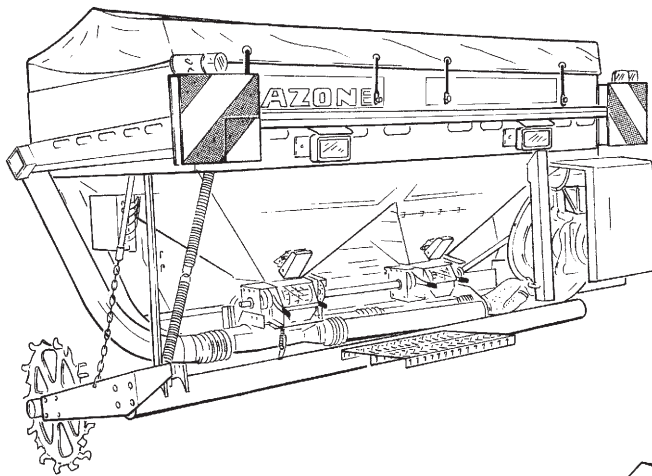




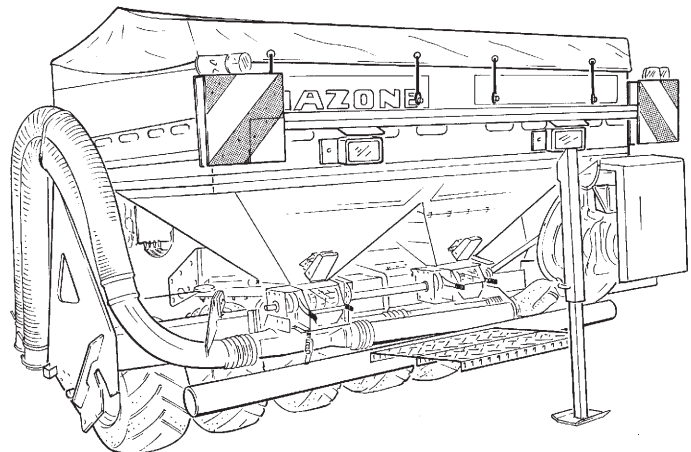
Instruction Manual

Airstar Avant

Front Frame - Sowing Tank Pneumatic FRS



Front Packer - Sowing Tank Pneumatic FPS



with Pack Top - Sowing Rail AS

MG 484
DB 691-1 GB 10.98
Printed in Germany



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

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D-49202 Hasbergen-Gaste / Germany

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The AIRSTAR AVANT consisting of the front seed tank and the pack top sowing module are yet further products from the large range of AMAZONE farm machinery.

In order to guarantee a trouble-free operation we recommend you to carefully read this instruction manual and to strictly adhere to all advice given there in.

Please ensure that every operator has read this instruction manual before putting the machine to work.

This instruction manual applies to all combinations of front-seed tanks and seed rails of the following series:

FRS 1 Front-frame sowing tank with 1 metering unit

FRS 2 Front-frame-sowing tank with 2 metering units

FPS 1 Front-packer-sowing tank with 1 metering unit

FPS 2 Front-packer sowing tank with 2 metering units

and pack top sowing modules

AS 302 with 3 m working width

AS 402 with 4 m working width

AS 452 with 4,5 m working width

AS 602 with 6 m working width

for soil tillage implements and packer rollers.

Please also observe the special instruction manuals for the soil tillage implements and rollers.

We wish you an always successful operation with best results.

AMAZONEN-Werke

H. Dreyer GmbH & Co. KG

Hints for this instruction manual

Keep this instruction manual so that it is always available on hand. In case you sell your machine, pass on this instruction manual to the next owner.

All data and indications are on the latest level at the date when this instruction manual was printed. As AMAZONE is always striving for improvements the right is reserved for changes without any obligation.



Chapter: This instruction manual is divided into chapters. On the first page of each chapter you will find the contents in order to facilitate finding certain informations.

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3.0 Details for the machine

3.1 Range of application

In combination with a soil tillage implement with pack top sowing module, the front sowing tank is suited for storing, metering and sowing all kinds of common seeds.

3.2 Manufacturer

AMAZONEN-Werke

H. Dreyer GmbH & Co. KG, P. O. Box 51,
D-49202 Hasbergen-Gaste / F. R. Germany

3.3 Declaration of conformity

The combination fulfils all requirements of the EC-guide line "machine 89/392/EWG" and the corresponding supplementary guide lines.

3.4 Details when making enquiries and ordering parts

When ordering special options and spare parts, please always state the type of the machine as well as its serial number.

All components of the machine have carefully been matched in order to achieve a high safety level.

Please bear in mind that any technical change of the original state of your machine may influence the safety. This is not only the case with unsuited spare parts but also with options not having been approved by us.



In the interest of your own safety we therefore recommend you to use only original AMAZONE spare parts and original AMAZONE options.

Original spare parts and options have been designed especially for and matched to your machine and they thus provide safety by us.

AMAZONE will not accept any claim for spare parts, options and fitting parts which have not been approved by AMAZONE as well as for other unauthorised technical changes and the consequences resulting from this.

3.5 Type plate

The type plate is of documentary value and must not be changed or made unrecognizable!

3.5.1 Type plate in case of FRS Front frame sowing tank pneumatic FRS 1, FRS 2



Please enter here the machine type and the serial number of your sowing tank.

Machine type:

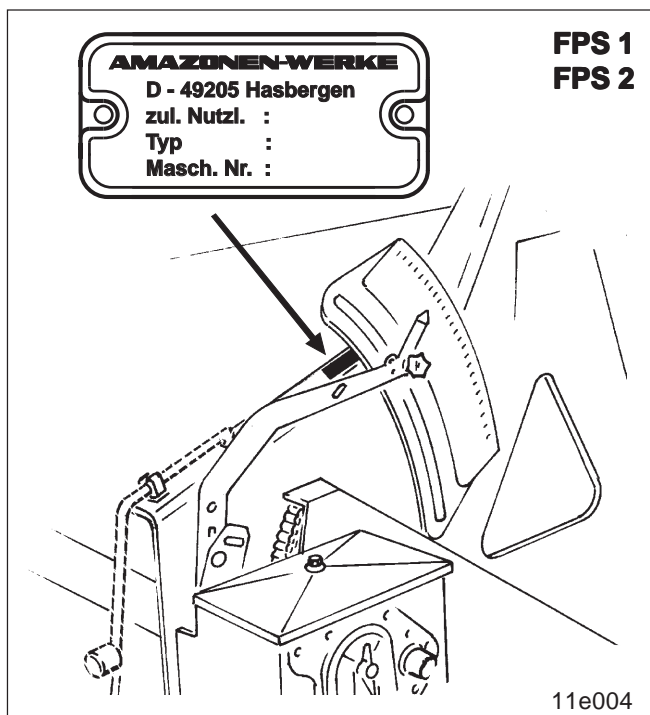
AMAZONE

Front frame-sowing tank pneumatic

FRS

Serial-No.:

3.5.2 Type plate in case of FPS Front packer sowing tank Pneumatic FPS 1, FPS 2



Please enter here the machine type and the serial number of your sowing tank.

Machine type:

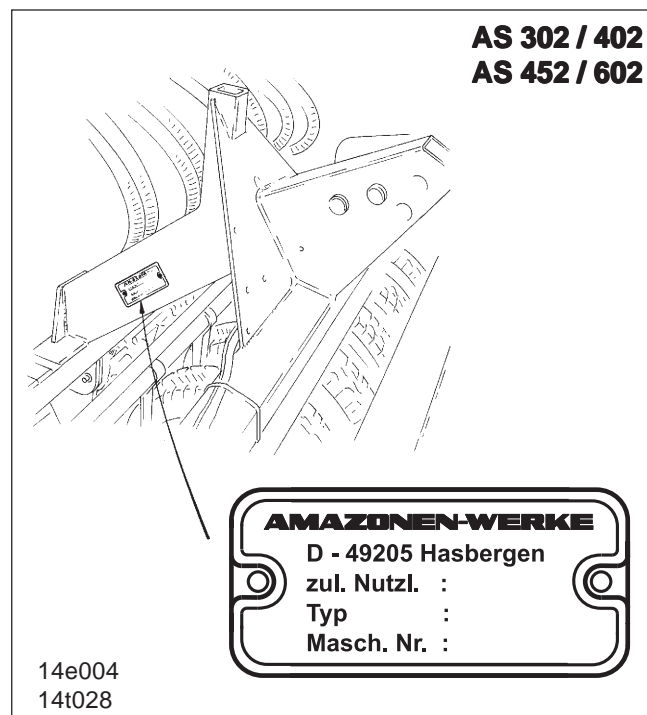
AMAZONE

Front packer sowing tank Pneumatic

FPS

Serial-No.:

3.5.3 Type plate Pack top sowing module AS



Please enter here the machine type and the serial number of your pack top sowing module.

Machine type:

AMAZONE

Pack top sowing module AS

Serial-No.:

3.6 Technical data

Sowing tanks are named **front frame sowing tank pneumatic FRS** or **front packer sowing tank pneumatic FPS**.

Both sowing tanks are mounted onto the front hydraulics of the tractor.

During operation the sowing tank with the name front frame sowing tank pneumatic is carried by the tractor. A star wheel on the sowing tank drives the metering units.

The front packer sowing tank FPS is mounted on a steerable tyre packer. The tyre packer rolls the soil for a width of 2.5 m in front of the tractor. During operation the tractor front axle is not burdened by the front tank. The self steering of the tyre packer

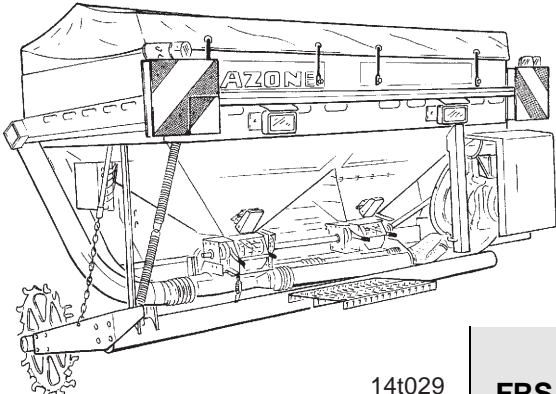
follows the steering movements of the tractor operator and allows to drive also in narrow bends. The tyre packer simultaneously drives the metering units. The front packer sowing tank has only to be lifted when the seed supply shall be interrupted, e. g. when turning at the field's end.

For seed bed preparation usually an AMAZONE soil tillage implement with roller, mounted to the rear of the tractor, is used. For sowing seed, this combination is equipped with an **AMAZONE-Pack Top-sowing module AS**, at random with normal "K"-Suffolk coulters or with roll disc coulters. The sowing modules can be fitted to all AMAZONE packer rollers. The soil tillage implement is not burdened by the weight of the sowing rail and can give way to stones in vertical direction without any problems.

3.6.1 Technical data

Front frame-sowing tank pneumatic FRS

FRS 2



Front frame sowing tank pneumatic

14t029	FRS 1	with extens. N 1500	with extens. N 1800	FRS 2	with extens. N 2000	with extens. N 2300
Weight (without seed)	525 kg	556 kg	575 kg	650 kg	681 kg	700 kg
Seed tank capacity (with wall insert)	1000 l	1500 l	1800 l	1500 l	2000 l	2300 l
Filling height (without wall insert)	1,21 m	1,21 m	1,33 m	1,30 m	1,30 m	1,42 m
Filling height (with wall insert)	-	1,32 m	1,43 m	-	1,41 m	1,52 m
Height (until upper edge folding hopper cover)	1,36 m	1,51 m	1,64 m	1,45 m	1,60 m	1,73 m
Width	2,80 m	2,80 m	2,80 m	2,80 m	2,80 m	2,80 m
For sowing modules w. working width of	3,0 m up to 4,5 m			6,0 m		
Blower fan drive	hydrostatic or by Diesel engine					

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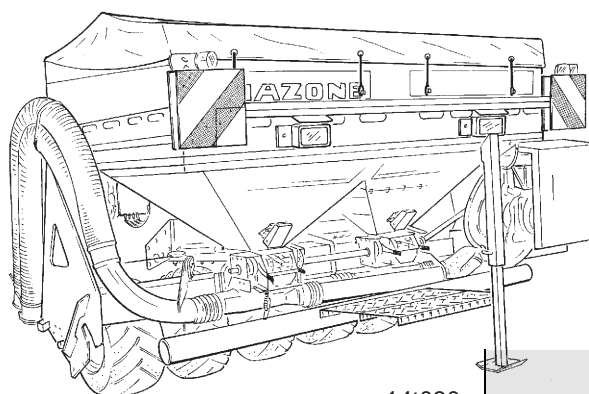
If the distributor head which is fixed to the sowing module, the seed is evenly distributed to all coulters. The number of distributor heads depends on the number of metering units on the front sowing tank.

Sowing modules with 3 m up to 4.5 m working widths are equipped with one distributor head, sowing modules with 6 m working width are equipped with two distributor heads.

3.6.2 Technical data

Front packer sowing tank pneumatic FPS

FPS 2




14t030

Front packer Sowing Tank Pneumatic

	FPS 1	with extens. N 1500	with extens. N 1800	FPS 2	with extens. N 2000	with extens. N 2300
Weight (without seed)	1125 kg	1156 kg	1175 kg	1300 kg	1331 kg	1350 kg
Seed tank capacity (with wall insert)	1000 l	1500 l	1800 l	1500 l	2000 l	2300 l
Filling height (without wall insert)	1,50 m	1,50 m	1,62 m	1,60 m	1,60 m	1,72 m
Filling height (with wall insert)	-	1,61 m	1,72 m	-	1,71 m	1,82 m
Height (until upper edge of folding hopper cover)	1,66 m	1,81 m	1,94 m	1,75 m	1,90 m	2,03 m
Width	2,80 m	2,80 m	2,80 m	2,80 m	2,80 m	2,80 m
For sowing modules w. working width of	3,0 m up to 4,5 m			6,0 m		
Blower fan drive	hydrostatic or by Diesel engine					

3.6.3 Technical data

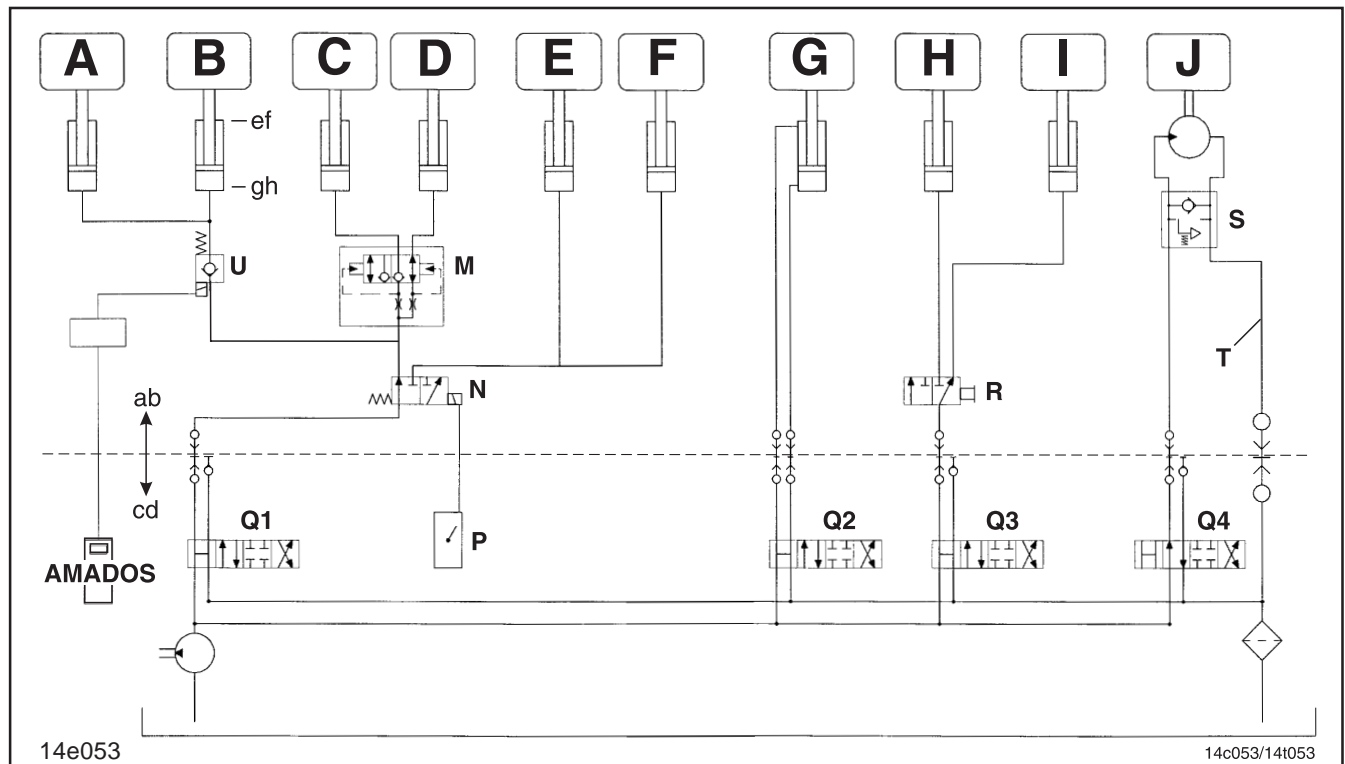
Pack Top sowing module AS

 <div>14t054</div>	Pack Top sowing module							
	AS 302 SN	AS 302 SR	AS 402 SN	AS 402 SR	AS 452 SN	AS 452 SR	AS 602 SN	AS 602 SR
Working width	3,0 m		4,0 m		4,50 m		6,0 m	
Normal "K" Suffolk coulters	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	
Roll disc coulters		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
Number of rows	24		32		36		48	
Row spacing	12,5 cm							
Number of distributor heads	1		1		1		2	

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3.7 Hydraulic system

Hydraulic circuit diagram Front sowing tank FRS/FPS and Pack Top sowing module AS



Names

ab =implement side

cd =tractor side

Position tramline shutter slide in the distributor head

ef = shutter slide open

gh =shutter slide closed

Tractor control valves Q1 up to Q4

Q1 up to Q4 = 4 tractor control valves, illustrated in position "operation"

Q4 = Valve for the hydraulic blower fan drive with "priority" approx. 30 l/min.

