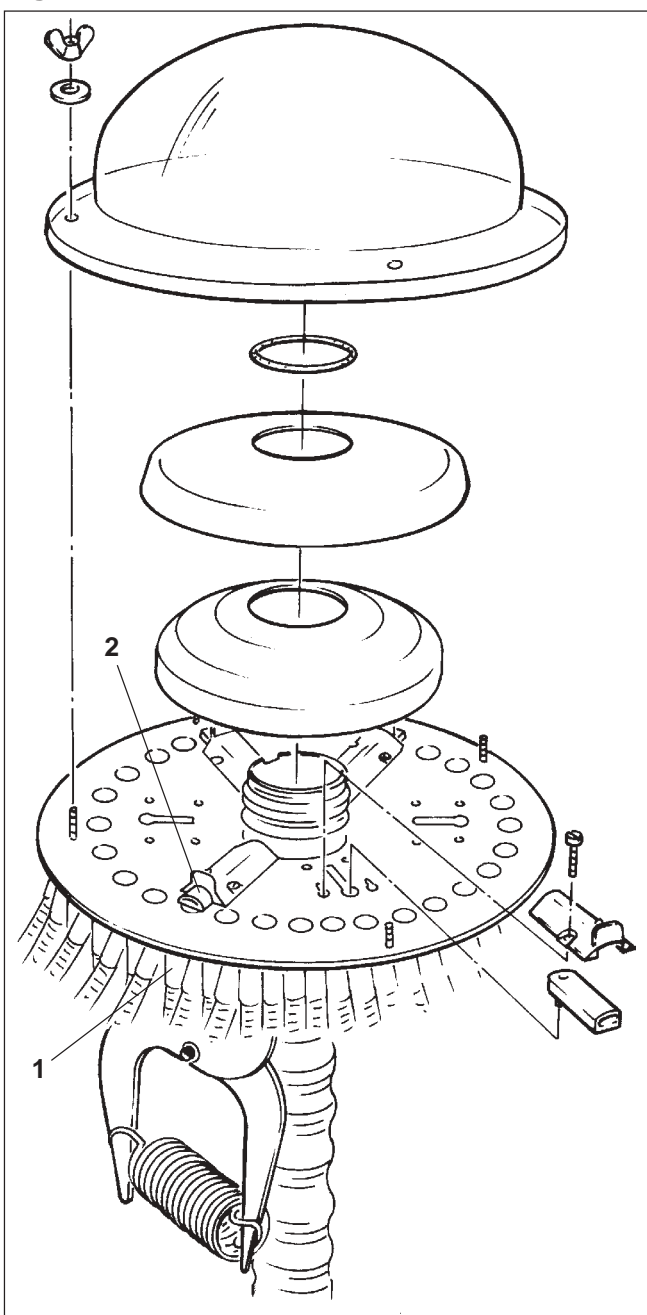


Fig. 26.22

26.6 Checking the function of the switch box

If the hydraulic ram (Fig. 26.21/1) does not switch over the switch box, the following settings should be conducted:

- Apply hydraulic pressure from the tractor cab to the hydr. ram (Fig. 26.21/1) .



Before actuating the control valve ask people to leave the area of danger!

- Slacken counter nut (Fig. 26.21/2)
- Turn hex. nut (Fig. 26.21/3) to the left hand (counter clockwise) until the switch box audibly switches over
- Turn hex. nut (Fig. 26.21/3) two further complete turns and retighten counter nut
- Actuate control valve and check whether the hydraulic ram in the switch box switches to the next sequence.

26.7 Setting the tramline to the wheel marks of the husbandry tractor

Tramlines are marks in the crop in which no seed is sown. **The spacing of the marks** has to be set to correspond to the track width of the husbandry tractor. On supply of the seed drill the tramline kit has been set to the wheel marks of your husbandry tractor.

However, should it be necessary - e. g. when purchasing a new husbandry tractor - to set your tramline system onto the wheel marks of the new tractor, the seed tubes (Fig. 26.22/1) have to be interchanged for one another on the distributor head. Thereby it should be noted that the tramlining coulters are being fixed to such outlets which can be shut by the shutter slides (Fig. 26.22/2).

For creating a tramline up to 3 seed outlets per track can be shut off in the distributor head.



Seed drills with 2-fold switching rhythm

have to be equipped with tramlining coulters only on the right hand side of the seed drill.



Seed drills with 6-plus switching rhythm

have to be equipped with tramlining coulters only on the left hand side of the seed drill.

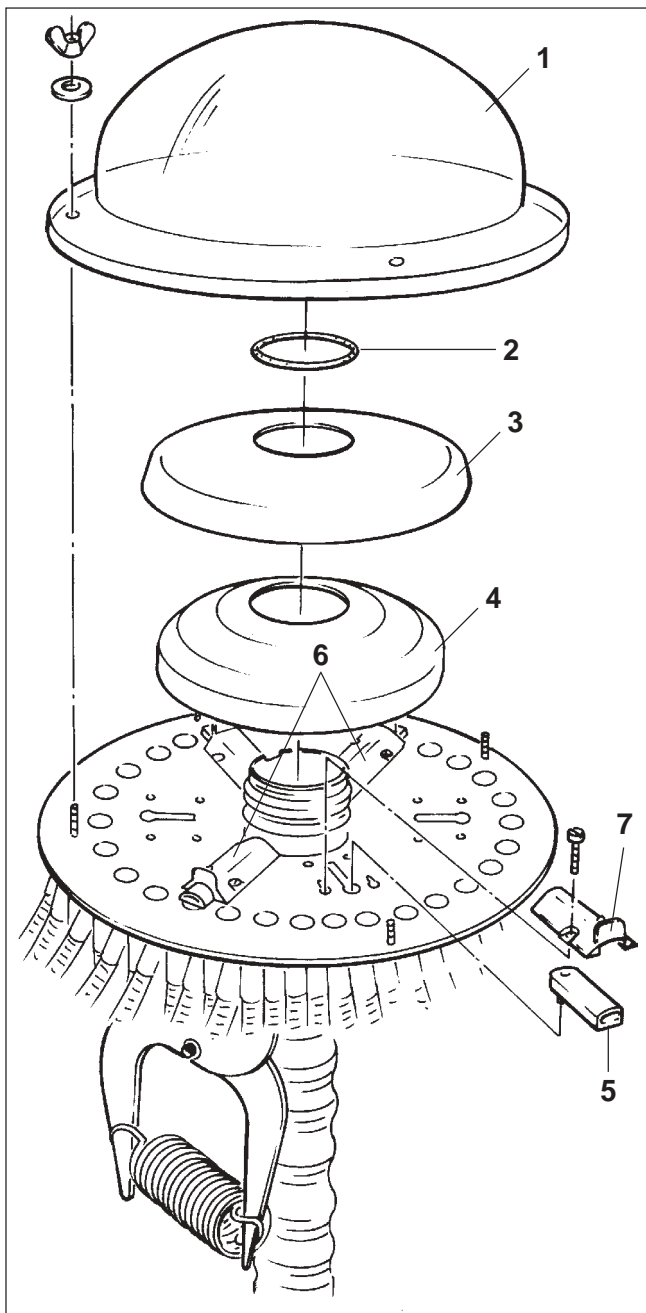


Fig. 26.23

26.8 Setting the width of the wheel marks

If it is wanted to change the number of tramlining coulters, fit as many shutter slides to the distributor head as tramlining coulters are required. The shutter slides interrupt the flow of seed to the tramlining coulters when creating tramlines.

Mounting respectively demounting shutter slides:

- Relieve pressure from hydraulic system
- Demount distributor outer hood (Fig. 26.23/1), O-Ring (Fig. 26.23/2), distributor inner hood (Fig. 26.23/3) and foam material insert (Fig. 26.23/4) .

It is possible to fit up to 6 shutter slides. Always two shutter slides (Fig. 26.23/6) should be fitted on the base plate opposing each other. For mounting resp. demounting the shutter slide the shutter slide tunnel (Fig. 26.23/7) has to be removed.

After the mounting is completed, check functions of tramlining control.



When your seed drill has been equipped with a **pre-emergence marker kit**, set the spacing of its marker discs accordingly.

26.9 Equipping the switch box with another switching rhythm

The spacing of the tramlines (see table Fig. 26.3) corresponds to the working width of the fertiliser broadcaster or of the sprayer. The switch box (Fig. 26.39) controls the rhythm of the tramlines. If it is necessary to create tramlines of a different rhythm, the divisor wheel (Fig. 26.39/1) inside the switch box should be exchanged or converted.

For the 2-, 3-, 4- and 6-fold switching rhythm the divisor wheel (Fig. 26.39/1) must not be exchanged. For converting the switch box to another rhythm control within this group, only the switching rollers have to be placed resp. added in another order as described in para. 26.10.

For re-equipping the switch box to a 5-, 7-, 8- and 9-fold switching rhythm the divisor wheel has always to be exchanged (see para. 26.12).

26.10 Converting the switch box of a 2-, 3-, 4- and 6-fold switching rhythm to another rhythm of this group

For converting the switch box from a 2-, 3-, 4- and 6-fold switching control to another rhythm of this group, the switching rolls have to be placed into another order or to be added on the divisor wheel.

- Relieve hydraulic system from pressure and pull the

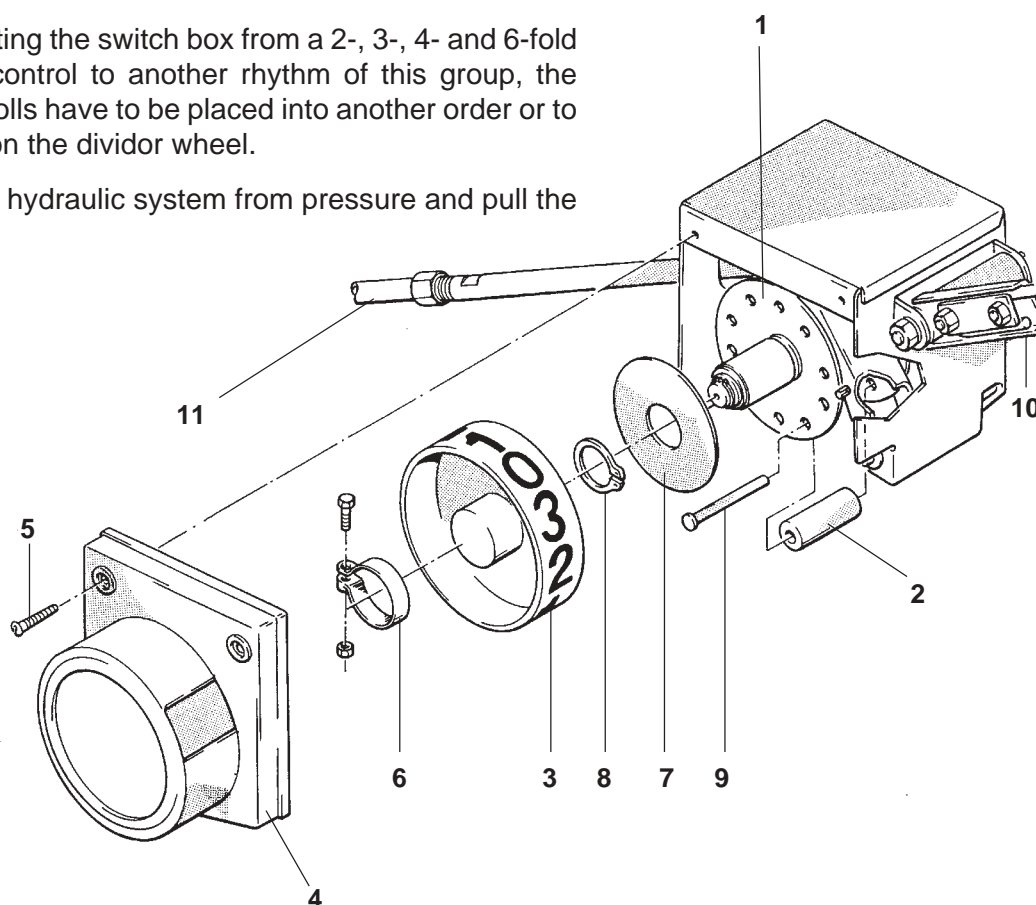


Fig. 26.39

- plug from the connecting valve socket I on the tractor.
- Take off protective cover (Fig. 26.39/4) after taking out the two tin screws (Fig. 26.39/5).
- Slacken clamp (Fig. 26.39/6) and pull off together with the display wheel (Fig. 26.39/3)
- Remove the securing disc (Fig. 26.39/7) only after removal of the circlip (Fig. 26.39/8).
- The free accessible shifting rollers (Fig. 26.39/2) are to be inserted into the divisor wheel as described in para. 26.11 after pulling out the pins (Fig. 26.39/9).

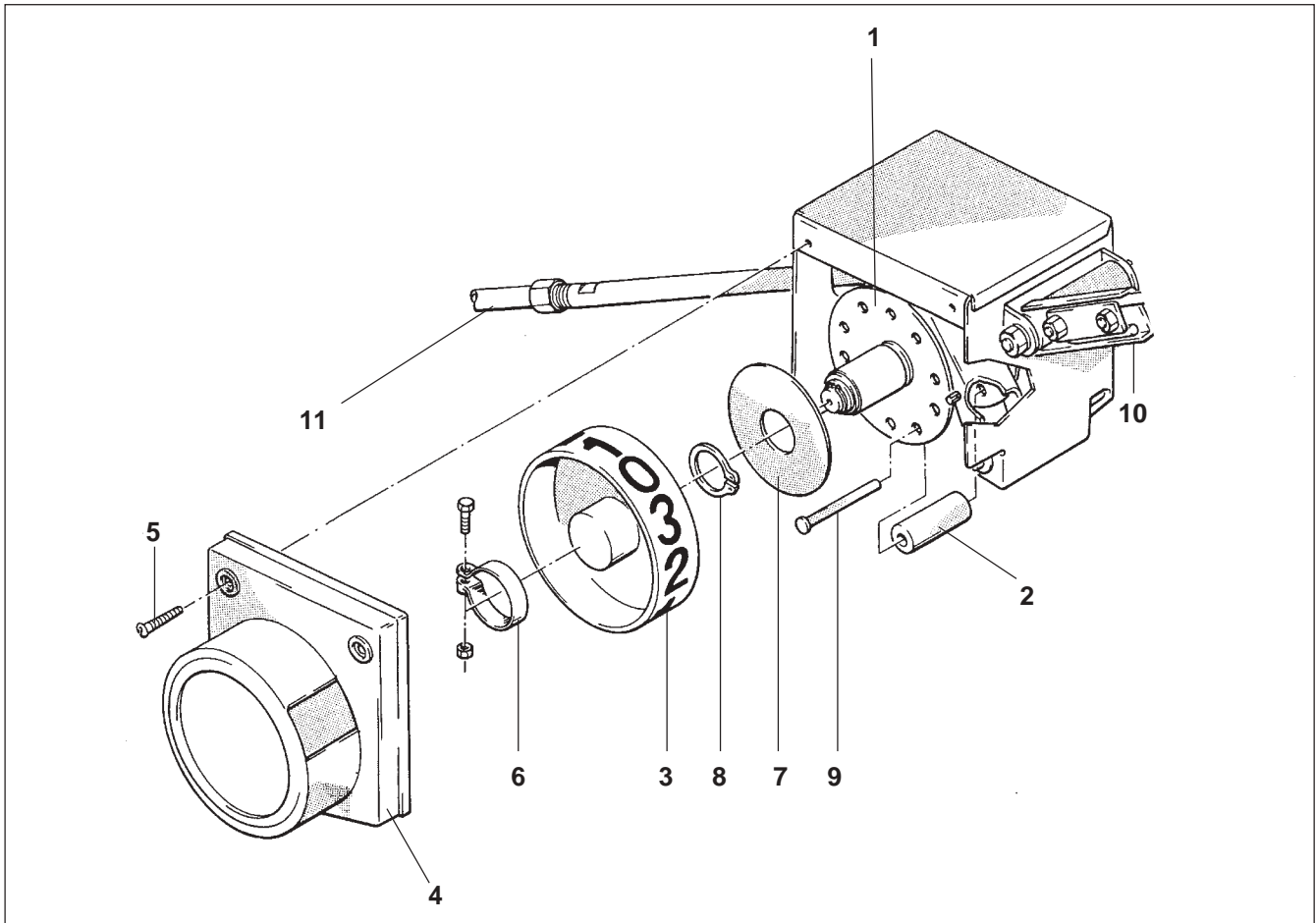


Fig. 26.40

Assembly of the tramline switch box:

- Fit safety disc (Fig. 26.40/7) and circlip (Fig. 26.40/8) .
- Apply new figure sticker onto display wheel (Fig. 26.40/3), as described in para. 26.11 and first loosely affix to the divider wheel with the aid of the clamp (Fig. 26.40/6) .
- Press lever (Fig. 26.40/10) so often downwards until the clamping tube (Fig. 26.40/11) is tightened and kept in position by a shifting roller (Fig. 26.40/2). Hold the protective cover (Fig. 26.40/4) against the switch box and turn the display wheel (Fig. 26.40/3) until the figure “0” can be seen inside the window of the protective cover.

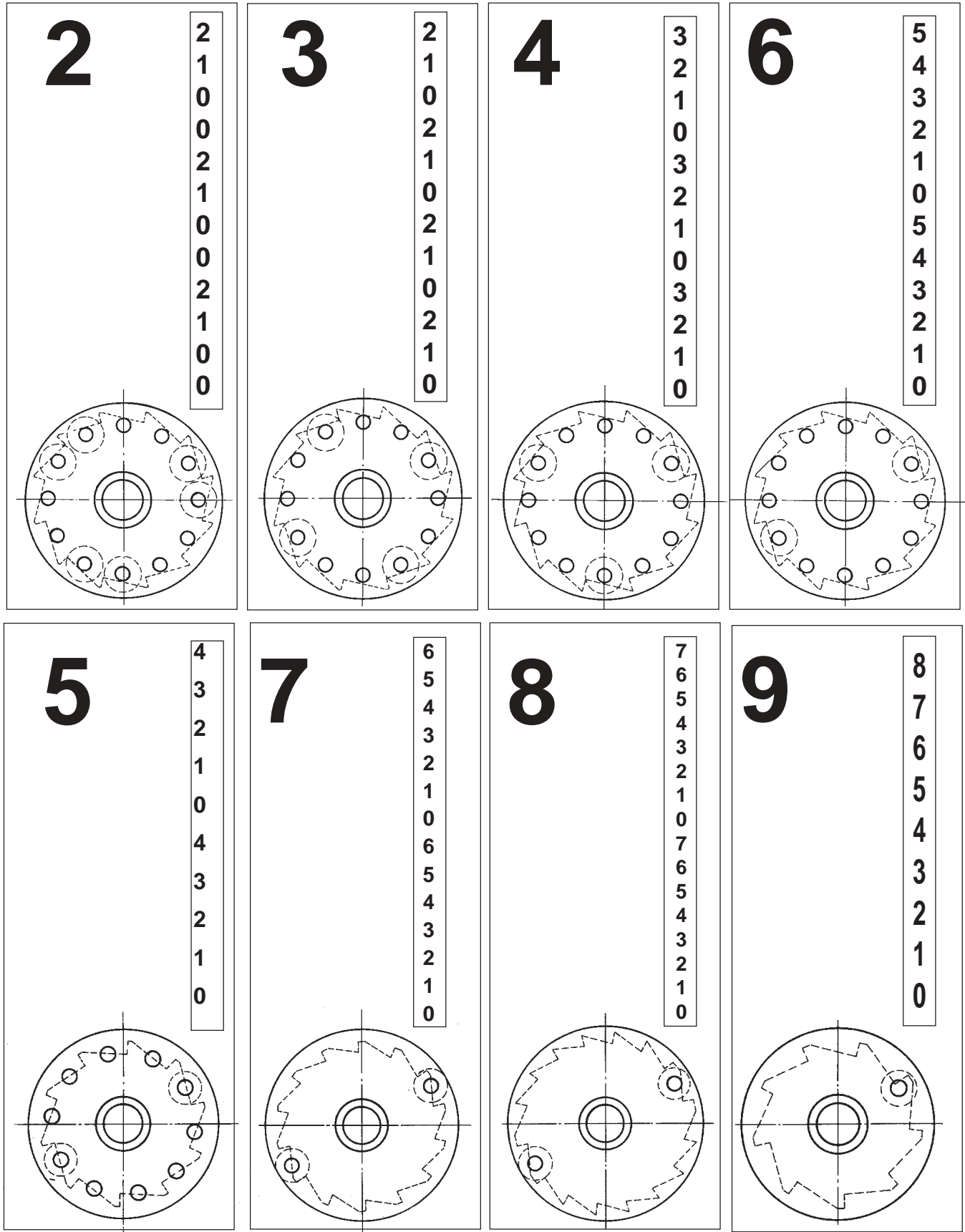
When shifting over the **2-fold switch over system** due to its two consecutively following shifting rollers a "0" will appear again and the clamping tube has become tightened by the switching roller.

- Clamp down the display wheel (Fig. 26.40/3) with the clamp (Fig. 26.40/6) and fit the protective cover (Fig. 26.40/4).
- Press lever (Fig. 26.40/10) so often downwards, until the display wheel (Fig. 26.40/3) has made at least three full turns and check, whether the switch box operates properly, e. g. whether in every “0”-position the clamping tube (Fig. 26.40/11) is pulling.

26.11 Dividor wheels and sequence checking stickers

Figure 26.41 shows the dividor wheels and checking stickers with the corresponding shifting sequences of the switch box. The figure "2" on the upper left hand in figure 26.41 indicates the type of dividor wheel and the checking sticker in the two-fold switching sequence.