Hydraulic ram

A = pre emergence marker

B = Tramline shutter slide

C = Track marker, left hand

D = Track marker, right hand

E = Coulter pressure adjustment

F = Extra coverage harrow adjustment

G = KG 602-2 transport folding frame

H = Tractor front hydraulics

I = Star wheel lift FRS

Hydrostatic drive

J = Blower fan-hydraulic motor $N_{max.} = 3800 \text{ R.P.M.}$

Others

M = Track marker shuttle valve

S = DBV-valve with hydraulic free wheel

T = free return flow (at least DN16)

U = electro-hydraulic valve

P = electr. hand switch

Only required when no tractor control valve is available:

N = 3/2-way-valve

R = 3/2-way-valve



3.8 Details about the noise level

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

Implement: OPTAC SLM 5.

The noise level may vary from tractor type to tractor type.

ting, incorrect determination of the gearbox setting).



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

3.9 Declined use

The AMAZONE front sowing tank has exclusively be designed for the use of storing, metering and in combination with the pack top sowing module and a soil tillage implement for sowing all common kinds of seed at usual agricultural operation.

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.

Unser "designed use" the adherence to the manufacturer's prescribed operation maintenance and repair conditions as well as the exclusive use of original AMAZONE spare parts is required.

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



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

Though the implements having been manufactured with great care by us, certain deviations in the seed rate or even a total failure of rows cannot be excluded. Such failures may be caused e. g. by:

- Varying composition of the seeds (e.g. distribution of grain size, dressing, bulk density, geometrical shape)
- Drifting on slopes or faults when driving the next bout (marker setting)
- Blockages or bridgings (e. g. by strange particles, residue of bags etc.)
- Undulated terrain
- Wear of wearing parts (e. g. seed wheels, etc.)
- Damage by external influence
- Wrong drive R.P.M. and travelling speed
- Wrong setting of the machine (incorrect moun-



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4.0 Safety

For a trouble-free operation we recommend you to read carefully this instruction manual and to adhere to the given advice.

Please ensure that every operator reads this instruction manual before putting the implement into operation.

In this instruction manual you will find many hints which shall provide you with a trouble-free operation.

Many illustrations have been added to the description in order to explain all functions to you and to let you have hints for safety and for operating with the machine under various conditions.

Please carefully observe and adhere to all safety advices.

4.1 Dangers when not adhering to the safety advice

Not adhering to the safety advice

- may as well cause dangers for persons as also for the environment and your implement.
- will rule out any claim for damages.

In detail not adhering may, for example, cause the following dangers:

- Danger for persons by not secured working width.
- Failure of important functions of the machine.
- Failure of prescribed methods for maintenance and repair.
- Danger to persons by mechanical or chemical affects.
- Danger to the environment by leaking hydraulic oil.

4.2 Operator qualification

The front seed tank, also in combination with a pack top sowing module and a soil tillage implement may only be operated, maintained and repaired by persons who have been made acquainted herewith and who have been informed of the dangers related hereto.

4.3 Symbols in this instruction manual

In this instruction manual many WARNINGS, CAUTION hints and HINTS have been marked by symbols. The explanation for these symbols is as follows:



Safety/Warning symbol (DIN 4844-W9)

In this operator instruction manual this symbol is used with all operator safety hints at which life or health of persons is in danger.



Attention symbol

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

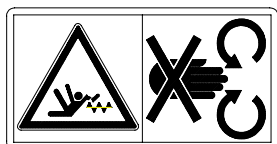


Hint symbol

marks implement's specific points which should be observed to ensure the correct operation.

4.4 Warning pictographs and hint symbols on the implement

The warning pictographs, e. g.:



indicate dangerous points on the implement. Observing these pictographs means safety for all persons using this implement.

The hint symbols, e. g.:



mark implement's specific points which have to be observed to ensure a correct function.

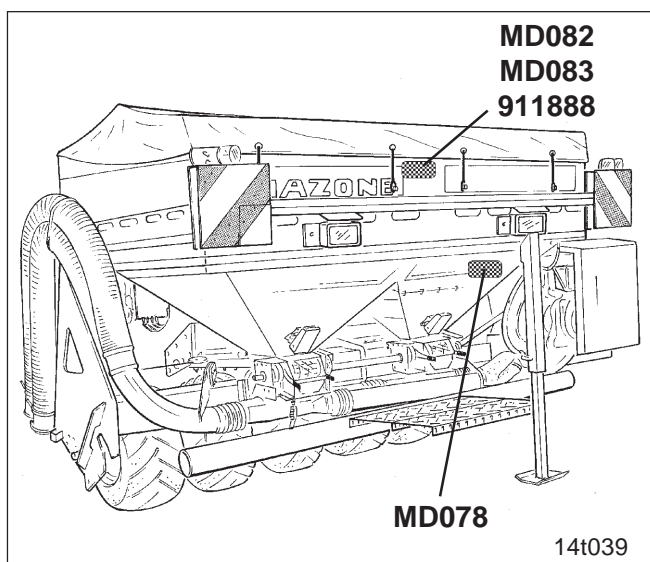


Fig. 3.1

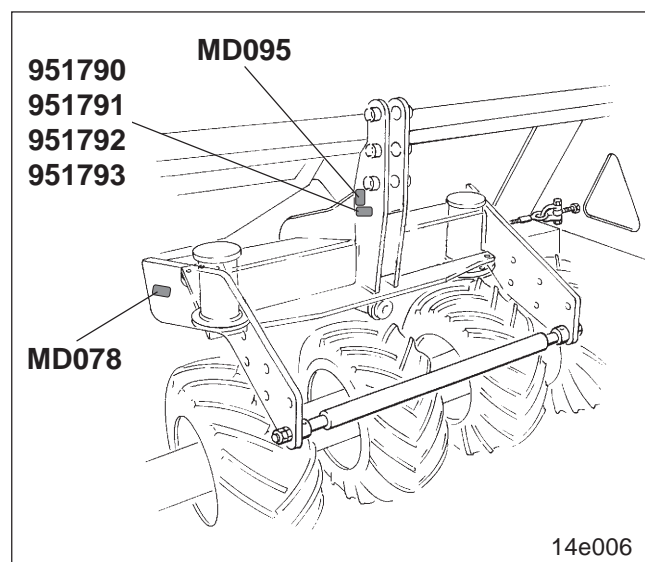


Fig. 3.2

The fixing points of the warning pictographs and hint symbols on the machine are illustrated in the figures 3.1 up to 3.3. Strictly observe the warning pictographs and hint symbols and pass on all safety advice also to other users. Please refer to the following pages for relevant explanations:

Always keep all warning pictographs and hint signs clean and in a readable condition. Please ask your dealer for replacement of damaged or missing signs and attach them to the relevant place (picture No. = Order-No.)

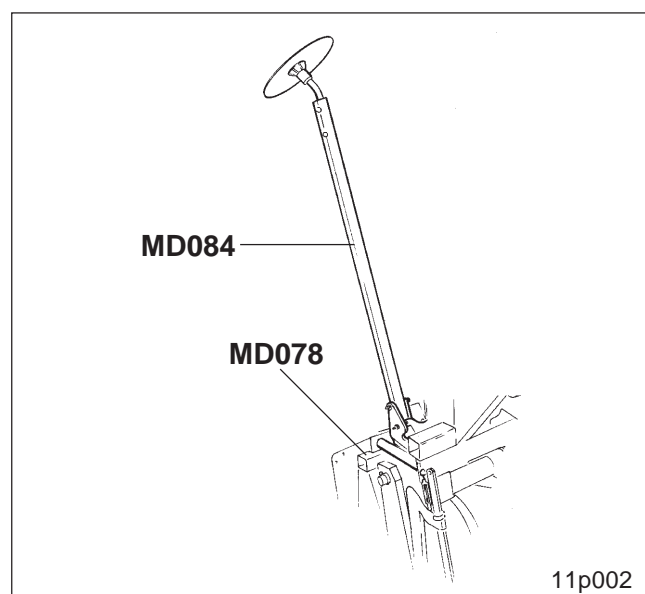
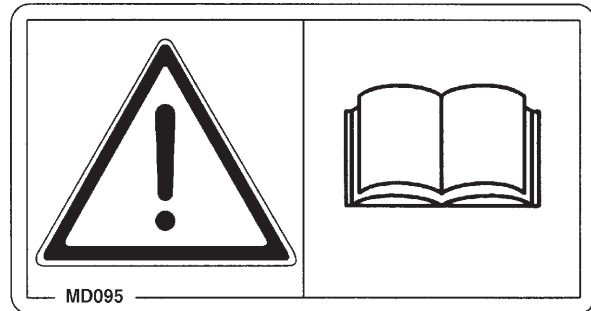


Fig. 3.3

Picture No.: **MD 095**

Explanation

Before commencing operation read the operation manual thoroughly!



Picture No.: **MD 082**

Explanation

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

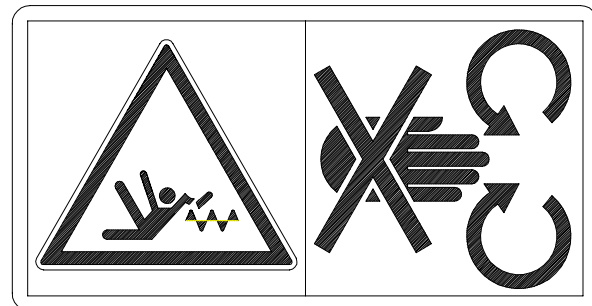


Picture No.: **MD 083**

Explanation

Danger of injury!

Never reach into the seed tank!



Picture No.: **MD 084**

Explanation

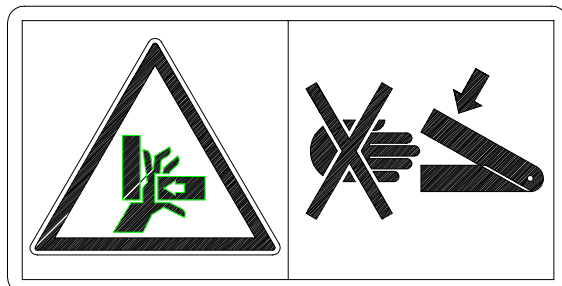
Never stay within the track markers' swivel area!



Picture No.: **MD 078**

Explanation

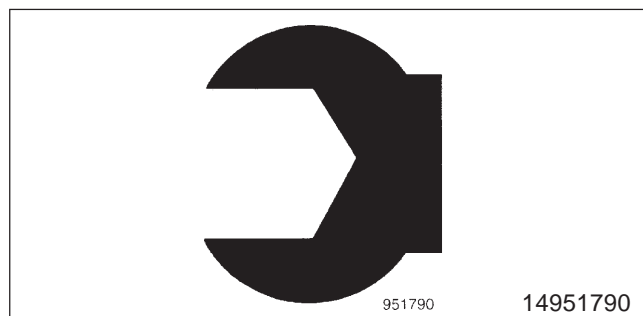
Never reach into the zone of danger as long as parts are still moving!



Picture No.: **951790**

Explanation

Retighten bolts after some hours of operation!



Picture No.: **911888**

Explanation

The CE-sign indicates that the implement fulfills the demands of the EC-law machine/implement 89/392/EC and the relevant additional guide lines!4.5 Safety conscious operation.

Besides the safety advice the common health- and safety precautions of your country have strictly to be adhered to.

When the implement is transported on public roads adhere to your national relevant traffic law.





4.5 Safety conscious operation

Besides the safety advice the common health- and safety precautions of your country have strictly to be adhered to.

When the implement is transported on public roads adhere to your national relevant traffic law.

4.6 Safety advice for the operator

4.6.1 General safety- and accident prevention advice

In general:

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

1. Adhere to the general rules of health- and safety precautions besides the advice in this instruction manual!
2. The fitted warning- and advice labels and plates give important hints for safe operation; adhering to them protects your own safety!
3. When making use of public roads adhere to applicable traffic rules!
4. Become acquainted with all installation and controlling devices as well as with their function before beginning with the operation. Doing this during operation would be too late!
5. The clothing of the operator should fit well. Avoid wearing any loose clothing!
6. To avoid danger of fire keep your machine clean!
7. Before beginning to drive, check surrounding area (children etc.). Ensure sufficient visibility!
8. Sitting or standing on the implement during operation or during transport is not permissible!
9. Couple the implement according to the law and only fit them to the provided attachment points.
10. When coupling implements to or uncoupling from the tractor, special precaution is necessary!
11. When attaching or removing the implement 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. Adhere to the outer transport measurements according to your national transport law!
15. Fit and check transport gear, traffic lights, warning plates and guards!
16. The release ropes for quick coupler should hang freely and in the lowered position they must not release by themselves!
17. During driving never leave the tractor-operator's seat!
18. Stability and braking are influenced by mounted implements, trailers and ballast weights. Check sufficient steering and braking!
19. When lifting a three-point-implement the front axle load of the tractor is reduced depending on its size. The sufficient front axle load (20 % of the tractor net weight) has to be maintained (please refer to the operation manual of the vehicle manufacturer)!
20. When driving around bends note the width of the implement and/or the changing centre of gravity of the implement!
21. Start operating implements only when all guards have been fitted in guarding position!
22. Remaining within the operating area is prohibited!
23. Fill seed into the implement only with stopped engine, removed ignition key and with parking brake applied!
24. Never stay within the turning- or swivelling area of the implement!
25. Hydraulic folding frames may only be actuated

if no persons are staying in the slewing area!

26. In the area of actuated parts (e. g. hydraulic) there is danger of injury by its squeezing and shearing places!
27. Before leaving the tractor seat, lower the implement to the ground. Actuate the parking brake, stop the engine and remove ignition keys!
28. Do not allow anyone to stand between tractor and implement. Secure the tractor against rolling away by applying the parking brake and/or by the supplied chocks!

4.6.2 General safety- and accident prevention advice for implements mounted to the tractor hydraulics

1. When fitting the implement 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. Before travelling on public roads with a lifted implement lock the control lever against unintended lowering!
7. The implement must properly be hitched up/mounted. Check function of brake system. Observe prescriptions of the manufacturer!
8. The implements may only be transported or trailed by vehicles designed for this purpose.

4.6.3 General safety- and accident prevention advice for the operation of seed drills

1. During the calibration test pay attention to danger of injury by rotating and oscillating implement 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!

4.6.4 General safety- and accident prevention advice when operating the hydraulic system

1. The hydraulic system is under high pressure!
2. When fitting hydraulic rams and –engines consider the advised connections for the hydraulic hoses!
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 incorrect hydraulic connection, sockets and plugs should be marked (e. g. colour coded). This helps to prevent contrary function, e. g. lifting instead of lowering. Danger of accident!
5. Regularly check hydraulic hoses and pipe lines and exchange if found to be defective. The replacement hoses and pipe lines must meet with the implement manufacturer's technical standards!



6. When searching for leaks appropriate aids should be used because of the danger of injury!
7. Liquids leaking under high pressure (hydraulic oil) can penetrate the skin and cause severe injury. When injured see a doctor immediately! Danger of infection!
8. Before starting repair work to the hydraulic system relieve it from pressure by actuating the control lever accordingly, lower the machine to the ground and stop tractor engine!
9. The period of use of any hose circuit should not exceed six years including possible storing period of two years maximum. Also, when stored and used properly, hoses and hose circuits do age. Therefore, their longevity and period of use is limited. Deviations from the above may be accepted depending on the experience they have had and the danger potential. For hoses and hose circuits made of thermoplasts other guide lines may prevail.

4.6.5 General safety and accident prevention advice for maintaining, repair and cleaning

1. Repair, maintenance- and cleaning operations as well as remedy of function faults should principally be conducted with a stopped drive and engine. Remove ignition key!
2. Regularly check nuts and bolts for tightness and retighten as necessary!
3. When carrying out maintenance operations on a raised implement, secure the implement by proper supporting axle stands!
4. For changing operation tillage tools with cutting edges use proper tools and wear gloves!
5. Dispose from oil, greas and filters as prescribed!
6. Before carrying out any work on the electric system, interrupt power supply!
7. Before conducting electric welding operations on tractor or on the implement, remove cable from generator and battery!
8. Any spare parts fitted must, in minimum, meet

with the implement manufacturer's fixed technical standards. This is, for example, ensured by using original AMAZONE spare parts!

4.6.6 Safety advice for retrofitting electric and electronic devices and/or components

The machine is equipped with electronic components the function of which may be affected by electro magnetic impulses of other implements. Such effects may result in danger for persons if the following safety advice is not adhered to.

When retrofitting electric devices and/or components on the machine with connection to the on-board power supply the user is responsible and has to check whether the installation causes failures of the vehicle electronic or of other components.

Especially observe that the retrofitted electric and electronic component parts correspond to the EMV-guide lines 89/336/EC in their actual valid version and bear the CE-sign.



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5.0 Putting to operation

Carefully read and adhere to the instruction manual and safety advice before putting your implement to operation.

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

Maintain your implement in a good operational order. Changes to the implement not allowed by the manufacturer may endanger the functionality and/or safety and may reduce the life span of the implement. Claims 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!

5.1 Setting up the implement before the first operation

Before the first operation

- **Fit front seed tank to the tractor**
please refer to para. 11.
- **Fitting the pack top sowing rail AS to a combination**
 - **with tyre packer- or wedge ring roller**
please refer to para. 21.
 - **with tooth packer roller**
please refer to para. 22.
- **Fit the parts having been loosely supplied with to the implement:**
 - Track markers according to para. 24.1
 - Extra coverage following harrow according to para. 25.1.

5.2 Setting up the implement before every operation

- **Put to operation the hydraulic drive of the**

blower fan

please refer to para. 12.

- **Connect hydraulic hoses with the tractor**
please refer to para. 3.7.



Adhere to the safety advice according to para!

Actuate control valves only from the tractor seat!

Advise persons to leave the danger zone!
Danger of injury where parts are moving!

- **Check air pressure of the front packer tyres (if existent)**
please refer to para. 50.6.
- **Fill front seed tank**
please refer to para. 14.1.
- **Set metering unit according to the seed**
please refer to para. 15.
- **Determine gearbox setting for the desired seed rate:**
 - **without** AMADOS-seed rate remote control
please refer to para. 16
 - **with** AMADOS-seed rate remote control
see para. 17.

5.3 Setting up the implement in the field

- **Calibrate the distance sensor**
Take the figure "Imp./100 m" from the table Fig. 5.1 and enter this figure into the computer according to the AMADOS instruction manual.



The calibration figure "Imp./100 m" is ground related. If you conduct the calibration test with another number of crank turns than indicated in the table Fig. 5.1, the calibration figure has also newly to be determined.



The calibration figure "Imp./100 m" may only then be taken from table Fig. 5.1 when the distance sensor is fitted as

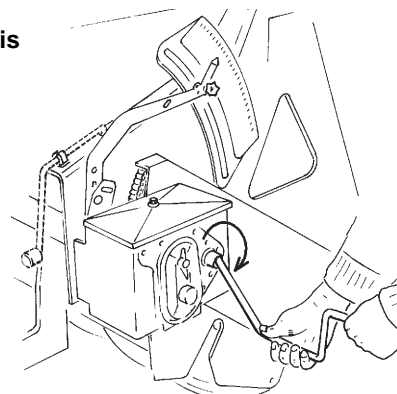
described in Fig. 5.2 or 5.3.

Figure 5.2 shows the FPS-distance-sensor (Fig. 5.2/1).

Figure 5.3 shows the FRS-distance-sensor (Fig. 5.3/1).

- **Bringing the track markers into working position**
please refer to para. 24.2.
- **Setting the track markers to the correct length**
please refer to para. 24.4.
- **Setting the track marker so that the mark is carved on the correct side.**
- **Setting the AMADOS-tramlining control**
please refer to para. 26.2.
- **Setting the hectare meter on “Zero” (“Null”)**
(please refer to AMADOS instruction manual).
- **Bringing the blower fan on its correct speed**
 - with hydraulic drive
please refer to para. 12.1
 - with Diesel engine drive
please refer to para. 13.1.

You will find this table on
FRS and FPS
952748



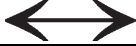
	1/40 ha	1/10 ha
3,0 m	67,5	270
4,0 m	50,5	202
4,5 m	45,0	180
6,0 m	34,0	136
Working width of the sowing rail	Crank turns on FRS/FPS gearboxes	
Seed tank	FPS	FRS
AMADOS Imp./100 m	1622	280

Fig. 5.1

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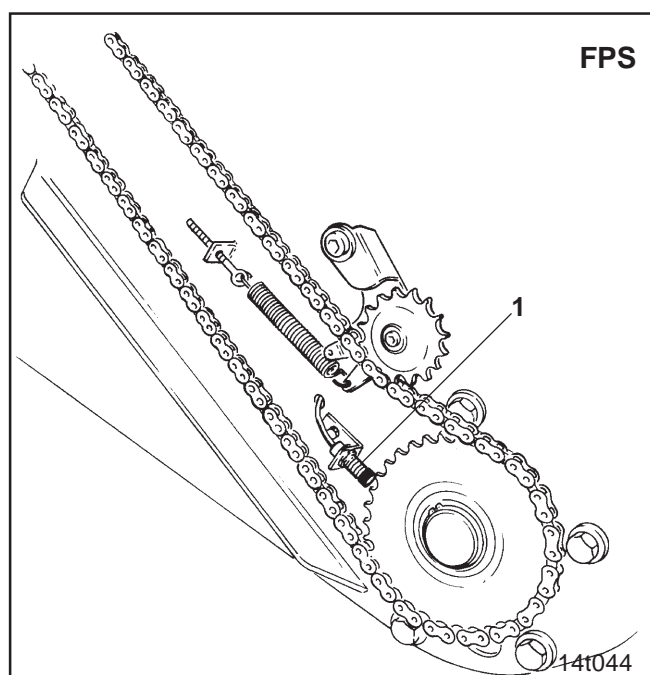


Fig. 5.2

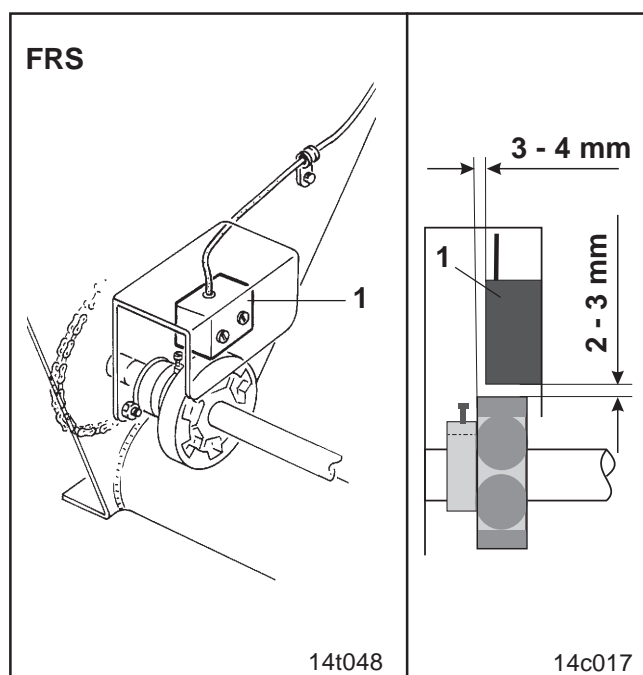


Fig. 5.3

only front frame seed tank with star wheel:

For transport the star wheel (Fig. 5.4/1) is raised and fixed with a chain (Fig. 5.4/2) on the frame.

Raise star wheel, detach from the chain and lower (see Fig. 5.5).

- Connect hydraulic ram (Fig. 5.5/1) for actuating the star wheel to a single acting control valve on the tractor.
(please refer to para. 3.7).



Before turning at the field's end raise the star wheel with the hydraulic (Fig. 5.5/1) in order to avoid seed loss and damage on the star wheel.



Advise persons to leave the danger-zone.

Danger of injury where parts are moving!

5.4 Check after the first 30 m

Drive for about 30 m in your intended operational speed in the field and check. If necessary, correct the following settings:

- Depth placement of the seed
please refer to para. 23
- Seed coverage with the extra coverage following harrow
please refer to para. 25.2 up to 25.5
- Working intensity of the marker discs.

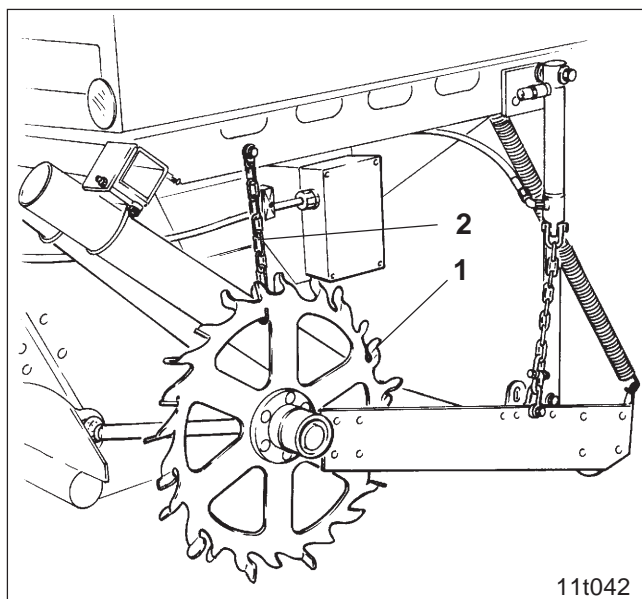


Fig. 5.4

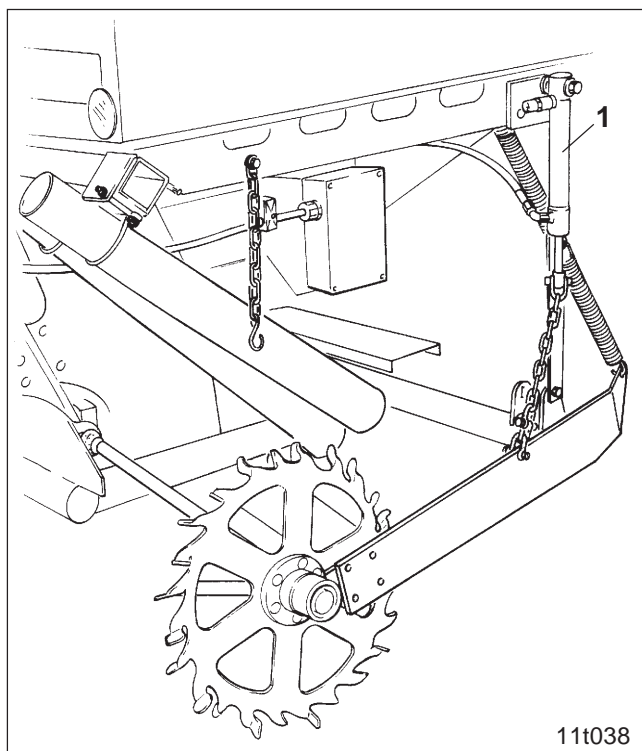


Fig. 5.5

5.5 During operation

The seed level in the seed tank can be checked with the electr. filling level indicator AMFÜME (special option) (see para. 14.2).



Refill seed tank early enough!

The seed tank should never be emptied completely.

The sensor (Fig. 5.6/1) monitors the seed metering shaft. If during operation the seed metering shaft stops AMADOS sends a fault message. The display shows "Error 2" with an audible signal.

only front packer seed tank FPS:

The front packer drives the seed metering wheels. In order to avoid seed losses at when turning at the field's end the drive of the seed metering wheels has to be stopped immediately when the front packer seed tank is raised by the tractor hydraulics. When lifting the front packer seed tank the brake skid (Fig. 5.7/1) is pressed onto the running surface of the tyre and brakes the rotation of the front packer.

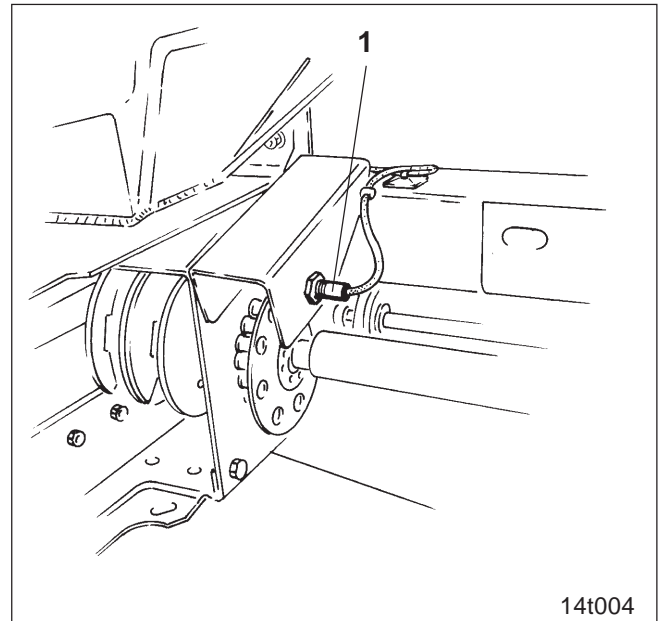


Fig 5.6

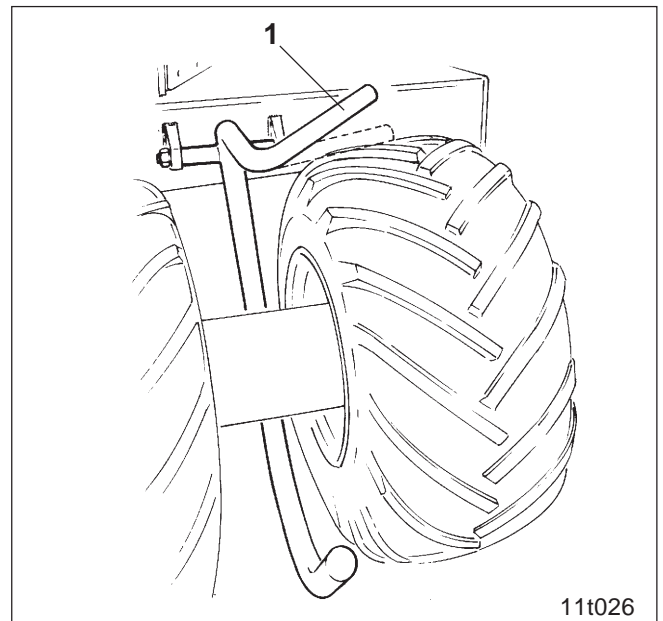


Fig 5.7

5.6 Maintenance after the first 10 hours of operation



All bolted connections have to be checked after the first 10 operational hours and retightened as necessary!

5.7 Parking the AD-combination with tyre packer roller



When you park the tyre packer roller after operation we recommend to relieve the tyres in order to avoid damage to the tyres and the tyre bracing rings.

If you want to park the combination rotary cultivator/ rotary harrow and tyre packer together with the Pack Top sowing module AS, please use the supporting legs of the AS:

- outer supporting leg (Fig. 5.8/1),
for all working widths
- Inner supporting leg (Fig. 5.9/1) for AS 602.

Before uncoupling the rear mount combination from the tractor the depth adjusting (Fig. 5.10/1) of the soil tillage implement have to be set **at the top** in the quadrant plate (Fig. 5.10/2).



When setting observe that you grab the depth setting pins (Fig. 5.10/1) in such a way that your hand never reaches between pin and carrying arm. After setting secure pin by lynch pin.



If you want to park the tyre packer roller without the Pack Top sowing module, the tyres have to be relieved as described in the instruction manual for the tyre packer roller.

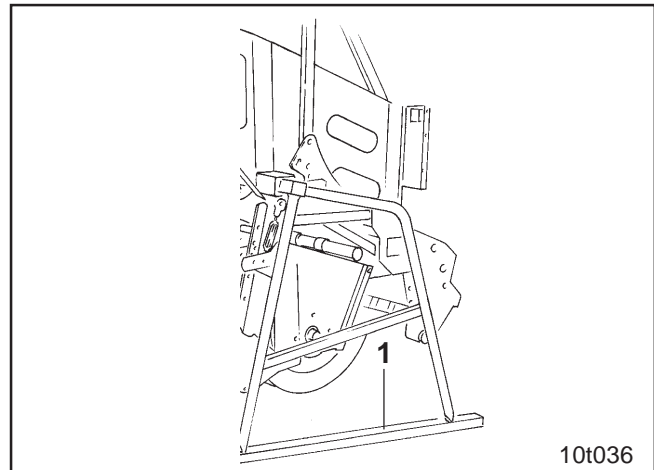


Fig 5.8

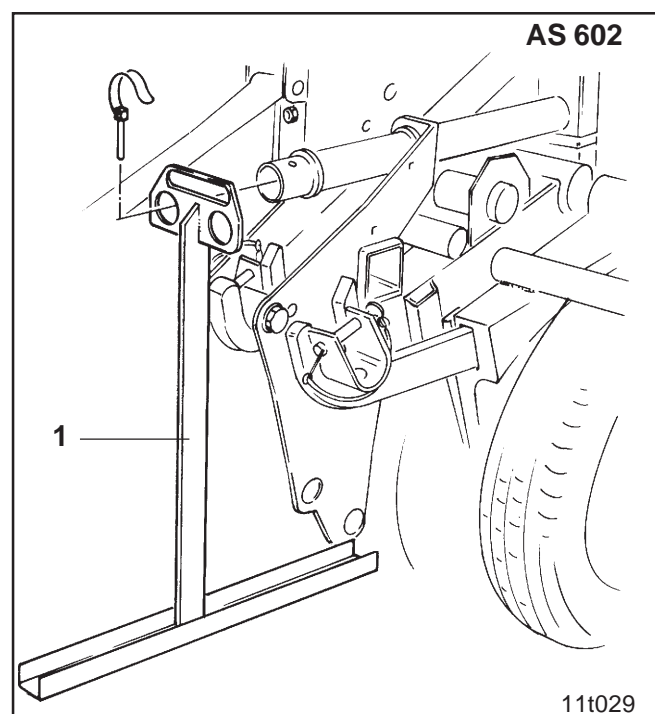


Fig 5.9

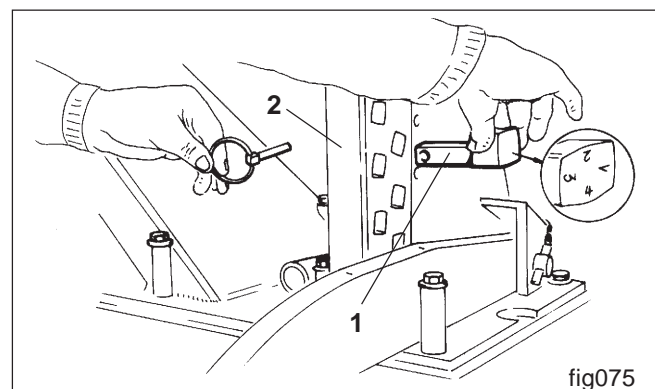


Fig 5.10



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11.0 FRS / FPS front mounted



When front mounting the FRS and FPS adhere to the safety advice for mounted implements to the tractors hydraulic according to para. 4.6.2.