Fig. 26.41



26.12 Conversion of the switch box in a 5-, 7-, 8- or 9-fold switching rhythm or from one of these switching rhythms into another

A new divisor wheel (Fig. 26.50/1) has to be inserted into the switch box when converting

- from a 2-, 3-, 4- or 6-fold switching rhythm onto a 5-, 7-, 8- or 9-fold switching rhythm.
- from a 5-, 7-, 8- or 9-fold switching rhythm onto a 2-, 3-, 4- or 6-fold switching rhythm.
- from a 5-, 7-, 8- or 9-fold switching rhythm onto another rhythm of this group.

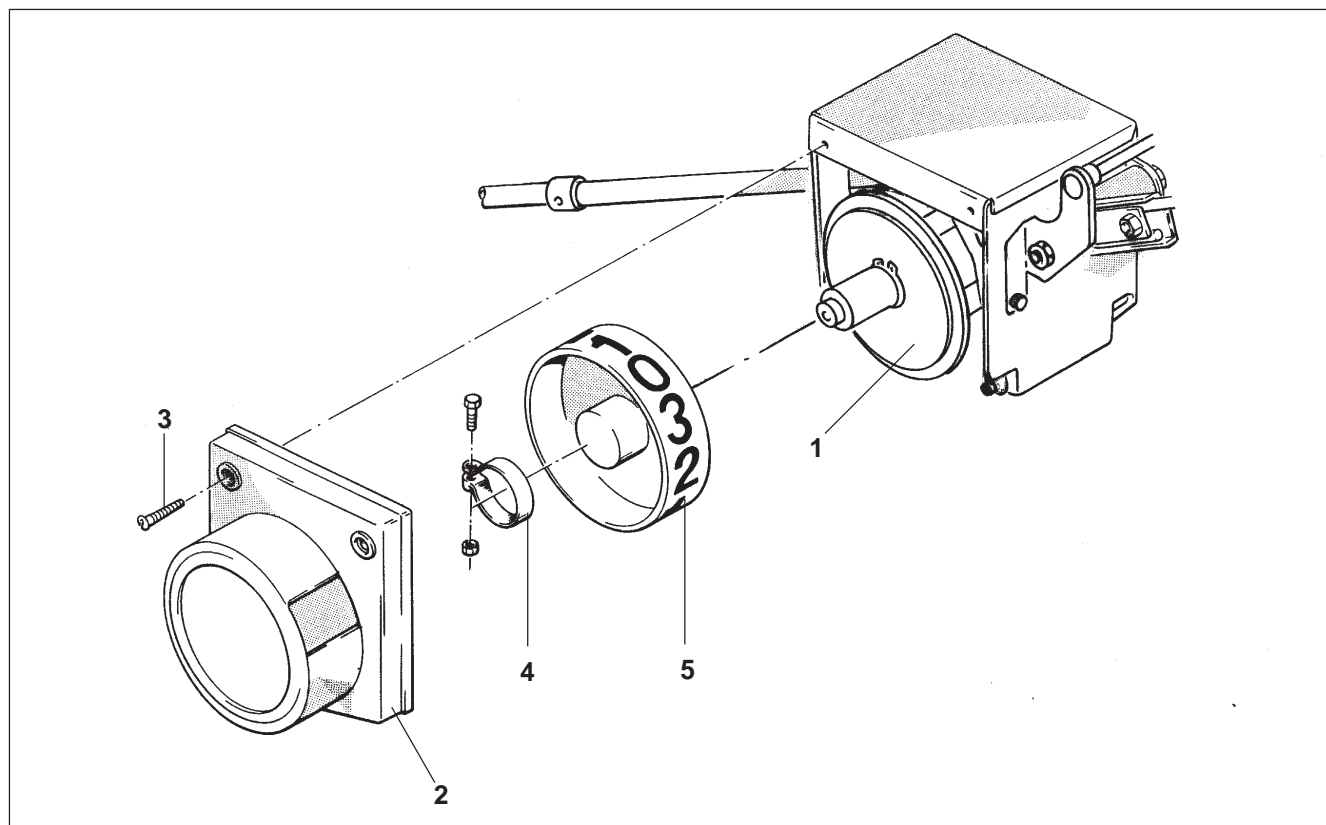
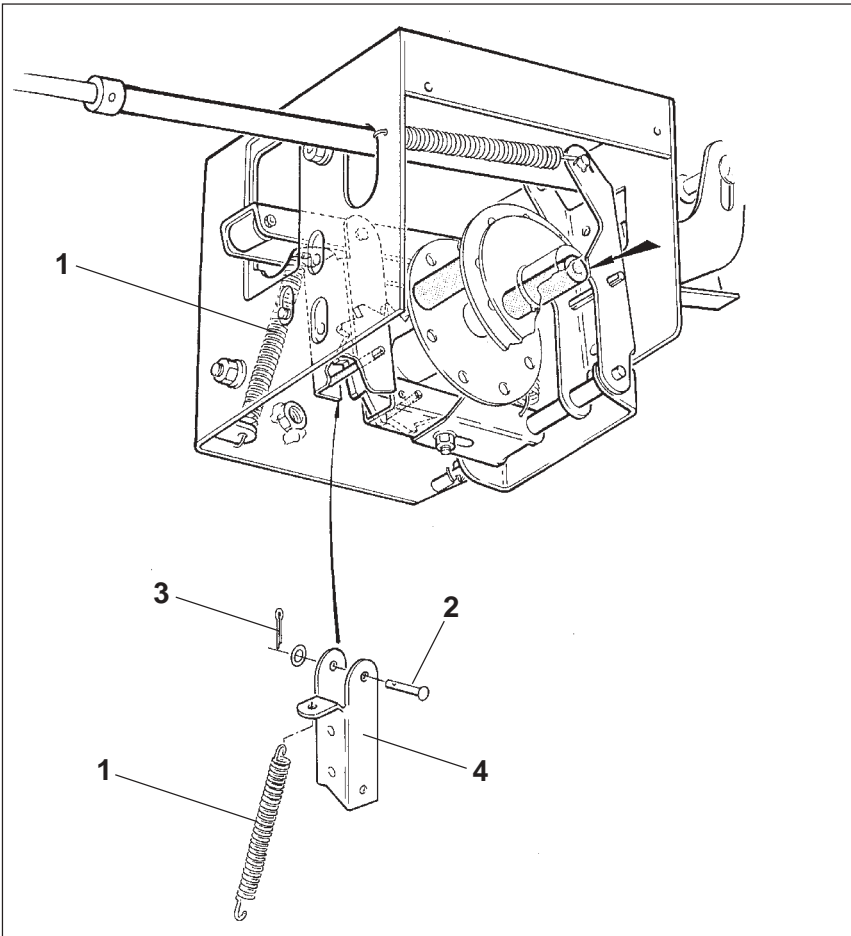


Fig. 26.50

- Relieve hydraulic system from pressure and pull off plug from the connecting valve I of the tractor socket.
- Remove protective cover (Fig. 26.50/2) after removal of two tin screws (Fig. 26.50/3)
- Slacken clamp (Fig. 26.50/4) and pull off together with the display wheel (Fig. 26.50/5) .

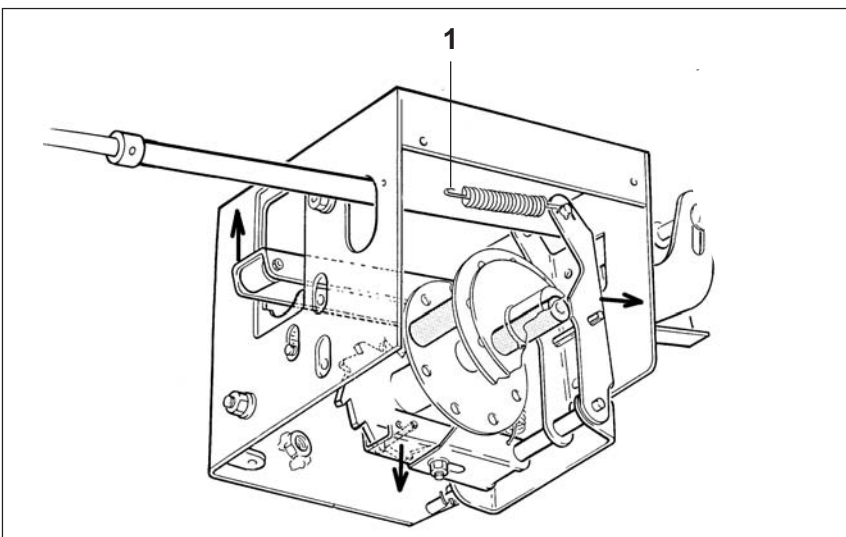


Unhook coil spring (Fig. 26.51/1).

After removal of the cotter pin (Fig. 26.51/2) pull out pin (Fig. 26.51/3)

Remove pulling ratchet (Fig. 26.51/4) .

Fig. 26.51



Unhook coil spring (Fig. 26.52/1) .

Fig. 26.52

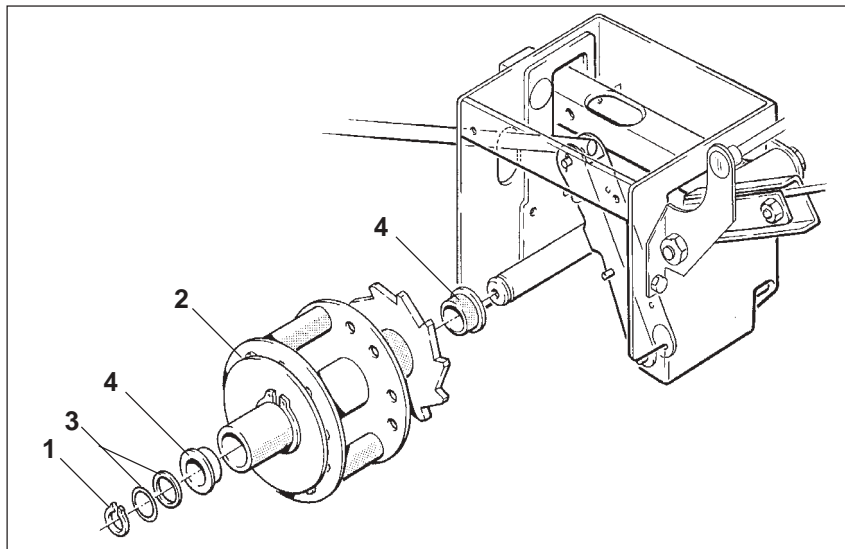


Fig. 26.53

Remove circlip 15x1,5 (Fig. 26.53/1).

Press in direction of the arrow the arrow marked parts in Fig. 26.52 and pull off the divisor wheel (Fig. 26.53/2) together with the adjustment washers (Fig. 26.53/3) and the collar bushings (Fig. 26.53/4) off the switch box main shaft.

Fitting the new divisor wheel

As stop nut (Fig. 26.54/1) usually a mushroom head bolt **M 6 x 20**, DIN 603 should be used for the ratchet retainer (Fig. 26.54/2). Before fitting the divisor wheel for the **5-fold switching rhythm** this bolt has to be exchanged for a flat mushroom head bolt **M 6 x 30**, DIN 603.