11.1 Coupling FRS / FPS

Bolt lower link arm (Fig. 11.1/1) to the FRS / FPS-frame, secure with counter nuts and a securing against twisting (Fig. 11.1/2) sichern. For bolting on the lower link arm the FRS/FPS frame is equipped with several holes (Fig. 11.1/6) so that the implement can be matched to every kind of tractor Press setting rings (Fig. 11.1/3) against the frame and secure.

Fix lower link arm cat. II (Fig. 11.1/1) of the FRS / FPS as known to the tractor's front lower links.

Fix upper link (Fig. 11.1/4) with upper link pin cat. II (Fig. 11.1/5) and secure with a lynch pin to the seed tank. Align the FRS/FPS by adjusting the upper link length.



only for FPS:

The tractor's front lower links have to be equipped with a pendulum compensation to compensate soil undulations and to avoid damage on the FPS-frame due to bending.

The lower links of the tractor may only have little lateral play.



Hint

for fixing the upper link

If the tractor cannot lift the FRS/FPS it is recommended to fix the upper link on the FRS/FPS as low and on the tractor as high as possible. Check whether the lifting height is sufficient.



The supporting leg (Fig. 11.2) of the FPS

- has to be pushed upwards after having coupled the FPS to the tractor

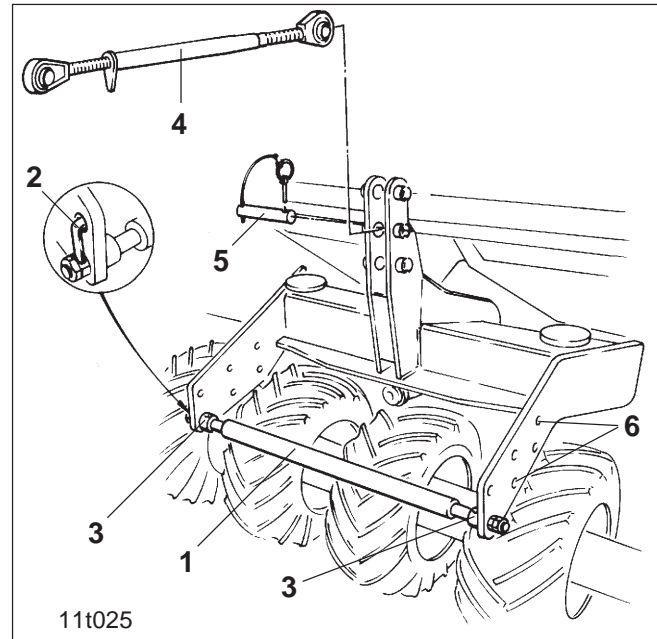


Fig. 11.1

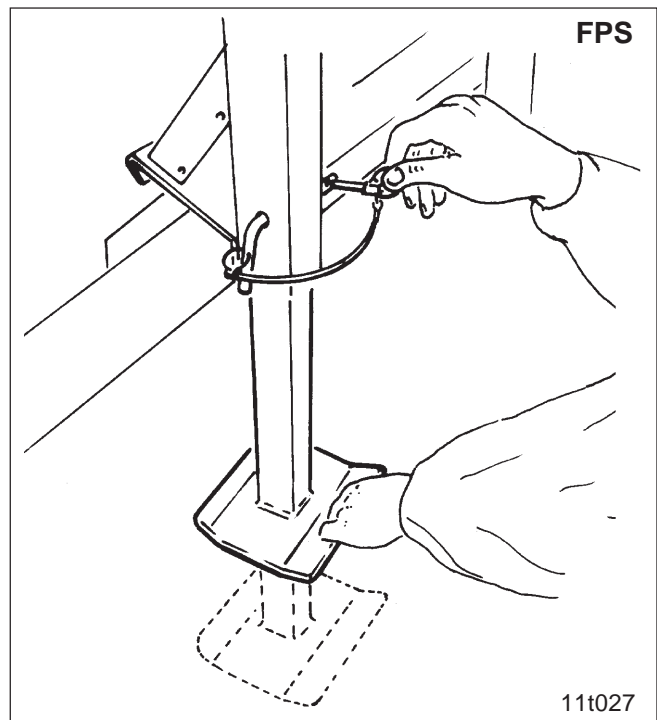
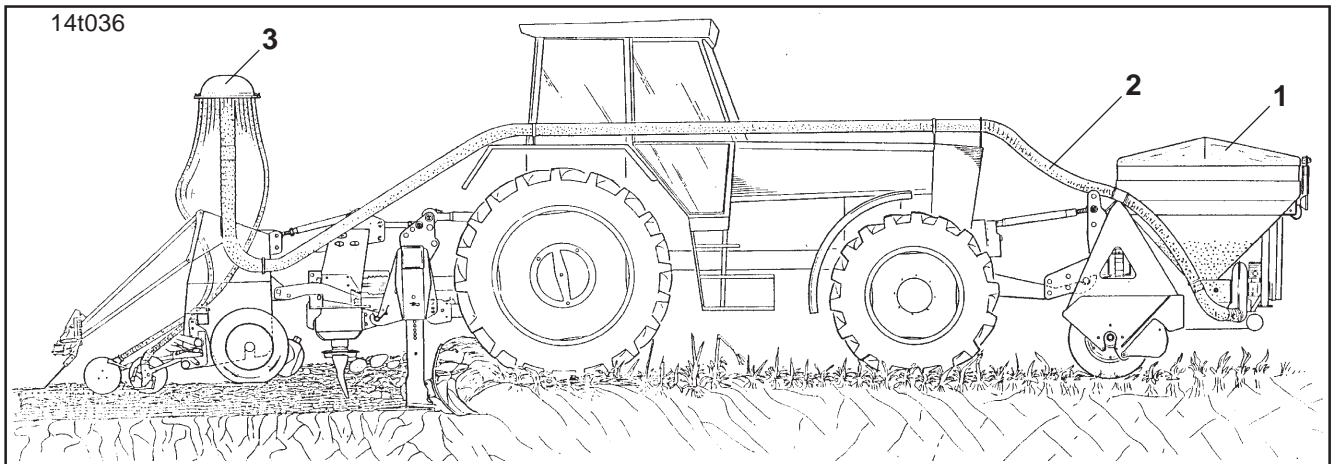


Fig. 11.2

- has to be pushed downwards before uncoupling the FPS from the tractor
- to be set with a pin and secured with a lynch pin.


Fig. 11.3

11.2 Guidance and connection of seed tubes and electric cables

Only connect seed tubes and electric cables after the Pack Top sowing module AS has been fixed to the roller of the soil tillage implement.

The seed is delivered through one or two seed tubes (Fig. 11.3/2) from the seed tank (Fig. 11.3/1) to the distributor(s) (Fig. 11.3/3) of the sowing rail. Fix the seed tubes (Fig. 11.4/1) to the tractor with at least one bracket at the front (Fig. 11.4/2) and one bracket at the rear (Fig. 11.5/1). Make these brackets matching your kind of tractor by yourself and fix these brackets to the tractor.

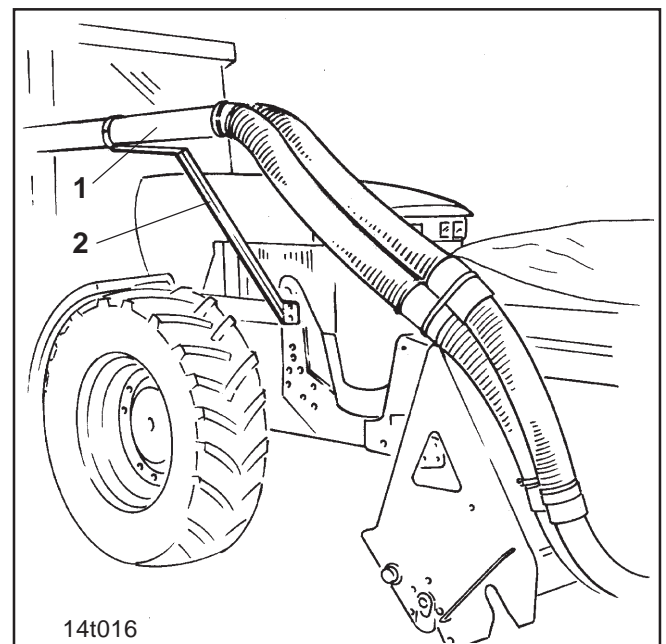
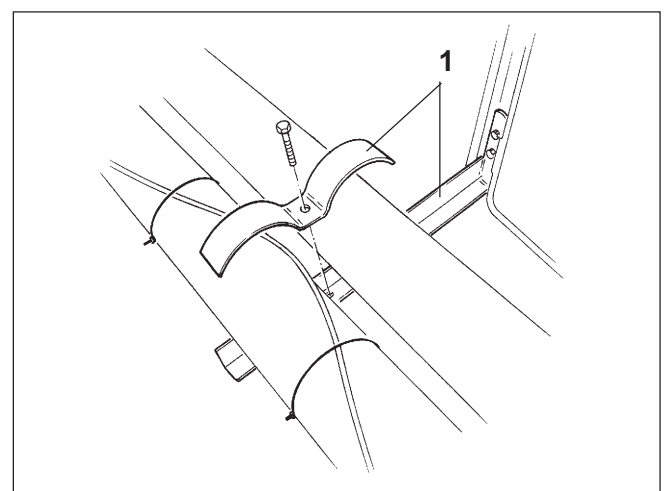


When guiding the seed tubes care for a short distance between seed tank and distributor(s)!



Guide seed tubes in such a way that they cannot be damaged during operation!

Together with the seed tubes also guide and fix the cables below (Fig. 11.7/5) to the tractor.


Fig. 11.4

Fig. 11.5

Slide the seed tubes into each other and secure with quick locking devices. (Fig. 11.6/1).

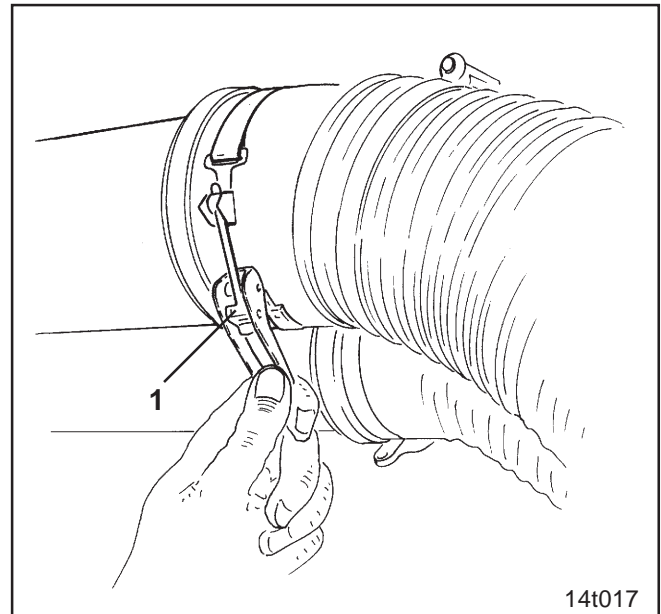


Fig. 11.6

Fix distributor box (Fig. 11.7/1) in the tractor cab so that the switch can be reached when driving.

Connect wire of distributor box (Fig. 11.7/1) with the tractor's battery (watch for correct poling).

At the same time also connect the mass cable (Fig. 11.7/2) to the negative pole of the battery.

Insert plug (Fig. 11.7/3) for the electric power supply of the AMADOS-on board computer and the plug (Fig. 11.7/4) for the electric power supply for the head lights into the distributor box (Fig. 11.7/1) on the seed tank.

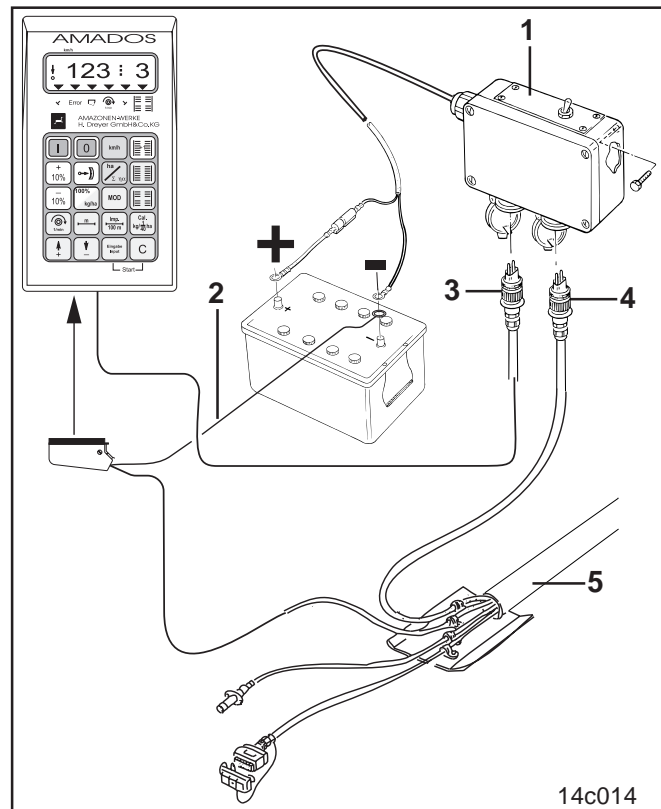


Fig. 11.7

The head lights of the seed tank can be switched on or off on the switch of the distributor box (Fig. 11.8).

The following plug-in connections also belong to the set of cables (Fig. 11.7/5):

rear plug-in connections:

- the plug (Fig. 11.9/1) for the turn signals on the seed tank.
Insert plug (Fig. 11.9/1) into provided adaptor and insert adaptor into the tractor socket (for trailer traffic lights).
The adaptor has got two connections. Also fix the plug for the sowing module traffic light to the second adaptor connection.
- the plug (Fig. 11.9/2) with the cables, which lead to the AMADOS sensor(s) on the sowing rail.
Insert plug into distributor of the sowing rail.

front plug-in connections:

Connect the combination plug (Fig. 11.10/1) fixed to the seed tank with the set of cables (Fig. 11.10/2) on the tractor.

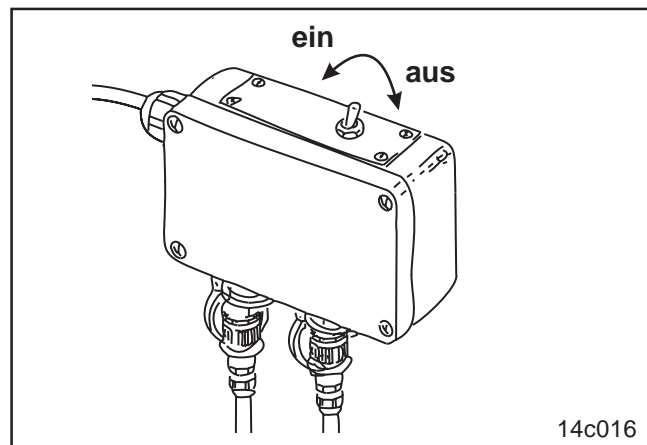


Fig. 11.8

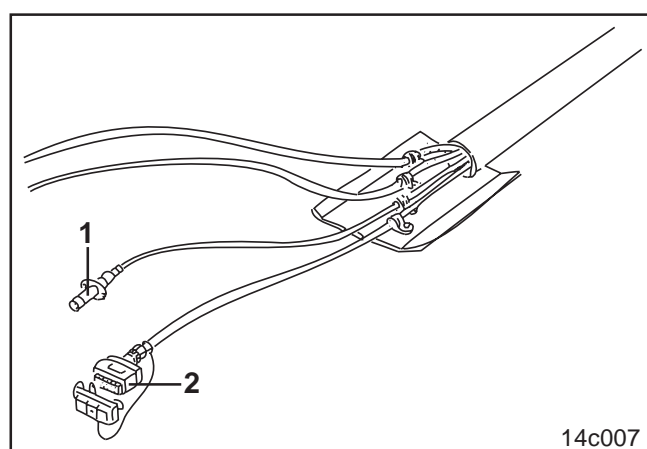


Fig. 11.9

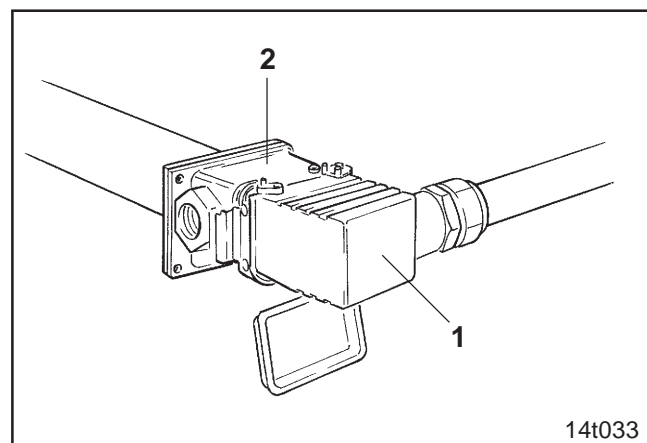


Fig. 11.10





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12.0 Blower fan with hydrostatic drive

The air jet for delivering the seed from the injector sluice (Venturi) on the front tank to the coulters is provided by a blower fan on the front tank.

In order to drive the blower fan by the hydrostatic motor (Fig. 12.2) this has to be connected to the tractors' hydraulics according to the wiring diagram (para. 12.3).



Adhere to the safety advice according to para. 4.6.4.

12.1 Blower fan speeds

The speed of the blower fan's hydrostatic drive can be controlled by the electronic monitoring-, controlling- and regulating system AMADOS (please refer to para. 12.2).

Please take the required blower fan speed from the table (Fig. 12.1).



Do not exceed the maximum blower fan speed of 3800 R.P.M.!

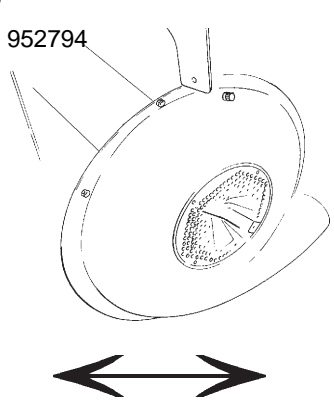

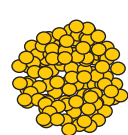
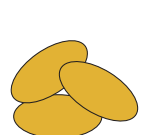
Set the blower fan speed by the pressure relief valve (Fig. 12.5/3) or by the electric power regulation valve of the tractor (see below).

For setting the blower fan R.P.M. on the pressure relief valve (Fig. 12.5/3):

- remove protective cap
- slacken counter nut
- Set R.P.M. with a screw driver on the valve as follows:
 - turn to the right = R.P.M. increase
 - turn to the left = R.P.M. decrease.

After setting secure valve with counter nut and apply protective cap.

On tractors with an adjustable hydraulic pump (Fig. 12.5/5) the required oil flow rate has to be set on the electric power regulating valve of the tractor and the pressure relief valve (Fig. 12.5/3) has to be set in such a way that the delivered oil quantity is as little as possible. If more oil is delivered than actually

			AD-P / FRS / FPS	
				
				
3,0 m			2700	3400
4,0 m			2700	3500
4,5 m			2800	3600
6,0 m			2800	3600
Working width of the sowing module			Blower fan speed (R.P.M.)	
			fine-seeds (rape)	legumes and grain

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Fig. 12.1

needed, it will be delivered back into the oil tank by the pressure relief valve and unnecessarily heats up the hydraulic oil.

The blower fan speed changes as long as the hydraulic oil has reached its operating temperature. For the first putting to operation the blower fan R.P.M. has to be corrected until the operational temperature will be reached. When the blower fan is put to operation after a longer pause the pre set blower R.P.M. is only then reached when the hydraulic oil has been heated onto its operational temperature.

12.2 Monitoring the fan's R.P.M. speed

The R.P.M. speed of the blower fan can be checked with the electronic monitoring-, controlling- and regulation system AMADOS.

By pressing the key  the actual R.P.M.

speed is measured by a R.P.M. sensor (Fig. 12.2/1) and displayed.

Depending on the pre-selected rated speed, **AMADOS** monitors the blower fan speed. **If in operation position of the implement the rated speed is exceeded or drops by more than 10 %**, an audible signal is released and the black triangle above the speed symbol flicks.

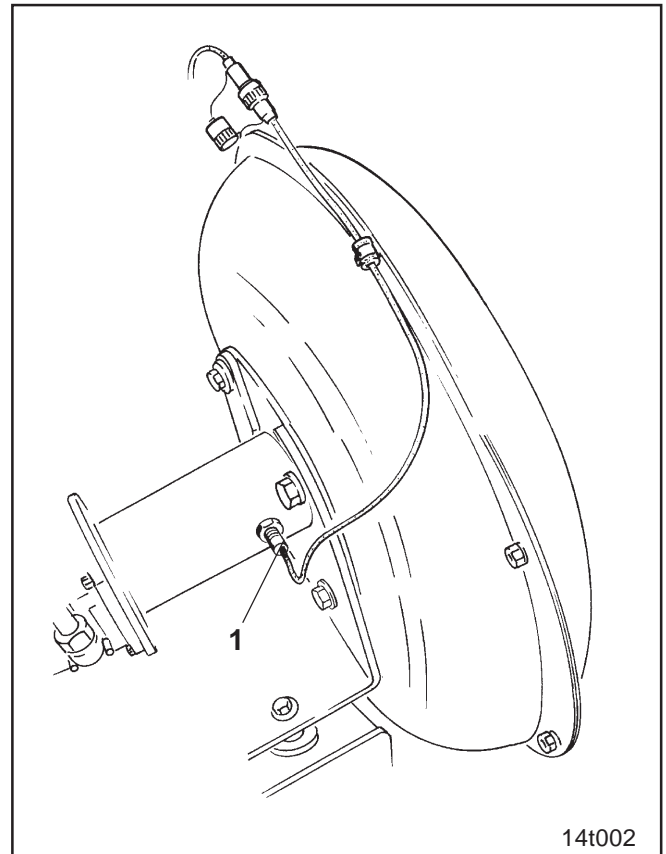
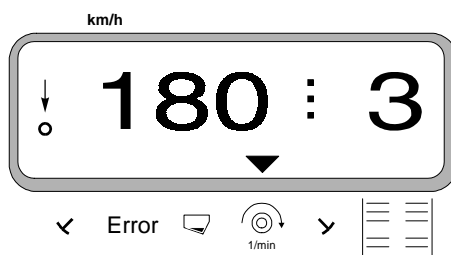



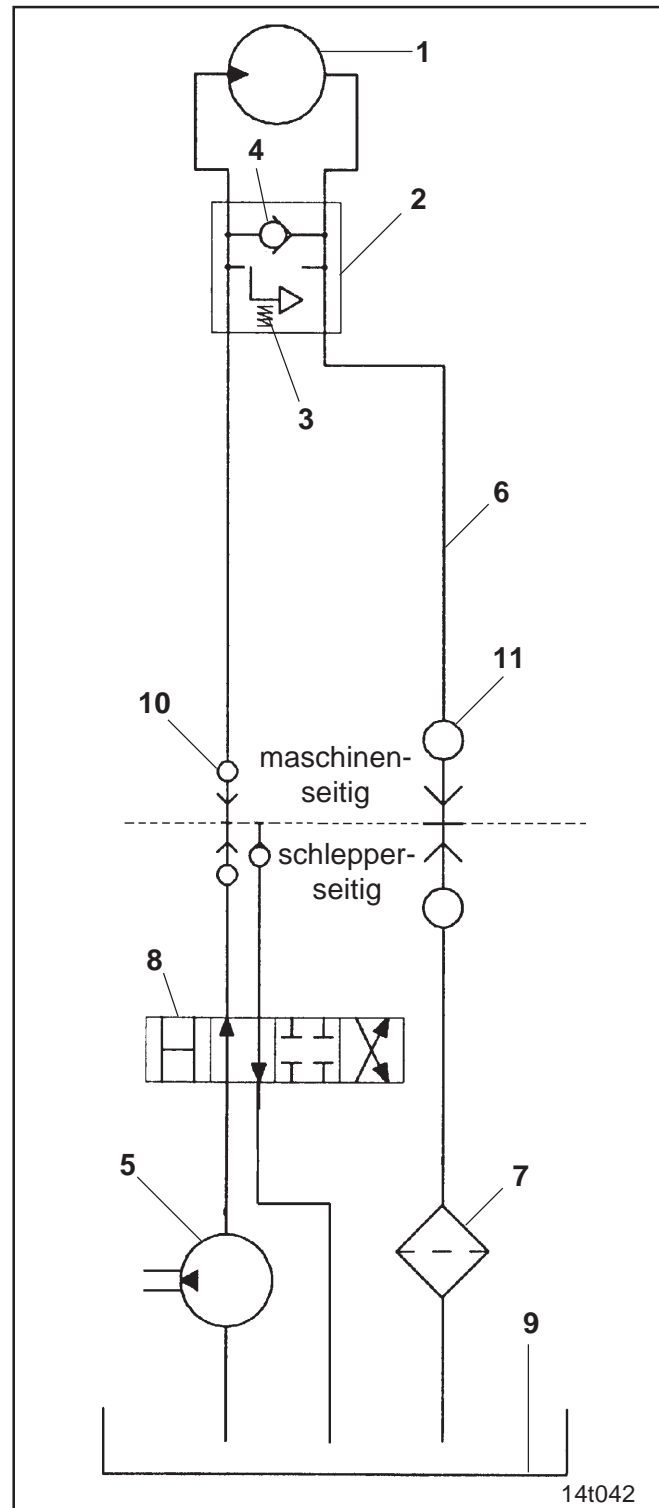
Fig. 12.2



 For entering the rated speed, please refer to the AMADOS instruction manual „Monitoring the blower fan speed“.

 The alarm is only given if AMADOS receives impulses by the distance sensor.

No	Description (see Figure 12.3)
1	blower fan hydr.stat.drive N = 3800 R.P.M. max.
2	pressure relief valve with hydr. free wheel
3	adjustable pressure relief valve
4	return valve
5	Tractor hydraulic pump (the capacity of the tractor's hydraulic pump has at least to be 40 l/min at 150 bar)
6	free return flow <ul style="list-style-type: none"> - tube nominal width min. Ø16 mm - Use couplings with sufficiently large cross section - the back pressure in the return flow may max. be 10 bar
7	Filter
8	single- or double acting control valve
9	hydraulic oil tank
10	plug coupling
11	plug coupling "large"



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ceed the permissible maximum pressure of 10 bar.

The return valve (Fig. 12.3/4) allows the after-running of the blower fan as soon as the control valve (Fig. 12.3/8) has been closed.

The hydraulic oil may not heat too much. Large oil quantities in conjunction with small oil tanks increase the quick heating of the hydraulic oil. The capacity of the oil tank (Fig. 12.3/9) should at least be double the quantity of the oil to be delivered. If too a big heating is noticed the installation of an oil cooler in the tractor should be carried out by an authorised workshop.

Dirt particles may damage the blower fan hydrostatic drive (Fig. 12.3/1) and the pressure relief valve (Fig. 12.3/3). Therefore, when connecting the blower fan hydrostatic drive to the tractor's hydraulics, the coupling parts have to be clean in order to avoid pollution by dirt particles.

If apart from the blower fan hydrostatic drive a second hydrostatic drive has to be driven, both motors have to be connected in parallel. At a serial connection of both drives the permissible oil pressure of 10 bar behind the first drive will always be exceeded.

If the blower fan hydrostatic drive is connected to different tractors, mind a possible incompatibility of the kinds of oil! Prohibited mixing of different hydraulic oils may cause damage on hydraulic component parts.

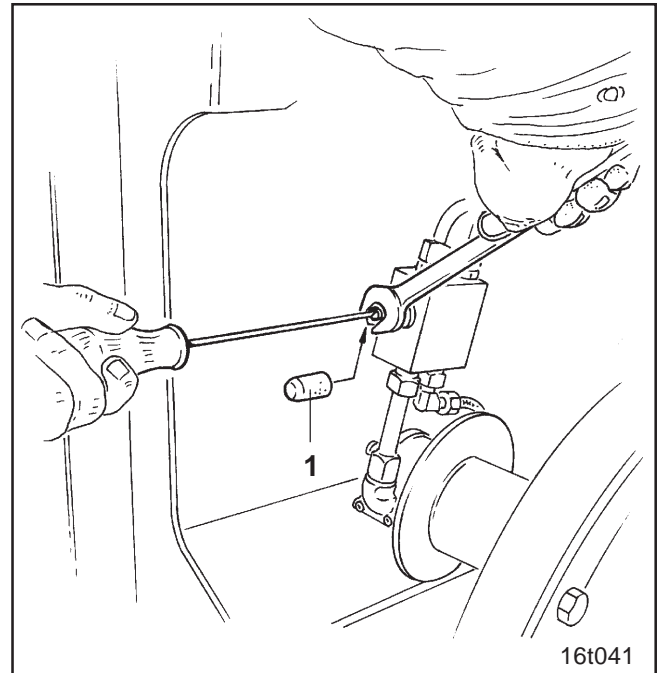


Fig. 12.4





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13.0 Blower fan with Diesel engine drive

The blower fan on the front tank provides the air jet for the seed delivery from the injector sluice on the front tank to the coulters.

Besides by a hydrostatic motor the blower fan may be driven by a Diesel engine. The Diesel engine delivers a constant air jet and is independent from the engine R.P.M. or the delivery by the hydraulic pump of the tractor.

If your front seed tank FRS / FPS is equipped with a Diesel engine drive, this is provided with a special instruction manual of the Diesel engine manufacturer.



Please adhere to the safety-, operating and maintenance-advice in the instruction manual for the Diesel engine!

13.1 Blower fan R.P.M. speeds

Please take the necessary blower fan R.P.M. from the table (Fig. 13.1).



Do not exceed the maximum blower fan speed of 3800 R.P.M!

Start the Diesel engine as described in para. 13.3.

Right before starting operation move the engine speed controlling lever (Fig. 13.2/1) upwards until the correct blower fan speed is achieved. The actual blower fan speed can be shown on the AMADOS-display as described in para. 13.2. The lever position can be fixed with the thumb nut (Fig. 13.2/2) which serves as stop of the motor speed controlling lever (13.2/1).



Check the air filter of the Diesel engine daily (please refer to para. 50.5).

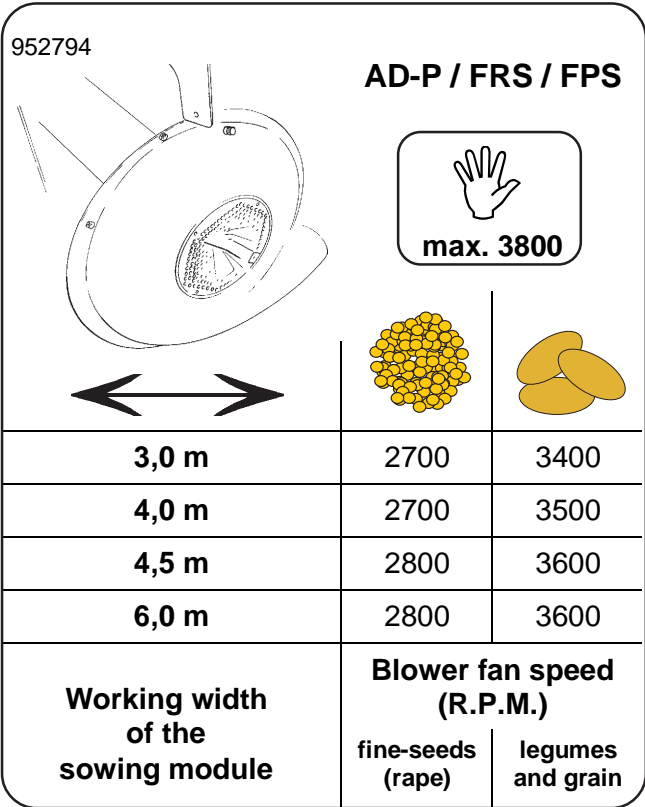


Fig. 13.1

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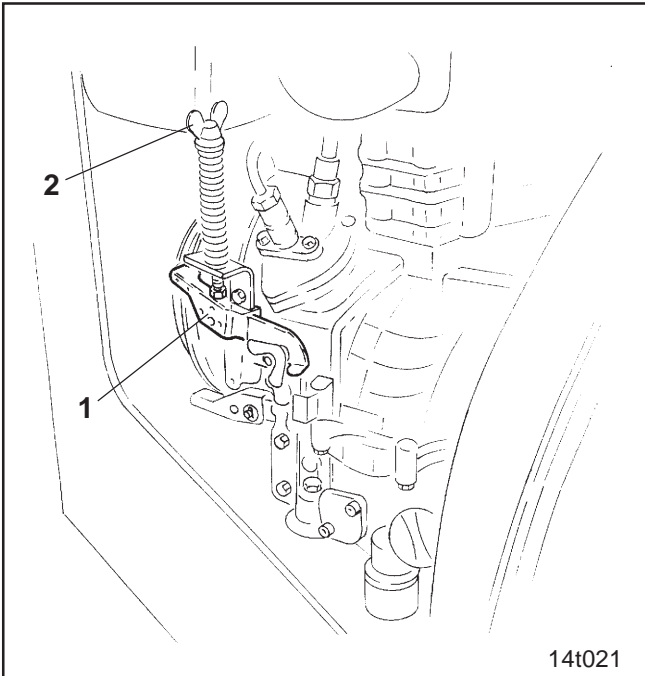


Fig. 13.2

13.2 R.P.M. speed monitoring

The speed of the blower fan Diesel engine can be controlled by the electronic monitoring-, controlling and regulating system AMADOS.