When converting to a **8-fold switching rhythm** the advice in para. 26.13 should be noted.

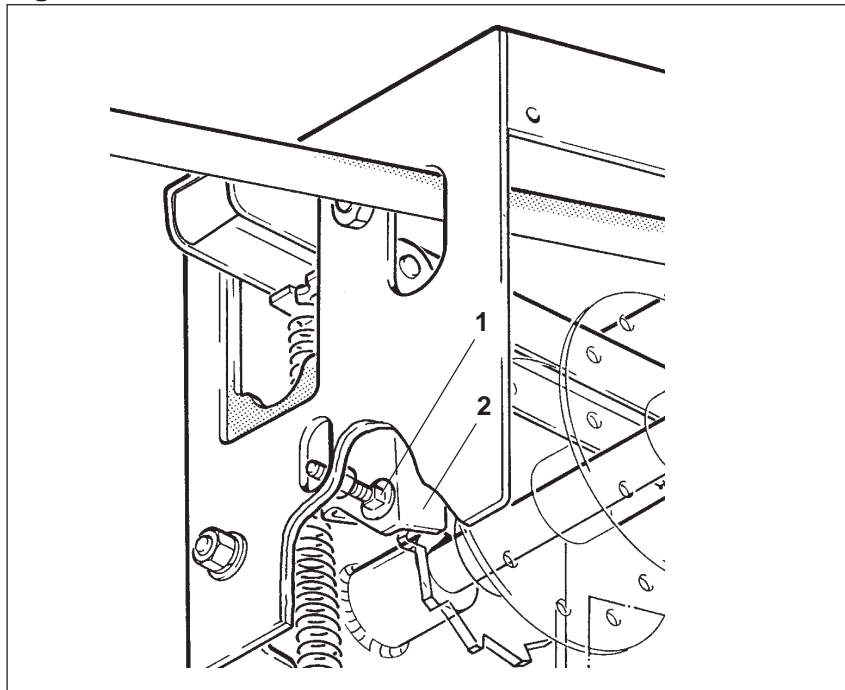


Fig. 26.54

Press the parts which are marked by an arrow in Fig. 26.52 in direction of the arrow.

Apply grease to the running surface of the collar bushings (Fig. 26.55/4) and push it together with a new divisor wheel (Fig. 26.55/2, see para. 26.11) onto the switching shaft and secure with washers (Fig. 26.55/3) and circlip (Fig. 26.55/1).

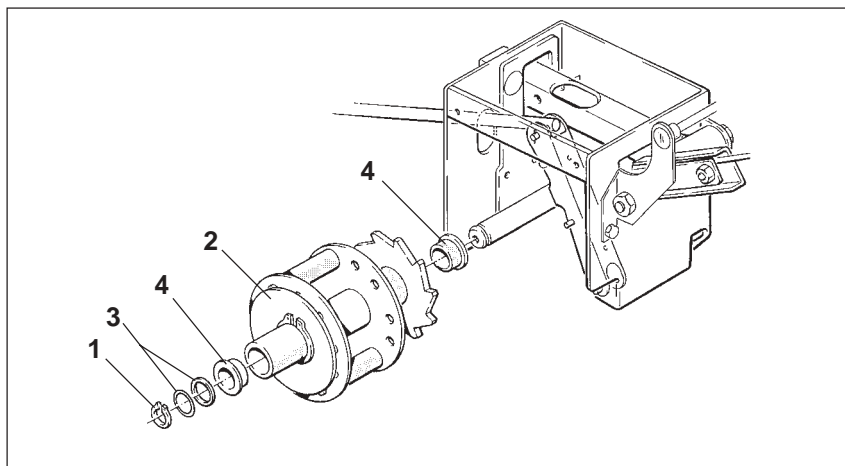


Fig. 26.55

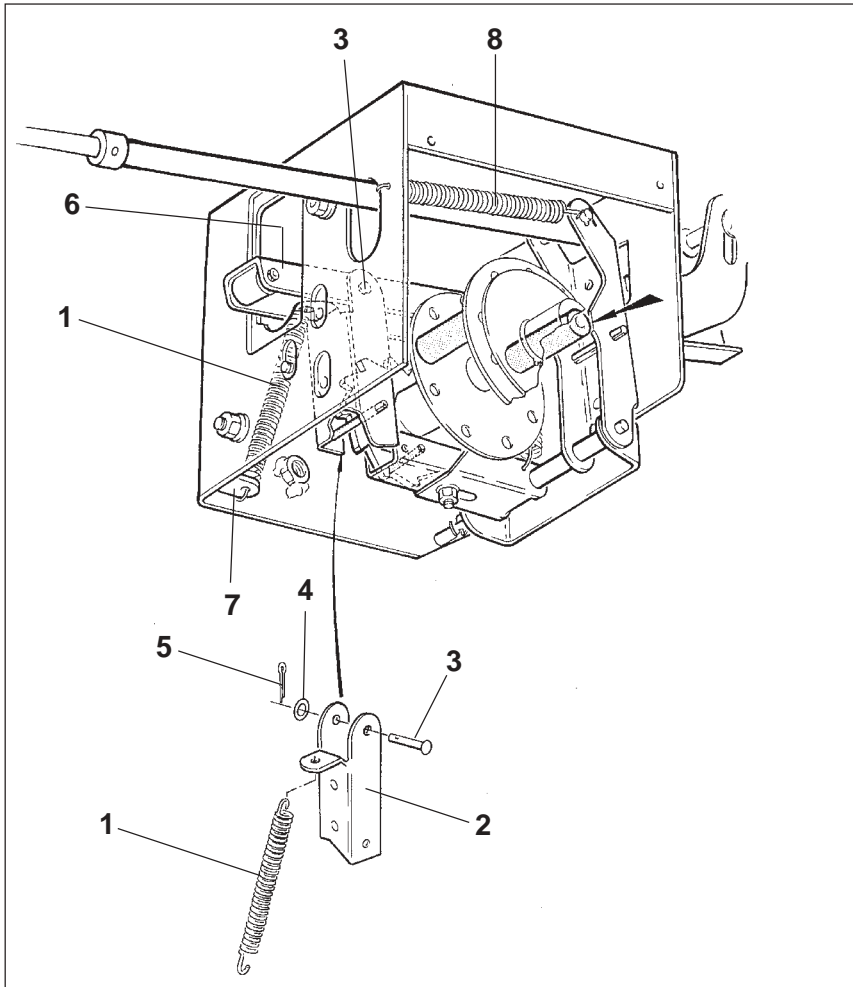


Fig. 26.56

Hook coil spring (Fig. 26.56/1) into the hole provided on the pulling ratchet (Fig. 26.56/2) .

Fit pulling ratchet (Fig. 26.56/2) with safety pin (Fig. 26.56/3), disc (Fig. 26.56/4) and new split pin 1,6 x 16, DIN 94 (Fig. 26.56/5) to lever (Fig. 26.56/6).

Hook coil spring (Fig. 26.56/1) into the hole provided at the ratchet (Fig. 26.56/7) of the stop plate.

Affix coil spring (Fig. 26.56/8) .

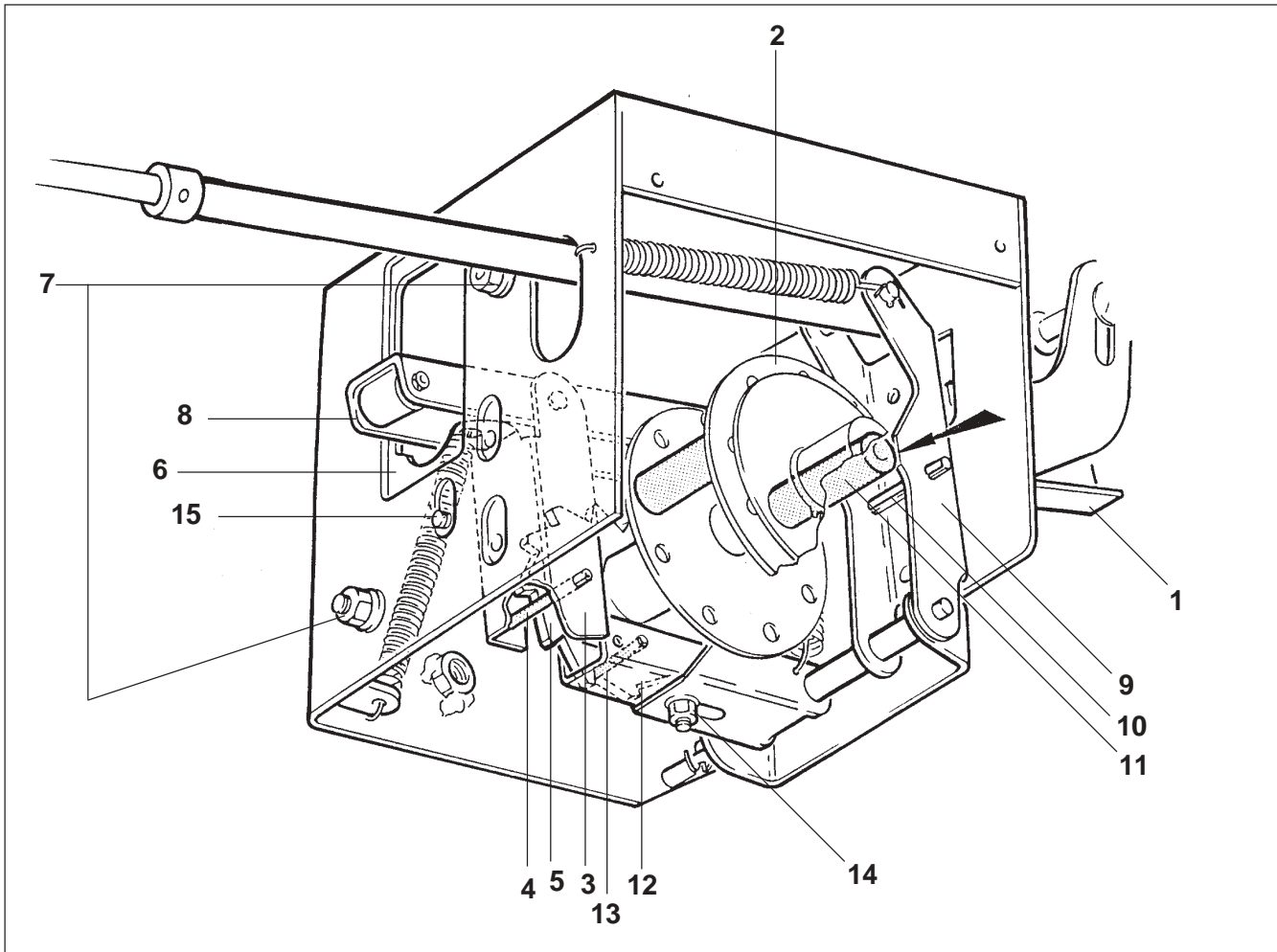


Fig. 26.57

Description of the function and base setting of the tramlining switch box



Before conducting any change to the base setting of the tramlining switch box, please check first, whether the switch box with the new dividor wheel functions in the basic setting as conducted by the factory. If the tramlining switch box does not operate properly during checking, the base setting should be conducted as follows:

When pushing down the lever (Fig. 26.57/1) the dividor wheel (Fig. 26.57/2) is being turned by the pulling ratchet (Fig. 26.57/3). The expansion bush (Fig. 26.57/4) turns the sprocket (Fig. 26.57/5). The stop plate (Fig. 26.57/6) limits the movement of the pulling ratchet (Fig. 26.57/3) and hereby the turning angle of the dividor wheel.