By pressing key



the actual speed of the blower fan, provided with a R.P.M. sensor (Fig. 13.3/1) is shown in the display

Depending on the pre-selected rated speed, AMADOS monitors the blower fan speed. If in operation position of the implement the rated speed is exceeded or drops by more than 10 %, an audible signal is released and the black triangle above the speed symbol flicks.

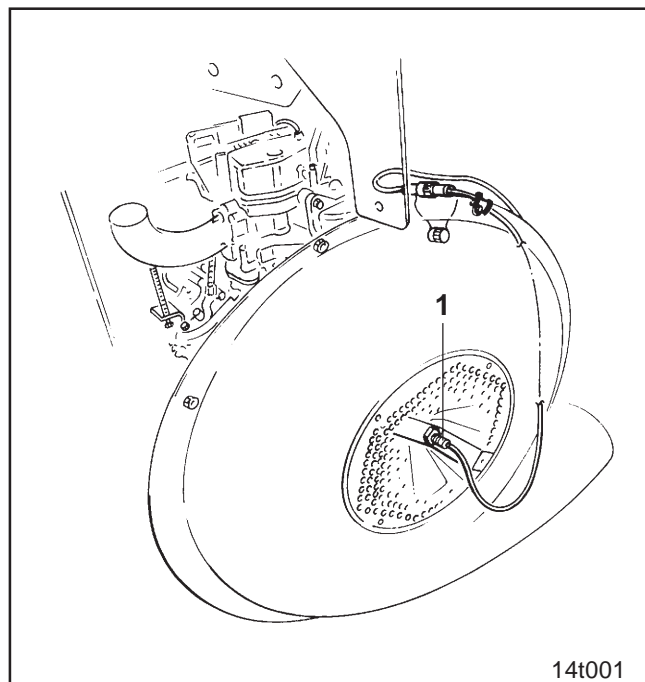
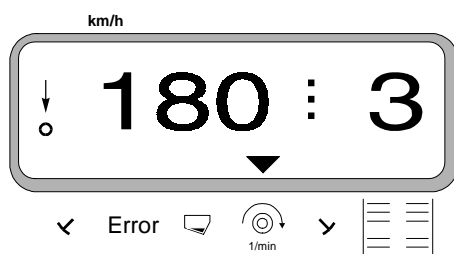


Fig. 13.3



For entering the rated speed, please refer to the AMADOS instruction manual „Monitoring the blower fan speed“.



The alarm is only given when AMADOS receives impulses from the distance sensor.

3.3 Putting Diesel engine into operation

Before starting the Diesel engine, carefully read the instruction manual of the Diesel engine manufacturer.



Danger of burning!

While the engine is running, parts of it become very hot which only cool down slowly after the engine has been stopped.

Do not touch any hot engine parts!



Danger of injury!

While the engine is running, clothing not fitting tight may be caught by the moving parts.

Before putting the engine into operation check oil level on the oil level plunger (Fig. 13.4/1). Only use motor oil prescribed by manufacturer (please refer to the instruction manual of the engine manufacturer).

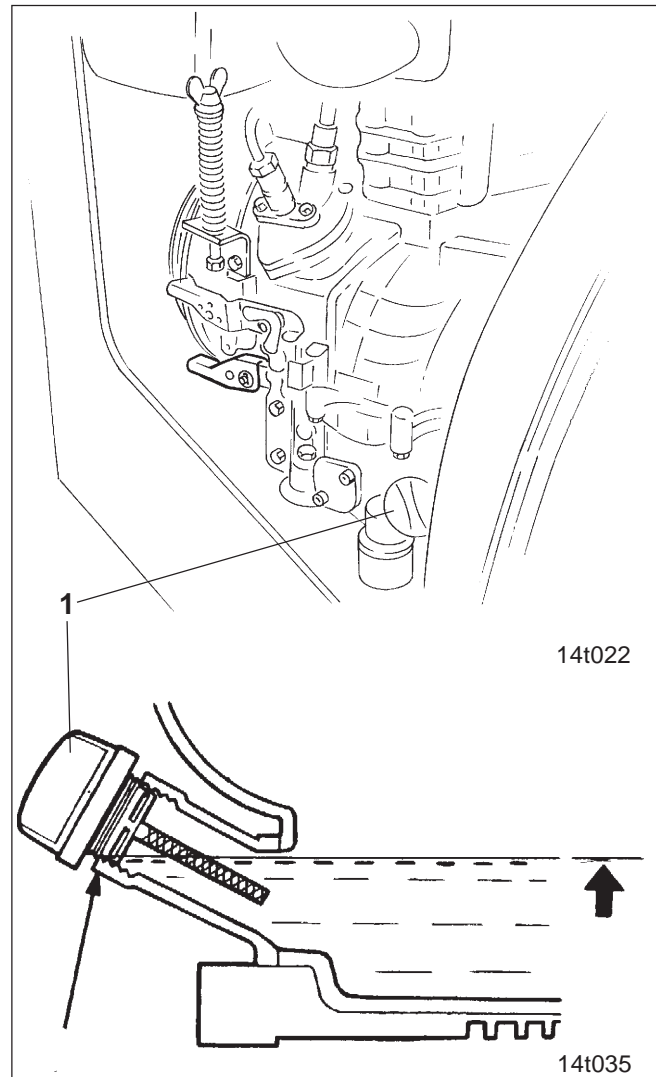


Fig. 13.4

The tank (Fig. 13.5/1) has got a capacity of 25 l.

Only use Diesel oil!

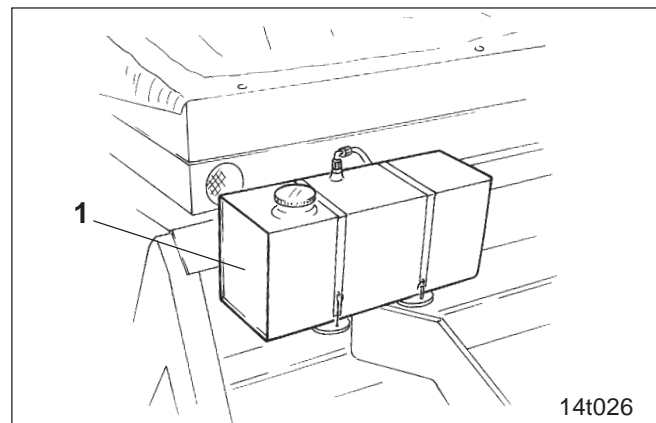


Fig. 13.5

Neutral position

Set engine speed control lever (Fig. 13.6/1) downwards (lowest speed).

Set stop lever (Fig. 13.6/2) upwards to position "START".

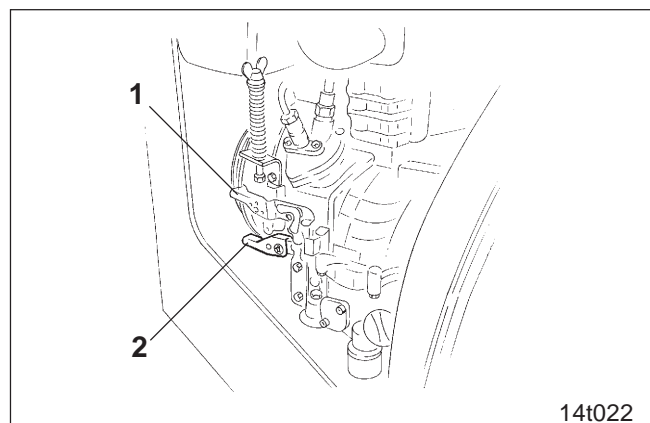


Fig. 13.6

Start engine

Start engine as shown in Fir. 13.9.

Set blower fan speed according to para. 13.1.

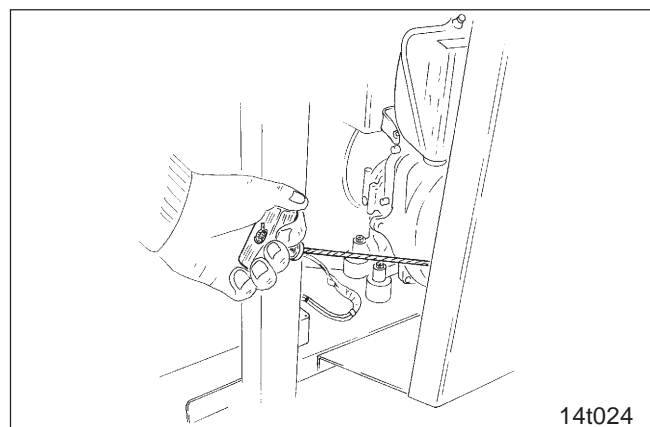


Fig. 13.7

Stop engine

Set engine speed control lever (Fig. 13.8/1) downwards (lowest speed).

Set stop lever (Fig. 13.8/2) downwards into position "STOP".

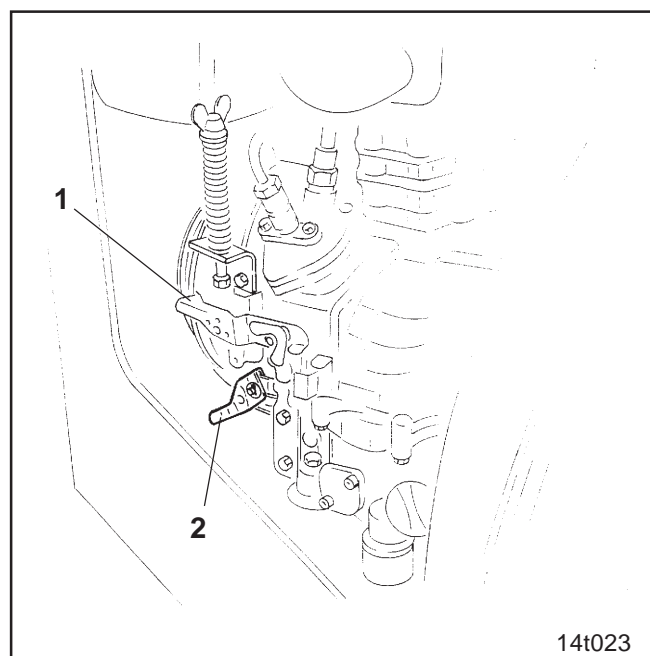


Fig. 13.8





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14.0 Filling/emptying the seed tank and monitoring the seed level

14.1 Filling the seed tank

The seed tank is covered by a rain-proof folding cover. The folding cover is secured by rubber loops (Fig. 14.1/1).

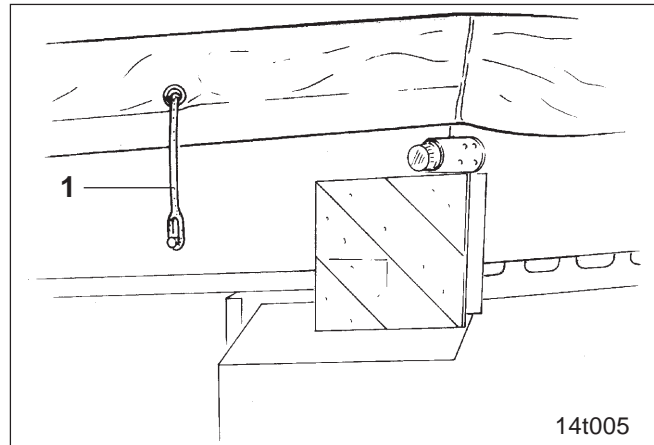


Fig. 14.1

The seed tank can be filled from a supply vehicle or from big bags. The seed tank can easily be attended from the loading board (Fig. 14.2/1).



Refill seed tank early enough!

The seed tank should never be emptied entirely. The filling level inside the seed tank can be monitored by the electr. seed level indicator AMFÜME (please refer to para. 14.2).

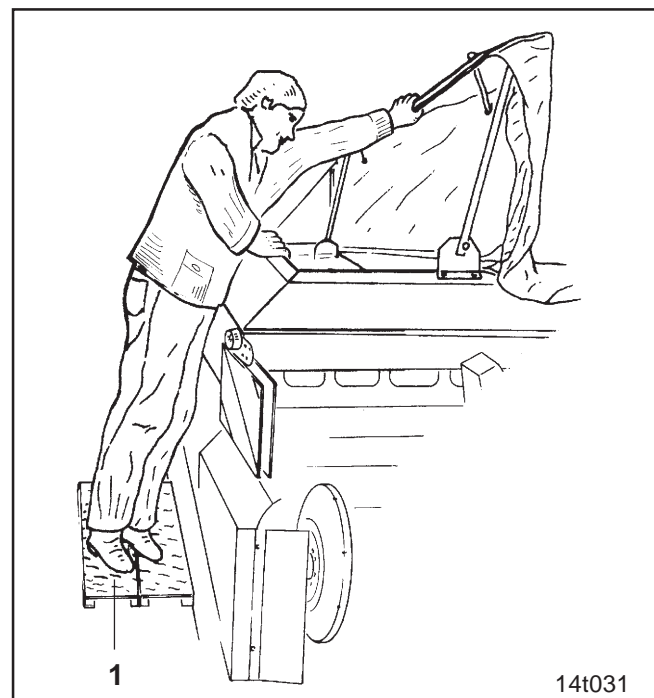
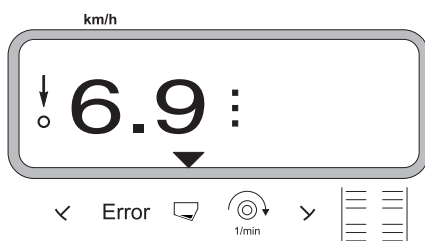


Fig. 14.2

14.2 Electr. seed level indicator AMFÜME (special optional equipment)

A capacitive sensor (Fig. 14.3/1), connected to AMADOS monitors the seed level inside the seed tank. If the sensor does not dip into the seed any more, an audible signal sounds and the black triangle above the tank symbol in the display blinks.



In order to avoid deviations in the seed rate the seed tank should never be emptied entirely. For changing the remainder seed in the seed tank, the carrier arm (Fig. 14.3) with the sensor has to be shifted accordingly. By adjusting the screw (Fig. 14.3/2) the sensibility of the sensor can be matched to the various kinds of seed.

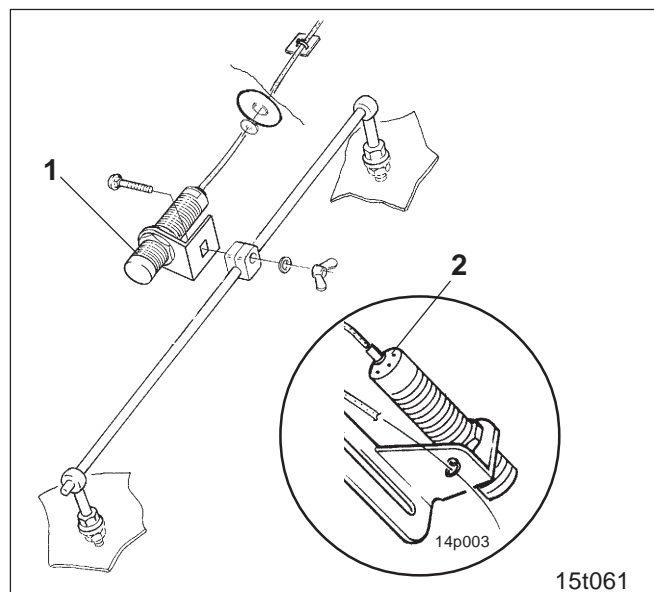


Fig. 14.3

14.3 Emptying the seed tank



After any operation, please definitely empty and clean tank and metering wheels!

If the metering wheels have not been emptied entirely, seed residues swell or germinate even in the metering wheels. The rotation of the metering wheels will be blocked and damage on drive or gearbox may be the result.

For emptying the seed tank place collecting buckets underneath the metering unit(s).

Open emptying flaps (Fig. 14.4/1) until the collecting bucket is filled with seed. Empty collecting bucket and repeat until no seed will flow into the collecting bucket any longer.

For emptying the last residue, open injector sluice flap (Fig. 14.4/2) and press lever (Fig. 14.5/1) downwards and arrest. With the lever a further outlet behind the metering unit is opened.

For emptying the metering wheels, turn the metering wheels several times with the calibration crank, as also done when carrying out the calibration test.

Then replace the calibration crank into its retainer and start blower fan briefly in order to remove all seed residue.

Shut emptying flaps (Fig. 14.4/1).