- Set the stop plate (Fig. 26.57/6) in such a way, that the dividor wheel is turned by one tooth division when actuating the lever. For this two hex. nuts (Fig. 26.57/7) have to be slackened and the stop plate has to be moved correspondingly either upwards or downwards. Set the stop plate sideways in such a way, that the lever (Fig. 26.57/8) is positioned centrally in the window of the stop plate. After finishing the setting tighten hex. nut (Fig. 26.57/7) firmly.

The tipping lever (Fig. 26.57/9) is resting with the expansion bush (Fig. 26.57/10) on the dividor wheel (Fig. 26.57/2).

- Press lever (Fig. 26.57/1) so often downwards until one shifting roller (Fig. 26.57/11) presses away the expansion bush (Fig. 26.57/10) from the divisor wheel (Fig. 26.57/2) .

The divisor wheel is set correctly, when all shifting rollers (Fig. 26.57/11) come to a rest to 2 to 3 mm from the highest point (see arrow in Fig. 26.57) of the tipping lever (Fig. 26.57/9). Conduct the setting on the retaining ratchet (Fig. 26.57/12) as follows:

- The divisor wheel will be arrested after actuating lever (Fig. 26.57/1) of the expansion bush (Fig. 26.57/13) of the retaining ratchet. The setting is conducted by shifting the retaining ratchet (Fig. 26.57/12). The prior slackened inner hex. bolt M 6x12 (Fig. 26.57/14) should be retightened after every new setting.

Checking the basic setting

Press lever (Fig. 26.57/1) so often downwards, until the divisor wheel has made at least four complete turns. Hereby it should be checked whether the shifting rollers (Fig. 26.57/11) come to a rest by 2 to 3 mm before the highest point of the tipping lever (see arrow in Fig. 26.57) and whether the divisor wheel is faultlessly turned.

The pulling ratchet (Fig. 26.57/3) must freely operate at every shifting procedure but it must not jump over. Adjust stopping bolt (Fig. 26.57/15) accordingly.

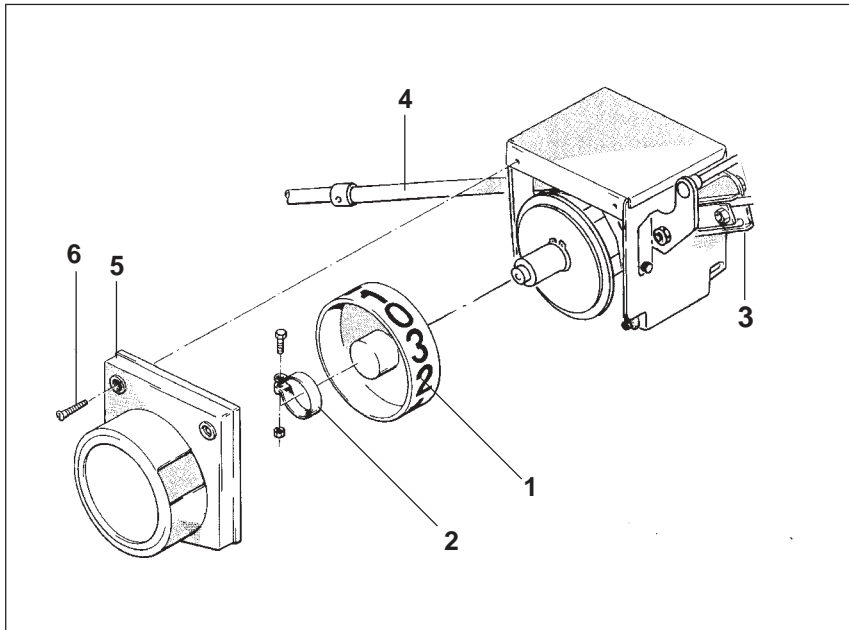


Fig. 26.58

Fitting the figure display wheel

- Fit figure display wheel (Fig. 26.58/1), as described in para. 26.11 after having applied the new figure sticker loosely onto the divider wheel with the aid of the clamp (Fig. 26.58/2) .
- Press lever (Fig. 26.58/3) downwards so often until the clamping tube (Fig. 26.58/4) is pulled and held in position. Hold protective cover (Fig. 26.58/5) to switch box and turn the figure display wheel (Fig. 26.58/1) until the figure “0” can be seen in the window of the protective cover.

When shifting over the 2-fold switch over system due to its two consecutively following shifting rollers a "0" will appear again and the clamping tube must be pulled by the shifting roller.

- Clamp the figure display wheel (Fig. 26.58/1) with the clamp (Fig. 26.58/2) and fix the protective cover (Fig. 26.58/5) with two tin screws (Fig. 26.58/6) .

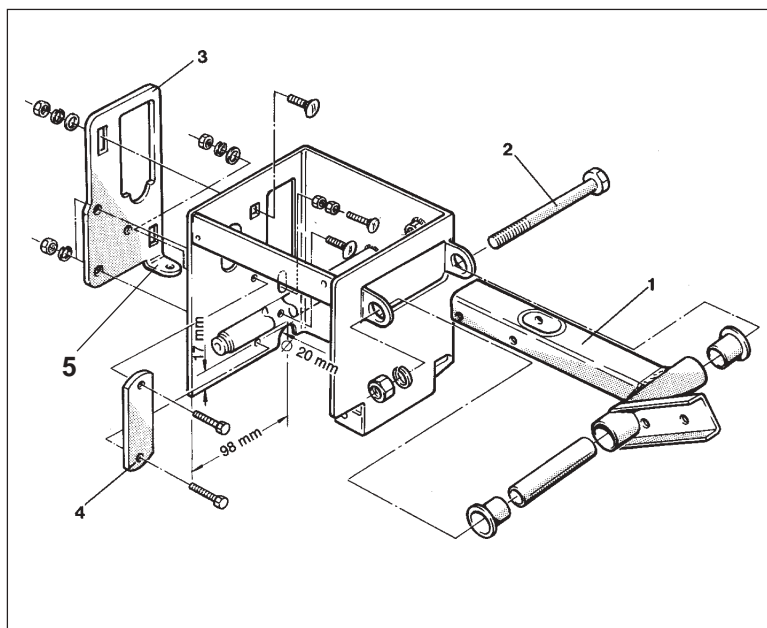


Fig. 26.59

26.13 8-fold shift over

When converting the switch box to an 8-fold shift over, proceed as described in para. 26.12. Additionally the following assembly should be conducted:

- Remove lever (Fig. 26.59/1) after slaking the hex. bolt M 10 x 100, DIN 931 (Fig. 26.59/2)
- Mount stop plate (Fig. 26.59/3) from the outside to the switch box according to the drawing in Fig. 26.59.
- Grind gap for the lug (Fig. 26.59/5) into the wall of the switch box according to the drawing in Fig. 26.59.

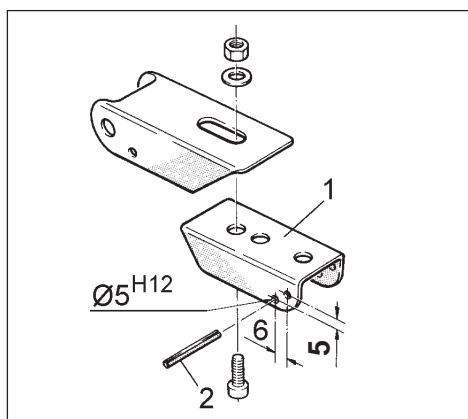


Fig. 26.60

- The flat iron (Fig. 26.59/4) is used for mounting the fixing parts of the hydraulics and it should be bolted to these parts later on.
- Remove expansion pin of the retaining ratchet (Fig. 26.60/1)
- Drill a new hole ($\text{Ø } 5^{\text{H}12}$ mm) for the retaining ratchet according to Fig. 26.60.
- Drive new expansion pin 5 x 33, DIN 1481 (Fig. 26.60/2) into the retaining ratchet.

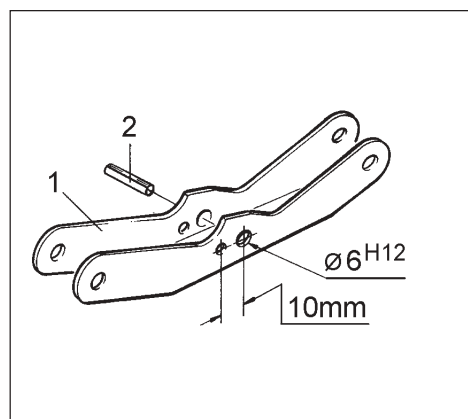


Fig. 26.61

- Remove expansion pin of the tipping lever (Fig. 26.61/1)
- Drill new hole ($\text{Ø } 6^{\text{H}12}$ mm) into tipping lever according to Fig. 26.61
- Drive new expansion pin 6 x 45, DIN 1481 (Fig. 26.61/2) into the tipping lever (Fig. 26.61/1)
- Reassemble dismantled parts inside the switch box.

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31.0 Seed rate remote control (option)

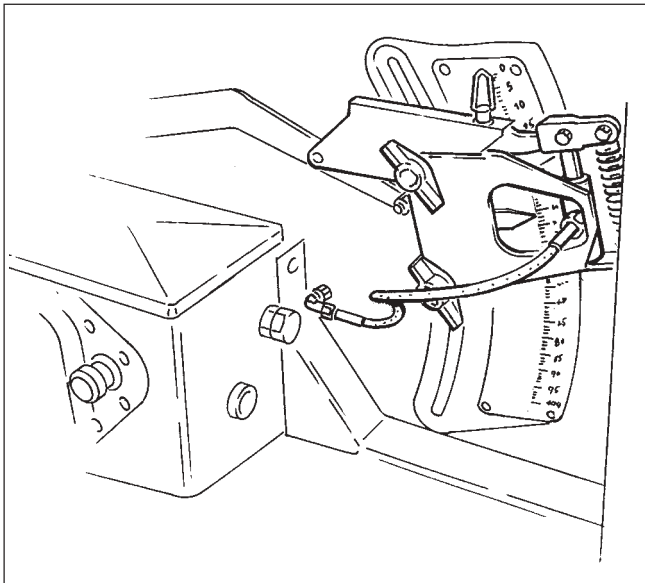


Fig. 31.1

On fields with frequently changing soils it is possible with the aid of the hydraulically actuated seed rate remote control (Fig. 31.1) to apply an increased seed rate in areas of heavier soils. The seed rate remote control is actuated by a single acting control valve in the tractor cab.

After having passed the heavier soil plot on which the higher seed rate has been applied, the normal seed rate has to be set again.



The hydraulic seed rate remote control is coupled with the hydraulic coulter pressure adjustment. If more coulter pressure is applied, automatically also the seed rate is increased.



When actuating the control valve the hydraulic ram of the hydraulic seed rate remote control and the coulter pressure adjustment receive simultaneously hydraulic pressure!

Ask people to leave the area of danger!
Danger of injury on moving parts!

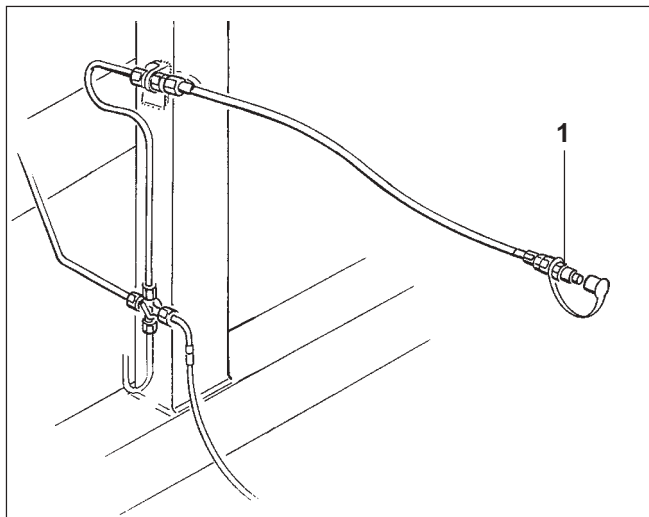


Fig. 31.2

31.1 Fitting seed rate remote control

On delivery the pre-setting mechanism (Fig. 31.1) is mounted to the gearbox setting lever and the hydraulic ram (Fig. 31.3/3) to the connecting unit II (Fig. 31.2/1), with which your seed drill is also equipped. Connect the connecting unit II to a single acting control valve on your tractor.

31.2 Setting the seed rate

Determine the gearbox setting position for the desired seed rate for **normal** and for **increased seed rate** according to para. 21.0.

For determining your gearbox setting position for **normal seed rate** set your gearbox as follows:

- Relieve hydr. ram (Fig. 31.3/3) from pressure
- Remove both star knobs (Fig. 31.3/1)
- Push gearbox setting lever (Fig. 31.3/2) **from below** into the gearbox setting position
- Retighten both star knobs (Fig. 31.3/1).

For determining the gearbox lever position for the **increased seed rate** set the gearbox as follows:

- **Ask people to leave the area of danger!**
- Apply pressure to the hydr. ram (Fig. 31.3/3) via the control valve from the tractor cab.
- Turn the setting screw (Fig. 31.3/4) into the threads until the pointer (Fig. 31.3/2) of the gearbox setting lever shows the desired higher setting position.

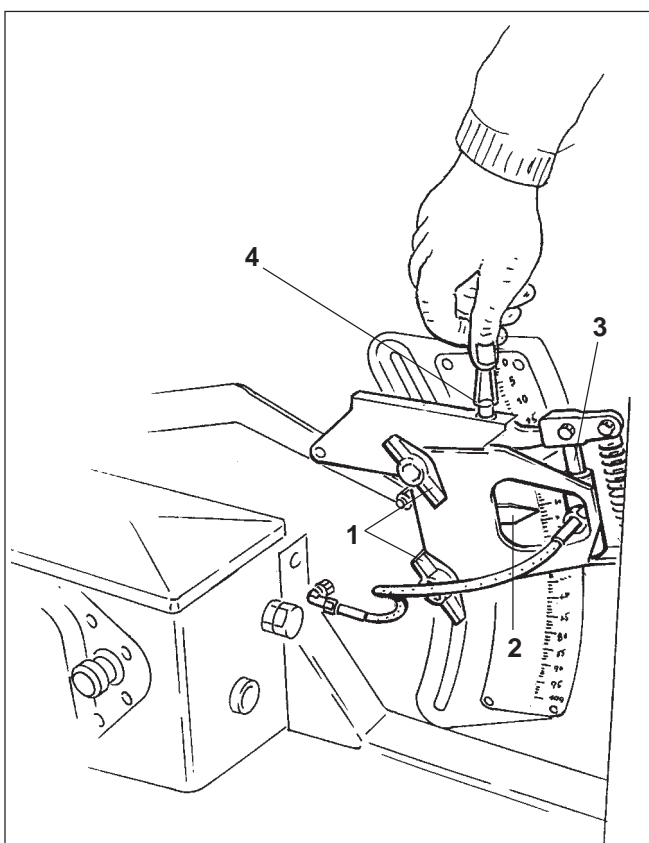


Fig. 31.3



The hydraulic seed rate remote control is coupled to the hydraulic coulters pressure adjustment.

If on heavy soils the coulters pressure is to be increased but not the seed rate, the setting screw (Fig. 31.3/4) should be driven all the way up. In this case the seed rate does not change even when increasing the coulters pressure.

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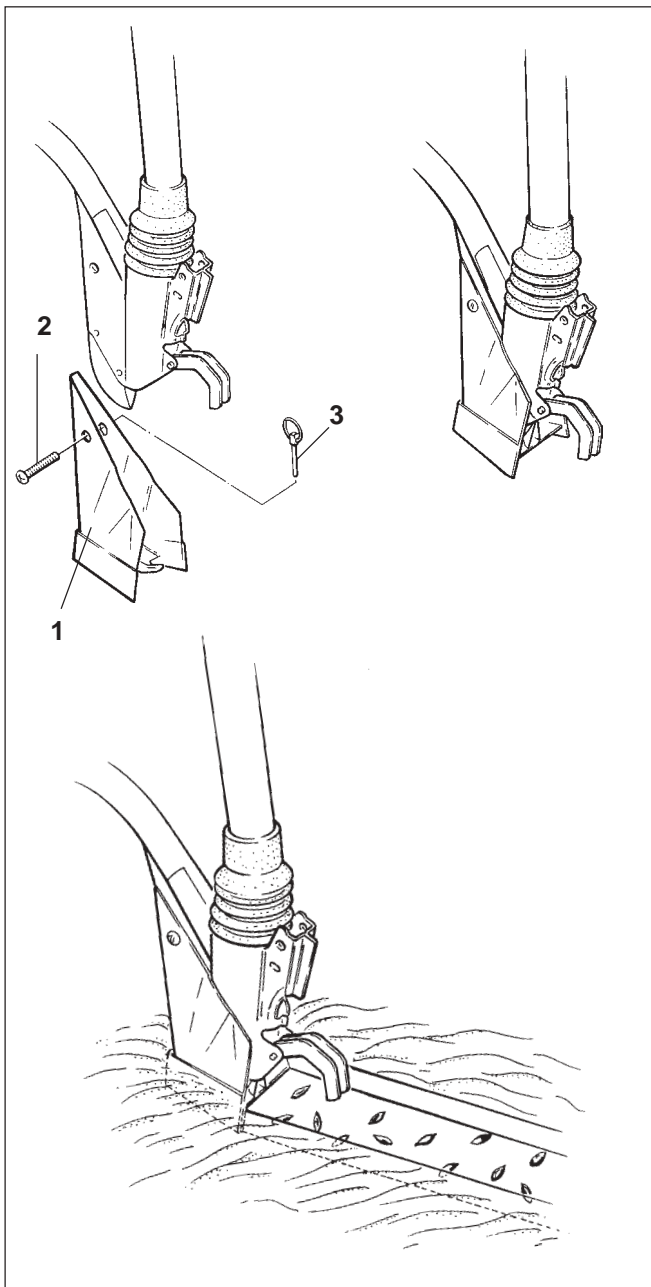
34.0	Band sowing shoe for K-coulter (option)	34 - 2
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34.0 Band sowing shoe for K-coulter (option)

Band sowing improves the size of the growing area for the individual plants. Hereby yield increases result if compared with row sowing. Many years of comparison tests by various chambers of agriculture, institutes and advisory rings have resulted in yield increases of between 4 and 8 % compared with row sowing.

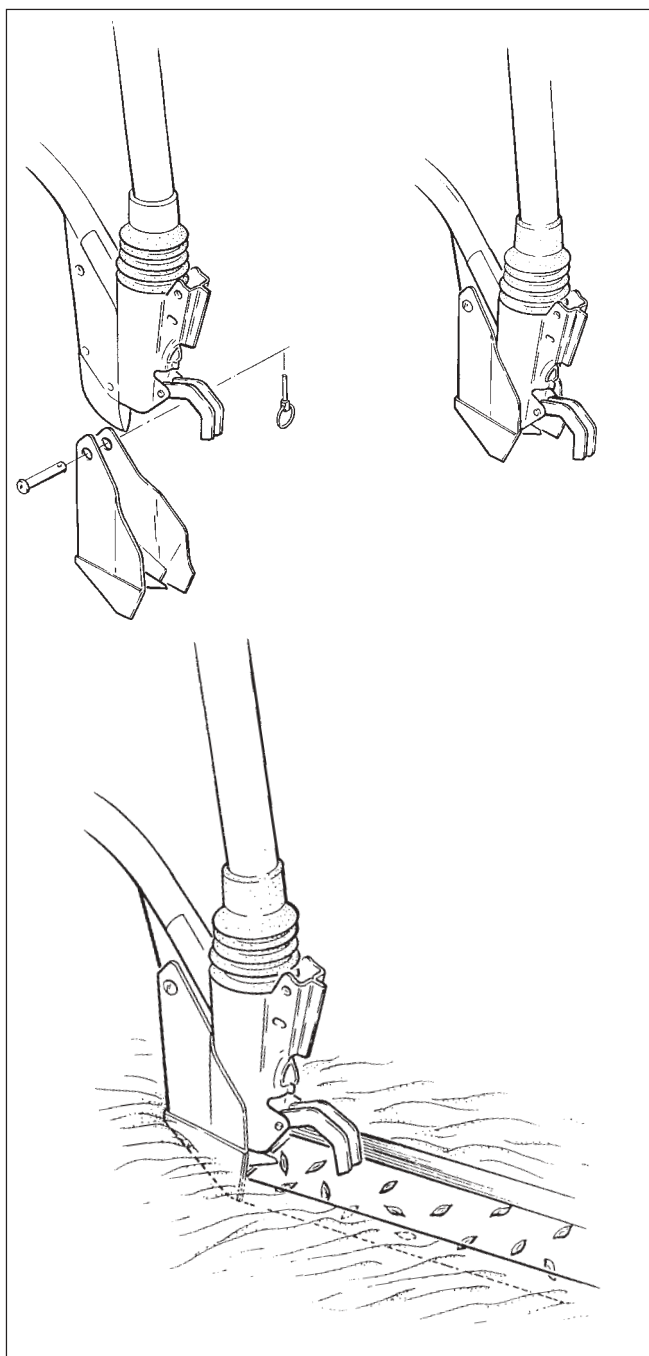
Precondition for the use of band sowing coulters is a well crumbled seed bed. In such cases band sowing shoes (Fig. 34.1/1) can be clipped simply on to the K-coulters with the aid of a pin (Fig. 34.1/2) and a clip pin (Fig. 34.1/3) simply to the K-coulters. For a proper seed coverage when band sowing, the use of the extra coverage following harrow is imperatively necessary.