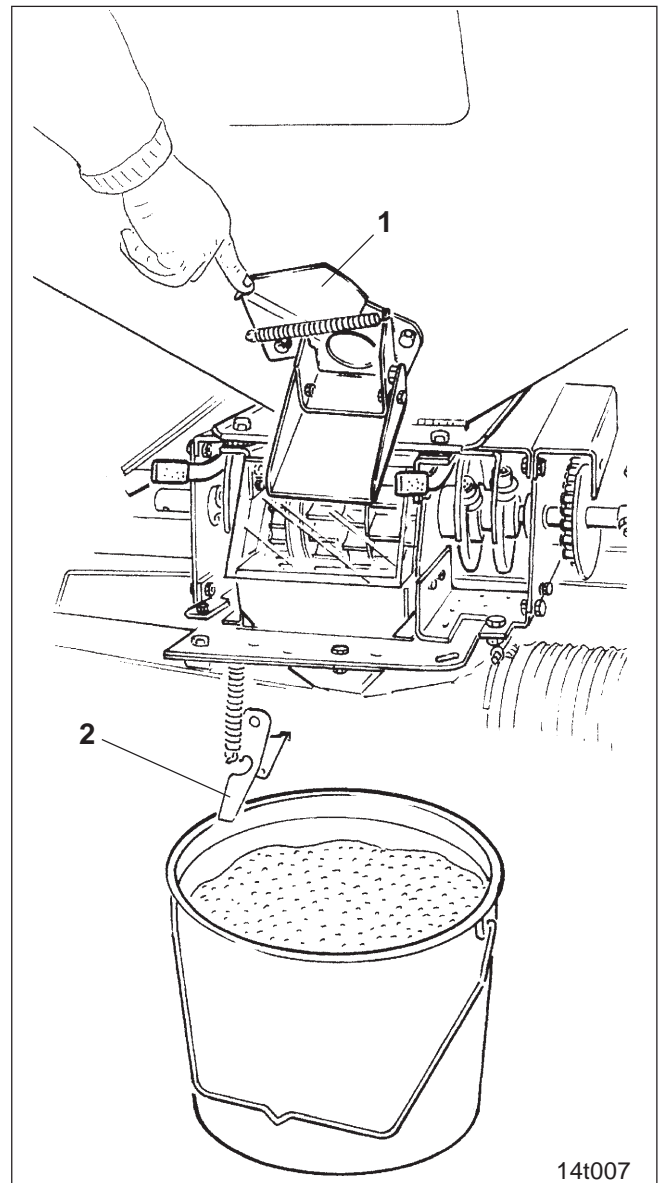


Fig. 14.4

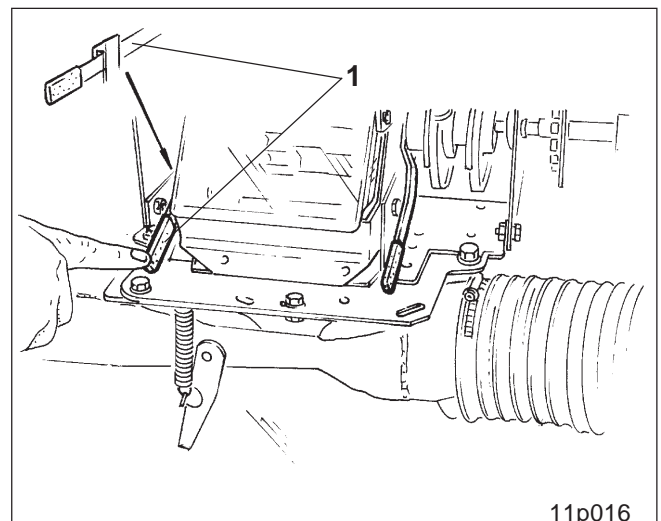


Fig. 14.5





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15.0 Setting the metering unit for the seed

Each metering device has got

- a white coloured main seed metering wheel (Fig. 15.1/1)
- an orange coloured main seed metering wheel (Fig. 15.1/2)
- a red/black coloured fine seed metering wheel. (15.1/3).

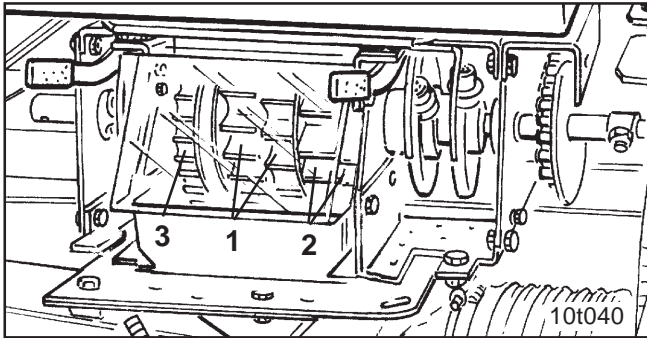


Fig. 15.1



When „main seed metering wheels („Hauptsäräder“) is indicated (see table Fig. 15.3), always sow simultaneously with both main seed metering wheels!



Take the required main seed metering wheel(s) from table (Fig. 15.2).

For seed which has not been mentioned in the table (Fig. 15.2), please refer to a seed with similar grain size when choosing the seed metering wheels.

Seed	Metering wheel
Spelt	Main seed metering wheels
Oat	Main seed metering wheels
Rye	Main seed metering wheels
Summer barley	Main seed metering wheels
Winter barley	Main seed metering wheels
Wheat	Main seed metering wheels
Beans	Main seed metering wheels
Peas	Main seed metering wheels
Flax (dressed)	Main seed metering wheels
Grass seed	Main seed metering wheels
Millet	Main seed metering wheels
Lupine	Main seed metering wheels
Alfalfa	Main seed metering wheels or Fine seed metering wheel
Oil linnen (moist dressed)	Main seed metering wheels or Fine seed metering wheel
Oil radish	Main seed metering wheels or Feinsärad
Phacelia	Main seed metering wheels or Fine seed metering wheel
Rape	Fine seed metering wheel
Red clover	Fine seed metering wheel
Mustard	Fine seed metering wheel
Soya beans	Main seed metering wheels
Sunflower	Main seed metering wheels
Stubble turnips	Fine seed metering wheel
Vetches	Main seed metering wheels

Fig. 15.2

t691-gb07

15.1 Switching on and off the seed metering wheels

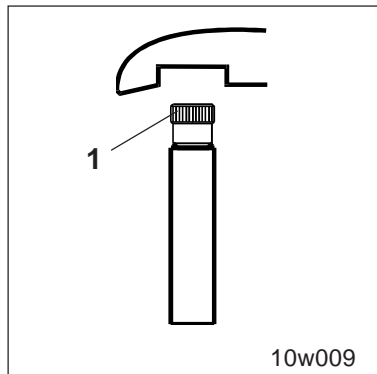


Fig. 15.3

In position „seed metering wheel on“ („Särad ein“) the knurled screw (Fig. 15.3/1) is screwed in until stop.

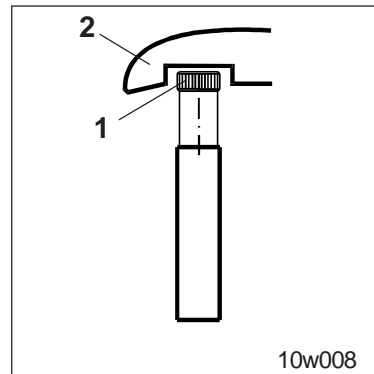


Fig. 15.4

In Position „seed metering wheel off“ („Särad aus“) the knurled screw (Fig. 15.4/1) is screwed out until stop (Fig. 15.4/2).



Turn knurled screws either into position „seed metering wheel on“ („Särad ein“) or „seed metering wheel off“ („Särad aus“).

Never screw in knurled screws too tight or turn too much against the stop (Fig. 15.4/2)!

15.2 Sowing with both main seed metering wheels

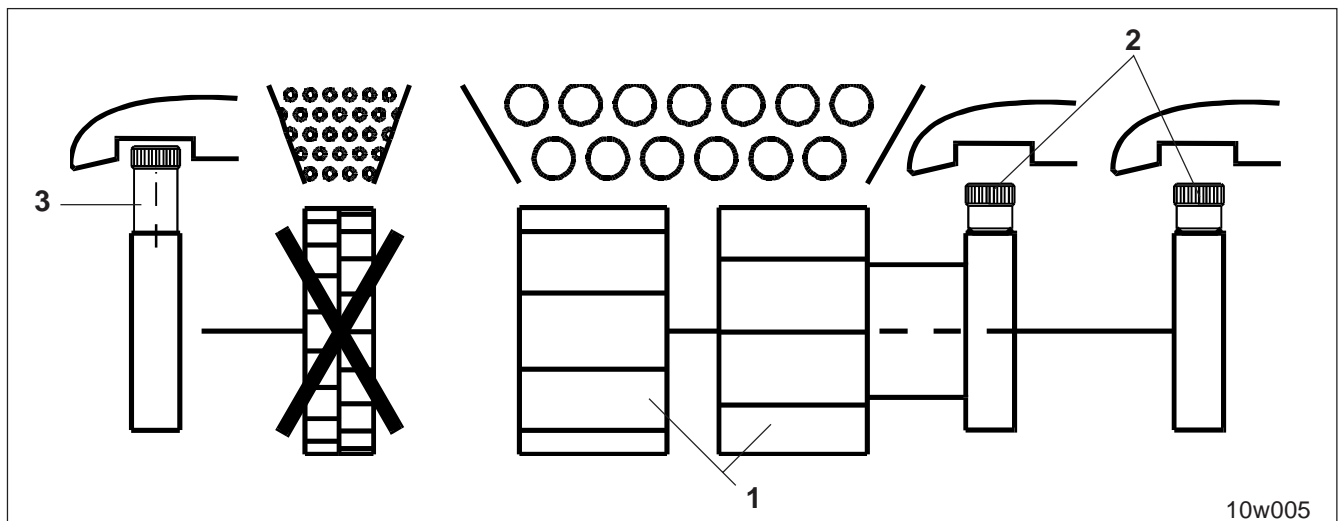


Fig. 15.5

For sowing with both main seed metering wheels (Fig. 15.5/1)

- Turn seed metering wheels with the calibration crank until the knurled screws can be seen.
- Screw in knurled screws (Fig. 15.5/2) of the main seed metering wheels.
- Screw out knurled screw (Fig. 15.5/3) of the fine seed metering wheel.

15.3 Sowing with the fine seed metering wheel

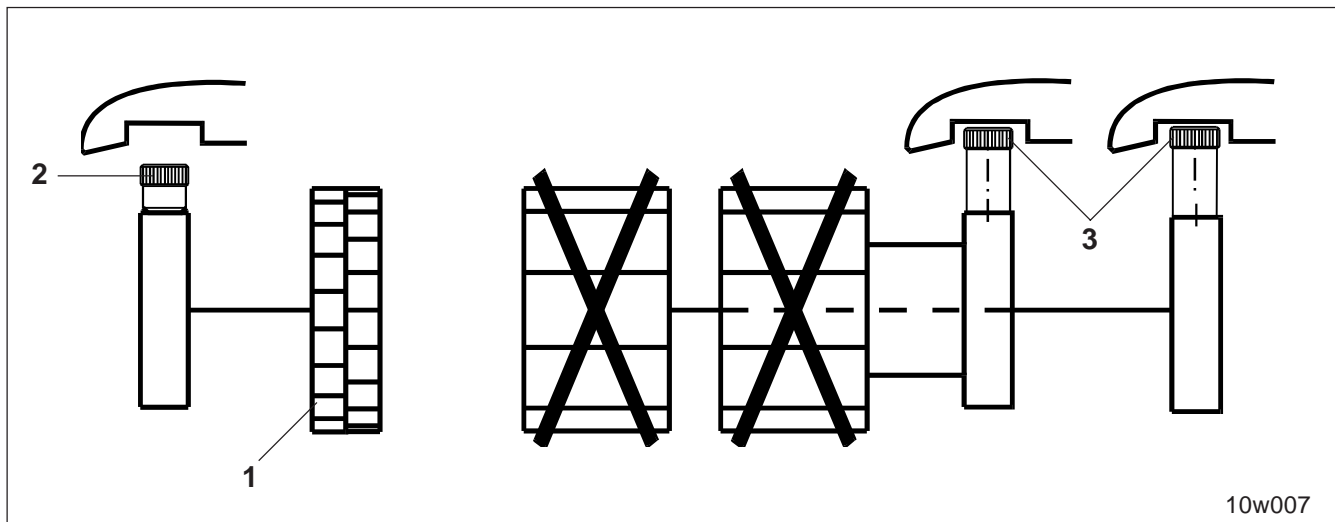


Fig. 15.6

For sowing with the fine seed metering wheel (Fig. 15.6/1)

- Turn seed metering wheels with the calibration crank until the knurled screws can be seen.
- Screw in knurled screw (Fig. 15.6/2) of the fine seed metering wheel.
- Screw out knurled screws (Fig. 15.6/3) of both main seed metering wheels.



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16.0 Determining the gearbox setting for the desired seed rate

Set the metering unit according to para. 15.0.

Fill the seed tank with seed to at least $\frac{1}{4}$ of its capacity.

The desired seed rate is set on the gearbox (Fig. 16.1/1).

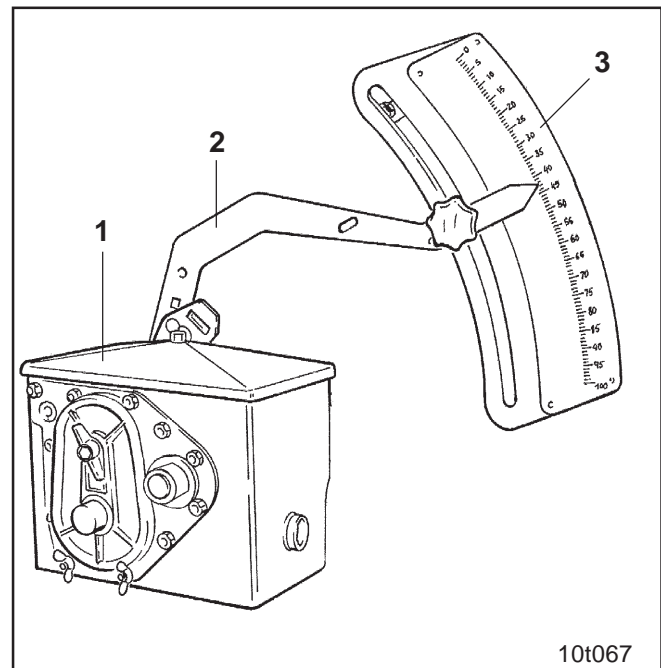
By the gearbox setting lever (Fig. 16.1/2) the speed of the seed metering wheels and thus the seed rate can be set steplessly. The higher the figure on the scale (Fig. 16.1/3) has been chosen by the gearbox setting lever, the higher the seed rate will get.



If your machine is equipped with the AMADOS seed rate remote control, set the desired gearbox setting according to para. 17.



After every setting on the gearbox setting lever, a calibration test should be carried out to confirm that at the later sowing operation the desired seed rate will be achieved.



10t067

Fig. 16.1

This test should also be carried out

- when changing to another seed metering wheel, e.g. from main seed metering wheel to fine seed metering wheel
- before sowing a new seed charge (deviations by grain size, grain shape, bulk density and dressing agent).

Place a collecting bucket underneath every metering unit and open the injector sluice (Venturi) flap (Fig. 16.2/1) on every metering.

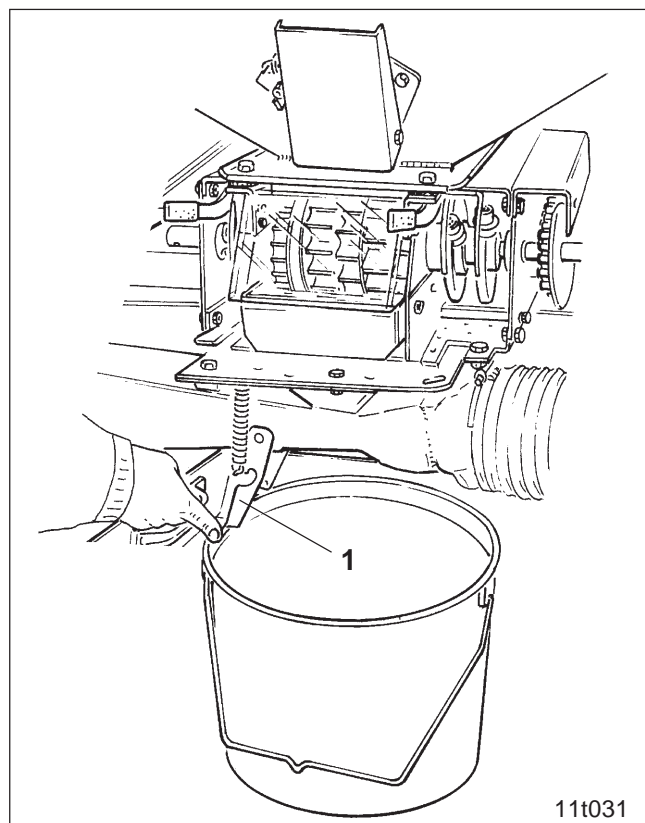


Fig. 16.2

Slacken the star knob (Fig. 16.3/1) on the gearbox setting lever.

Slide from below the gearbox setting lever (Fig. 16.3/2) to the following gearbox setting:

Sowing with
both main seed metering wheels:
Gearbox setting „50“

Sowing with the fine seed metering wheel:
Gearbox setting „15“

Tighten star knob (Fig. 16.3/1).

Formerly usually in a seed rate table the values for the first gearbox settings were given. However, these values deviate, depending on grain properties, and especially depending on dressing agents and dressing procedures, so much that the use of a seed rate table does not offer any advantage. The correct gearbox setting can very quickly be determined by using the disc rule, described in para. 16.2.