If the preconditions are not given, e. g. on heavy, sticky soils with winter grain, the band sowing shoes can quickly be taken off without tools.



The **band sowing shoe I** (Fig. 34.1/1) is especially suited to operate on heavy soils. The wedge shaped shoe opens the band sowing furrow.

Fig. 34.1



The **band sowing shoe II** (Fig. 34.2) is especially suited for lighter and medium heavy soil. The angled skidding sole compresses the bottom of the seed furrow and reduces the planting depth.

Fig. 34.2

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40.0 Transport on public roads



When travelling on public roads and ways the execution of tractor and machinery should correspond to the national road transport and traffic rules. The vehicle owner and operator are responsible for adhering to the legal traffic rules.

When travelling on public roads and ways the following advice should be followed:

Standing

on the seed drill during travel is **prohibited**.

Transport width

The transport width of 3 m **must not be exceeded**.

Track markers

Bring track markers into transport position (see para.: 23-1 markers).

Warning plates (red-white striped)

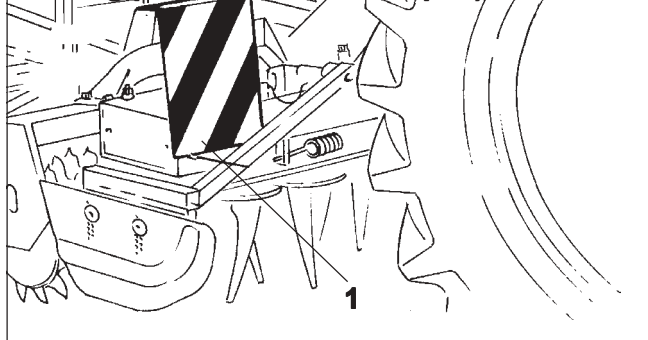


Fig. 40.1

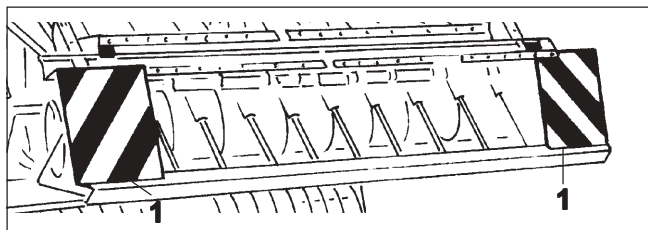


Fig. 40.2

Front warning plates (Fig. 40.1/1) and rear warning plates (Fig. 40.2/1) should be fixed with a max. distance towards the outer edge of the machine of 10 cm in a max. height of 150 cm above ground.

Vehicle lights

Seed drills should be equipped with legally permissible lights which should be checked on function before going on the road. The seed drill can be equipped with either clip-on lights (option) or with firmly mounted lights (option) which would also remain on the machine during field operation.

Before transport on public roads the clip-on lights must be clipped on to the light carries fixed to the side of the seed drill in such a way that on top the lights show into direction of travel and below the lights should show to the rear. During the operation in the field, the clip-on lights should be removed.

Extra coverage following harrow

Move outer square tube ends with the outer following harrow elements of the extra coverage harrow towards the centre (see para. extra coverage following harrow) and all tines of the extra coverage following harrow protruding to the rear should be guarded with the traffic safety guard (Fig. 40.3/1, option). A second set of lights (fig. 40.3/2) should be fixed to the square tube of the extra coverage following harrow.

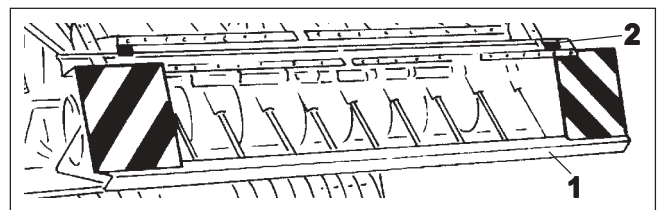


Fig. 40.3

Transport height

Raise seed drill for road transport only so much that the following spacings are not exceeded:

Distance upper edge of rear light towards the road: max. 1550 mm

Distance between rear reflectors towards the road: max. 900 mm.

Applies onl to AD-P with star wheel

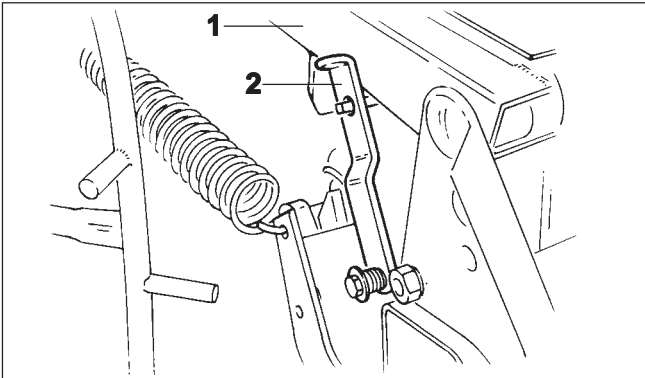


Fig. 40.4

Briefly lift swivelable drive arm (Fig. 40.4/1) and let lever (Fig. 40.4/2) lock in.

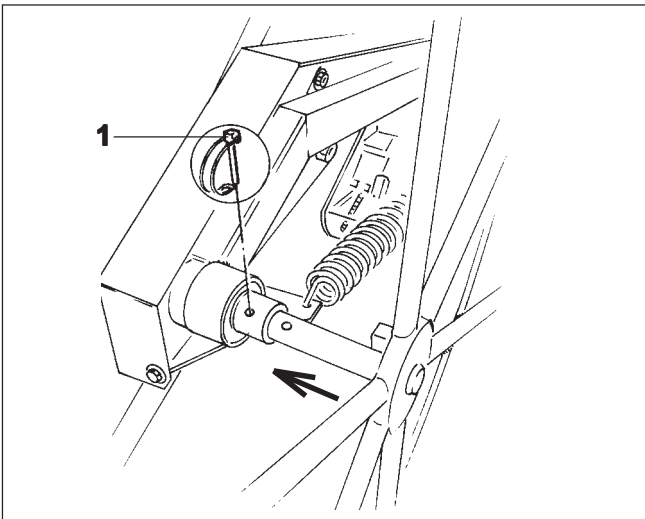


Fig. 40.5

Slide star wheel shaft into the tubular drive shaft of the swivelable drive arm and s3ecure it with the clip pin (Fig. 40.5/1) removed beford.

Soil tillage implement

Also the mounted soil tillage implement should correspond to the national traffic rules. Details you may find in the instruction books for the soil tillage implement.

Max. permissible tractor axle loads/total weight

The permissible tractor rear axle load, the permissible total weight of the tractor and the permissible carrying ability of the tractor tyres must not be exceeded (empty seed box if necessary)!

When lifting the seed drill for transport, the front axle of the tractor is differently relieved of load, depending on the tractor type and size. **For road transport the remaining front axle load of the tractor must at least be 20 % of the tractor's net weight.** Otherwise the tractor cannot be steered with sufficient safety. If necessary, fit front weights to the tractor.

Please adhere to these hints. They help to prevent accidents in road traffic.

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50.0 Maintenance and care



Adhere to the safety and accident preventing advice when conducting maintenance and care.

1. Repair-, maintenance- and cleaning operation may only be conducted with the gearbox switched off and a standstill of the engine. Remove ignition key!
2. Regularly check firm seating of nuts and bolts and tighten if necessary!
3. When conducting maintenance work on the lifted implement always place suitable supports underneath.
4. When exchanging tools with cutting edges, use suited tool and gloves!
5. Dispose of old oils, grease and filters as prescribed by law!
6. Before doing any work at the electric system always interrupt the power supply!
7. When conducting electrical welding operations on the tractor or on the mounted implement remove cable from the generator and the battery!
8. Spare parts have to correspond at least to the technical demand determined by the manufacturer of the implement! This is given by e. g. using the original spare parts of the implement manufacturer!

50.1 Checking bolted connections

All bolted connections of the seed drill should be checked after the first 10 hours of operation and tightened if necessary.

50.2 Cleaning seed drill

The seed drill can be cleaned with a ray of water of a high pressure cleaner.



In case you wish to use air pressure to clean your seed box, please be reminded that the dust of seed dressing is poisonous and must not be inhaled!

50.3 Checking oil level in the two-range gearbox

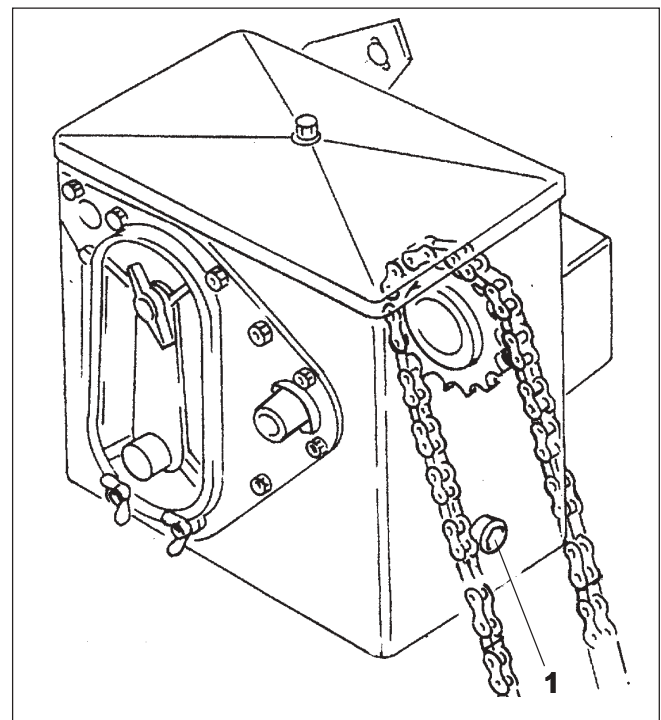


Fig. 50.1

The oil level inside the two-range gearbox should be checked at the oil gauge window (Fig. 50.1/1) at the drill horizontally. It is not necessary to change the gearbox oil.

For refilling oil the cover of the gearbox must be taken off:

Filling quantity: 1,8 litres

Use only the following kinds of oil:

Hydraulic oil WTL 16,5 CST/50° C

or

engine oil SAE 10 W.

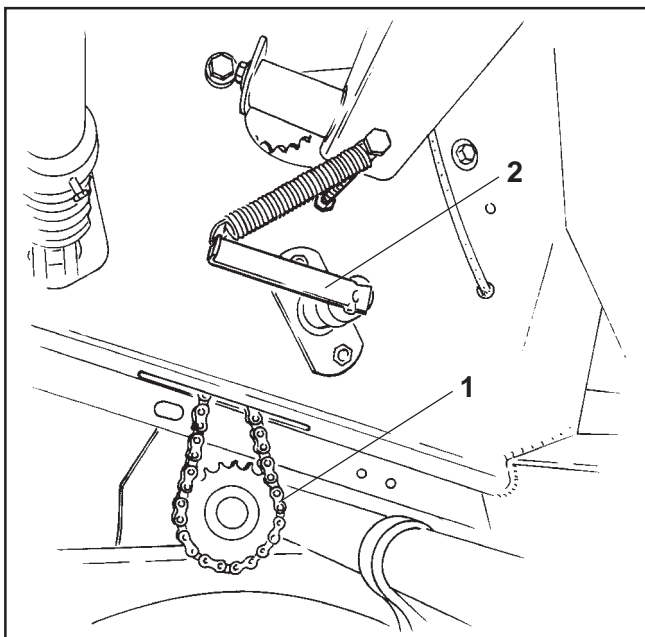


Fig. 50.2

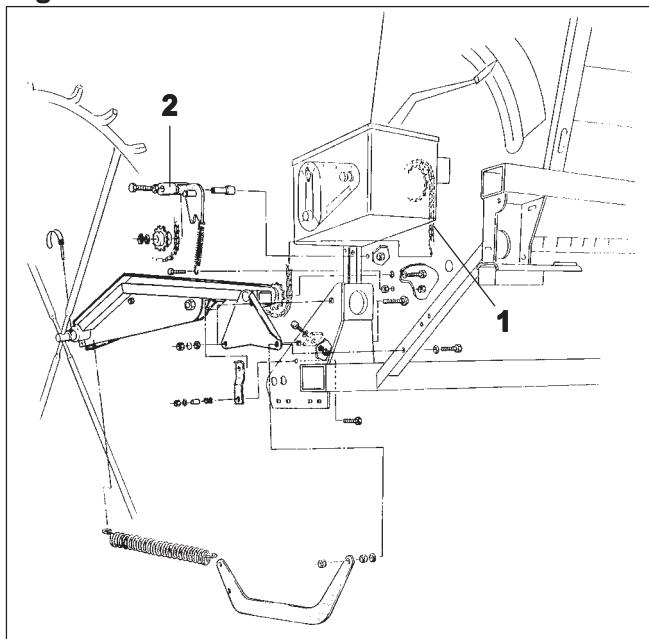


Fig. 50.3

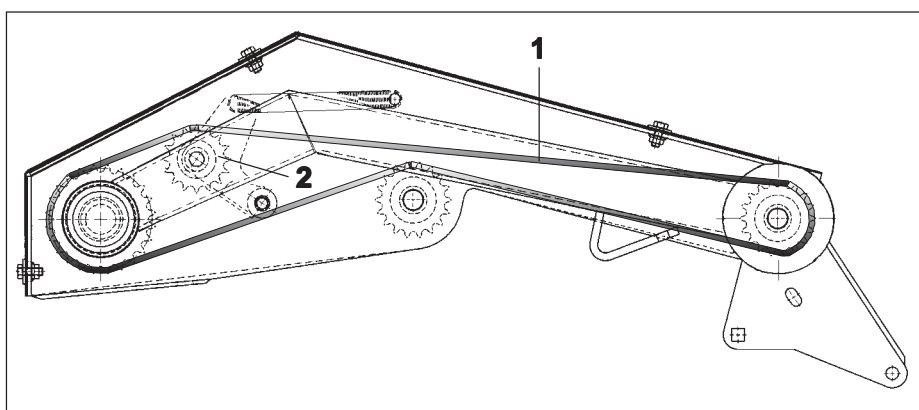


Fig. 50.4

50.4 Checking roller chain

The sowing systems of the seed drill are driven by roller chains. After the end of the season, resp. before a longer pause of operation, remove roller chains and oil. Remove chain guard before and put on back onto place afterwards.



In figures 50.2 and 50.3 the chain guard is not shown. However, bear in mind that the seed drill must only be put to operation with the correctly fitted chain guard.

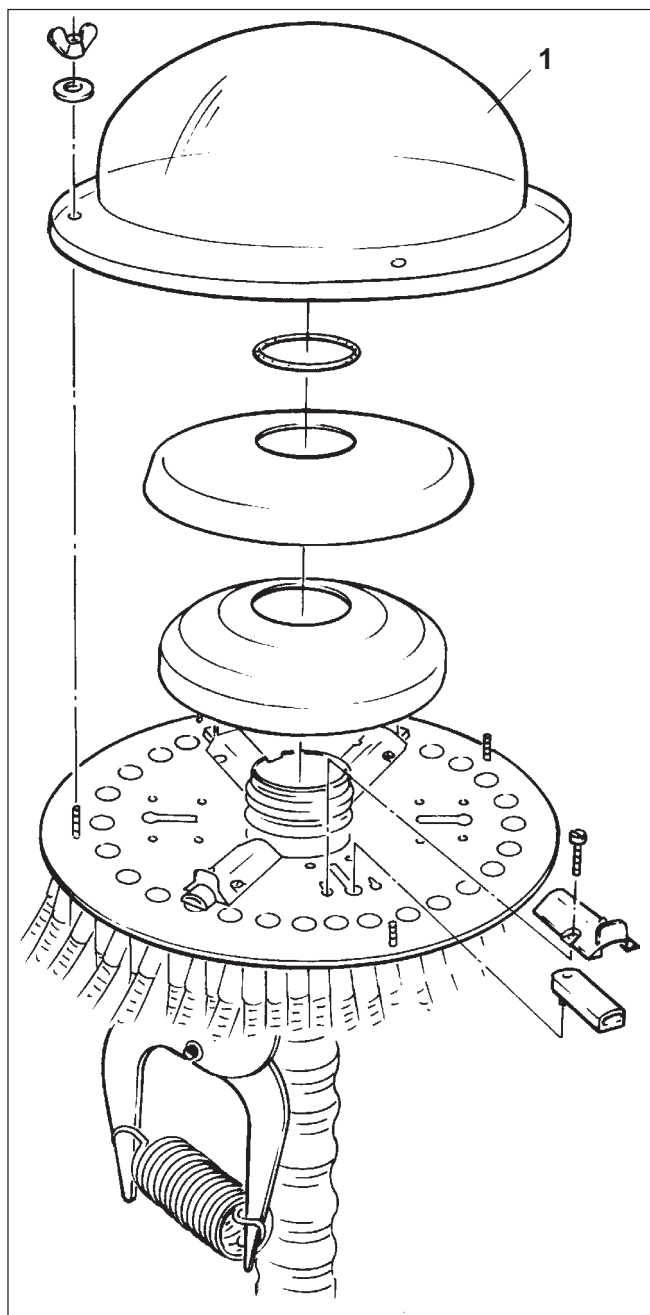
Applies only to AD-P with tyre packer roller

The roller chain (Fig. 50.2/1) on the two range stepless variable gearbox is automatically tensioned by a chain tensioner (Fig. 50.2/2).

Applies only to AD-P with tooth packer and wedge shape ring roller

The roller chain (Fig. 50.3/1) from the swivelable drive to the two-range stepless variable gearbox is automatically tensioned by a chain tensioner (Fig. 50.3/2).

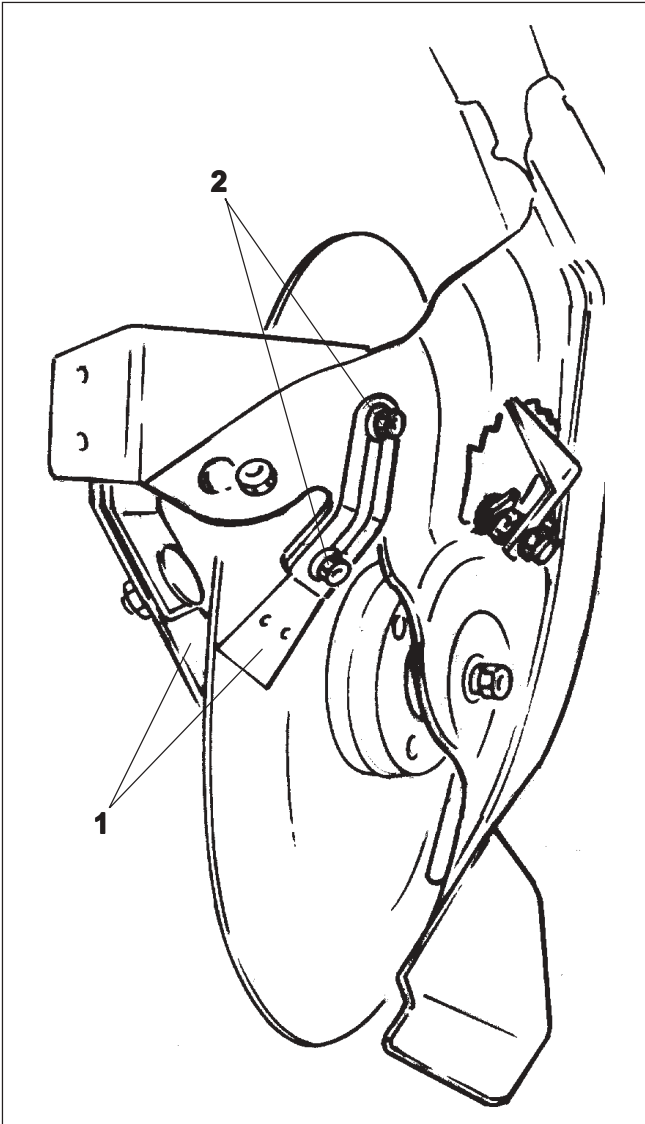
The roller chain (Fig. 50.4/1) in the swivelable drive is automatically tensioned by a chain tensioner (Fig. 50.4/2).

**Fig. 50.5**

50.5 Cleaning distributor head

Check distributor head regularly and especially when sowing dressed seeds clean after every day of operation:

- De-pressurise the hydraulic system.
- Remove outer hood (Fig. 50.5/1 of distributor head for cleaning.

**Fig. 50.6**

50.6 Setting roll disc scrapers

For cleaning the roll disc coulters from sticking soil every roll disc is equipped with two scrapers (Fig. 50.6/1).

The scrapers undergo a certain wear and have to be reset if required. Set scrapers in such a way that they grind slightly on the outer edge of the roll disc without braking the disc too much. Slacken bolts (Fig. 50.6/2) before every setting and tighten afterwards.



AMAZONEN-WERKE **H.DREYER** GmbH & Co. KG

D-49202 Hasbergen-Gaste

Tel.: Hasbergen (0 54 05) *501-0
Telefax: (0 54 05) 50 11 93

<http://www.amazone.de>

D-27794 Hude/Oldbg.

Tel.: Hude (0 44 08) *927-0
Telefax: (0 44 08) 92 73 99

email: amazone@amazone.de

AMAZONE-Machines Agricoles S.A.

F- 57602 Forbach/France . rue de la Verrerie
Tél.: (0033) 38 78 46 57 0
Fax: (0033) 38 78 46 57 1