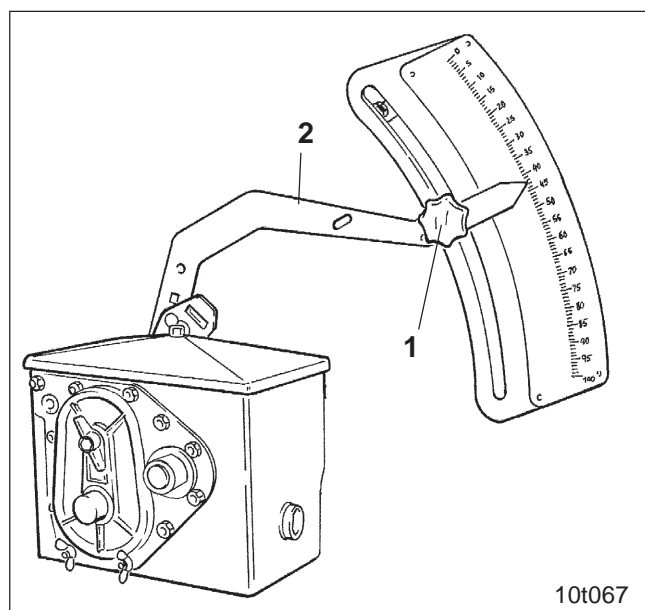


Fig. 16.3



16.1 Calibration test

For stationary calibrating pull out the clip pin (Fig. 16.4/1) off the gearbox hollow shaft.

The calibration crank (Fig. 16.4/2) is located in a retainer on the right hand side frame.

Insert the calibration crank (Fig. 16.4/3) into the gearbox and turn the calibration crank clockwise until all chambers of the seed metering wheel(s) have been filled and an even seed stream flows into the collecting bucket(s). Empty collecting bucket into the seed tank.

Now the seed drill is ready for the calibration test. Again start turning the crank clockwise after having determined the number of crank turns from the calibration table (Fig. 16.5).

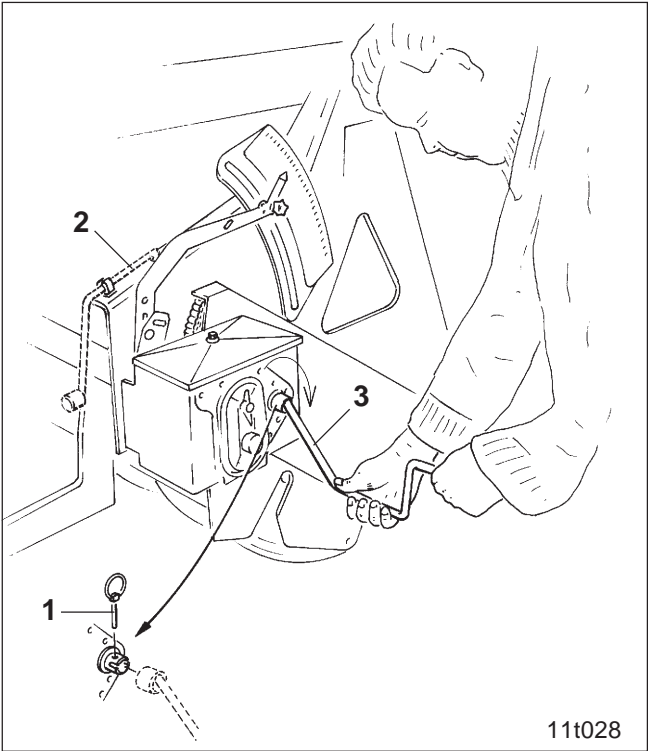


Fig. 16.4

The number of crank turns (Fig. 16.5) depends on the working width of the sowing module.

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

Usually the crank turns for 1/40 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.

You will find this table on
FRS and FPS
952748

	1/40 ha	1/10 ha
3,0 m	67,5	270
4,0 m	50,5	202
4,5 m	45,0	180
6,0 m	34,0	136
Working width of the sowing rail	Crank turns on FRS/FPS gearboxes	
Seed tank	FPS	FRS
AMADOS Imp./100 m	326	328

Fig. 16.5

T691-gb02

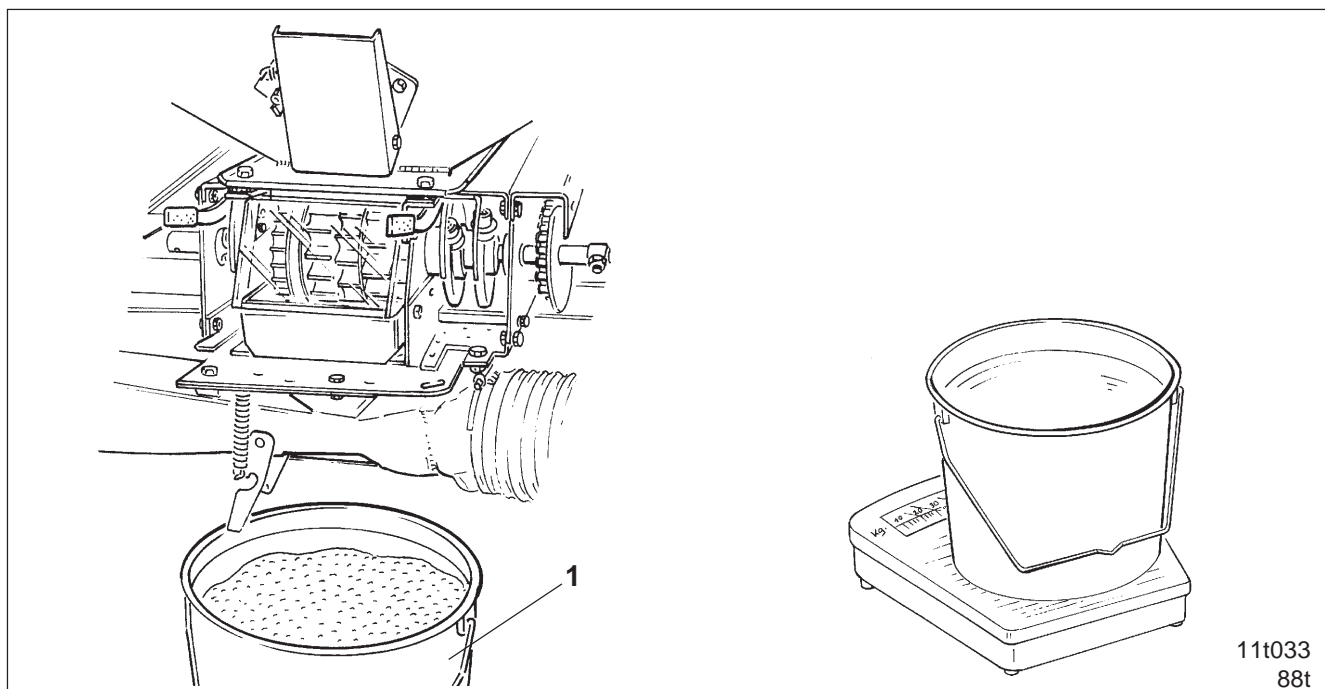


Fig. 16.6

Weigh the seed rate collected in the collecting bucket(s) (Fig. 16.6/1) (bear in mind (deduct) the bucket's own weight) and

- multiply with the factor „40“ (for 1/40 ha) or
- multiply with the factor „10“ (for 1/10 ha).

Calibrating for 1/40 ha:

$$\text{seed rate [kg/ha]} = \text{calibrated seed rate [kg/ha]} \times 40$$

Calibrating for 1/10 ha:

$$\text{seed rate [kg/ha]} = \text{calibrated seed rate [kg/ha]} \times 10$$

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

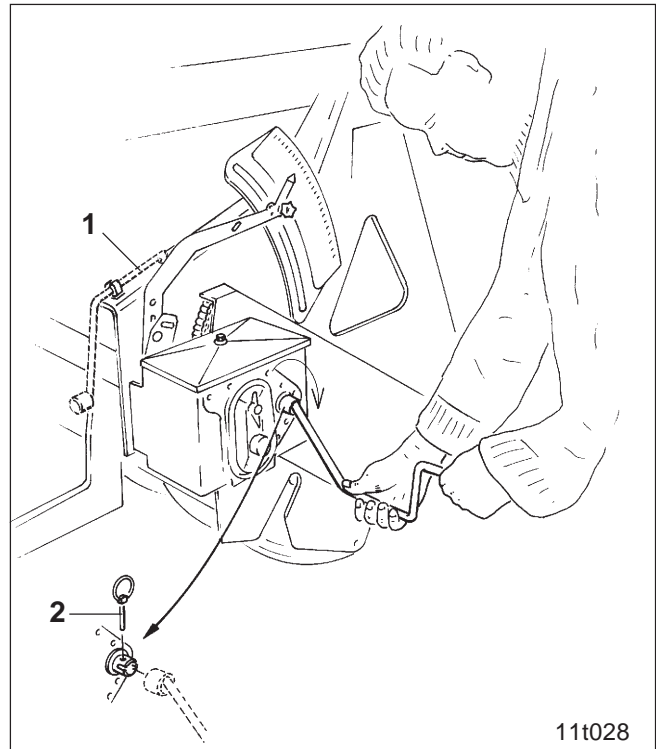
$$\text{seed rate [kg/ha]} = 3,2 \text{ [kg/ha]} \times 40 = 125 \text{ [kg/ha]}$$

**Disc rul**

Usually the desired seed rate is not achieved with the first calibration test. With the gearbox setting figure of the first calibration test and the calculated seed rate the correct gearbox setting figure can be determined with the aid of the disc rule according to para. 16.2.

**Gearbox gear**

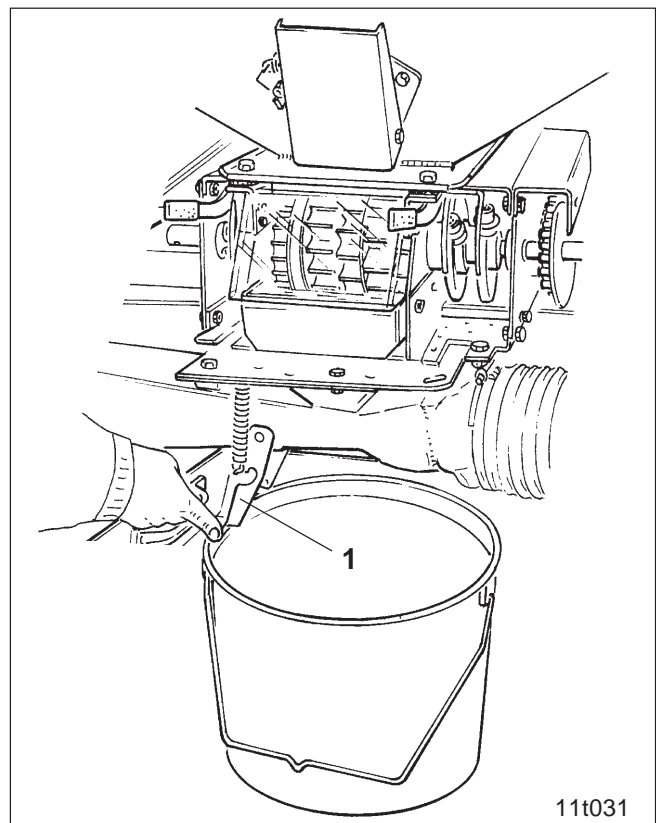
At unusually large seed rates and wide row spacings it may occasionally happen that with the gearbox setting number „100“ the desired seed rate has not been obtained. In this case the „fast gear“ has to be set in the gearbox. The procedure for this you may find in the detailed description in para. 16.3.



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Fig. 16.7**After having determined the correct gearbox setting**

- Place the calibration crank (Fig. 16.7/1) back into the retainer
- Insert clip pin (Fig. 16.7/2) into the gearbox hollow shaft
- Shutting the injector sluice (Venturi) flap (Fig. 16.8/1).



11t031

Fig. 16.8

16.2 Determining the gearbox setting with the aid of the disc

With the **first** calibration test, usually the desired seed rate is not obtained. 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. 16.9/1) for all seed rates above 30 kg/ha and an inner white scale (Fig. 16.9/2) for all seed rates below 30 kg/ha. On the central, coloured scale (Fig. 16.9/3) the gearbox settings from „1 to 100“ are printed.

Example:

Wanted is a seed rate of 125 kg/ha.

- At the first setting, the gearbox setting lever is brought to the setting „70“ (it is possible to choose also any other gearbox setting figure). A seed rate of 175 kg/ha is calculated.
- Align the seed rate 175 kg/ha (Fig. 16.9/A) and the gearbox setting figure „70“ (Fig. 16.9/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. 16.9/C). In our example that is the gearbox setting „50“ (Fig. 16.9/D).
- With a calibration test according to para. 16.1 check the gearbox setting figure which you have determined with the disc rule.

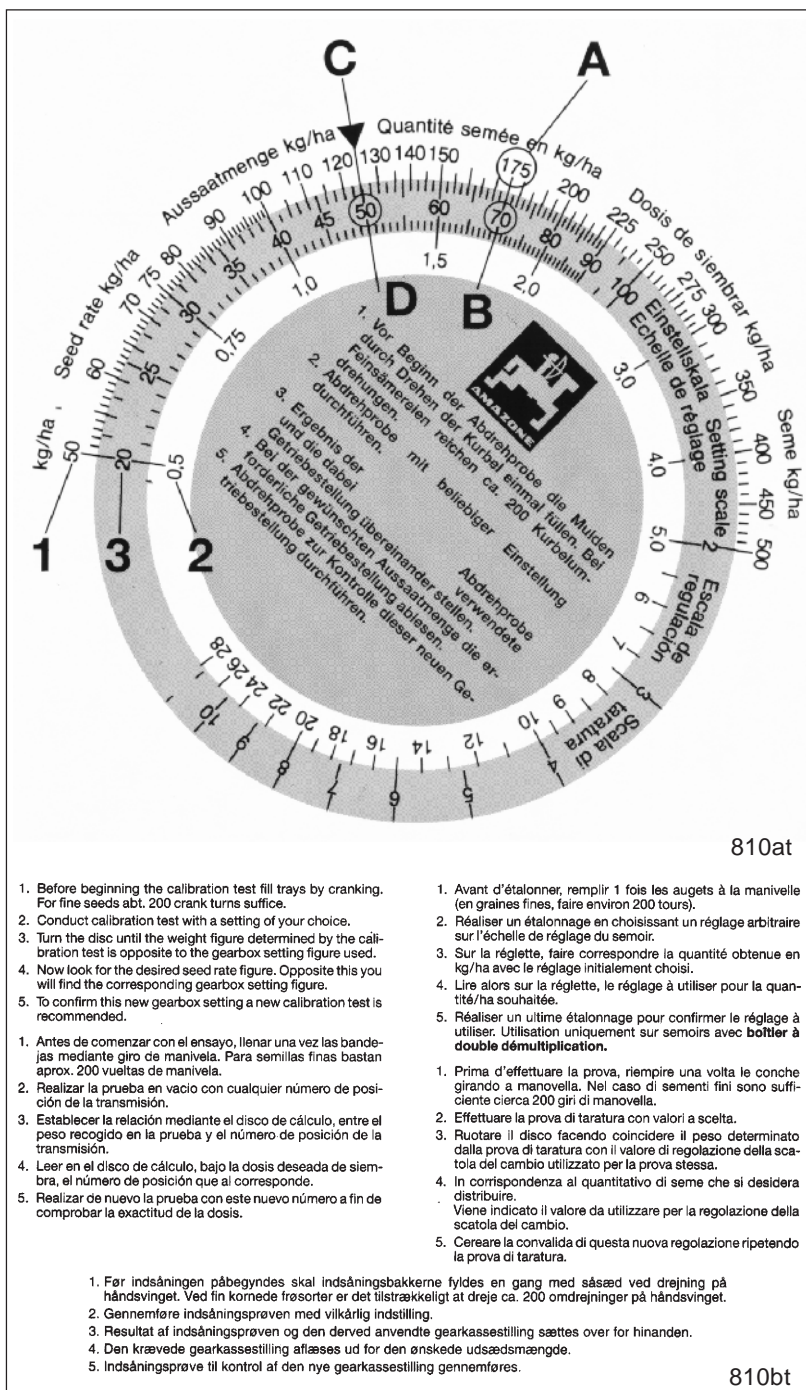


Fig. 16.9

16.3 Setting the gearbox gear

Two cogs inside the gearbox provide two speeds which can be set:

slow speed
(see Fig. 16.10)

fast speed
(see Fig. 16.11)

Ex works the gearbox has been set to the „slow speed“. 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.



If allowed by the seed rate, we recommend to sow at the slow speed as the seed rate setting for small seed rates is more precise in the slow speed.

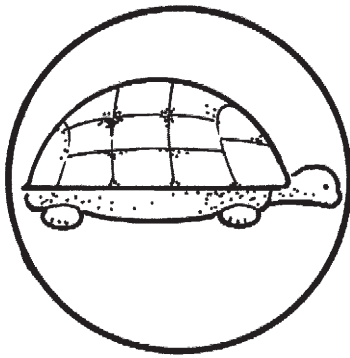
Sowing small seed rates, however, is also possible in the „fast speed“.

Changing the gearing

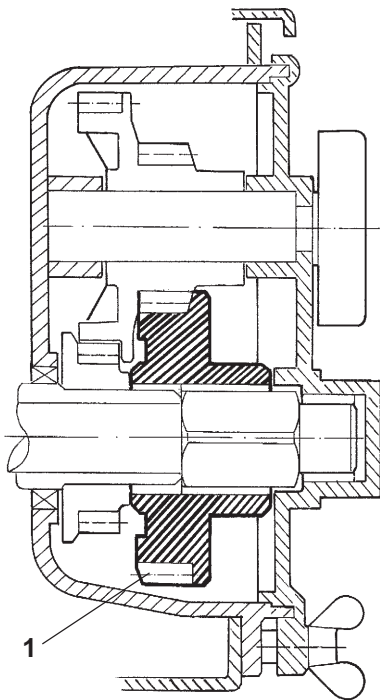
- Open the lid (Fig. 16.10/2) after having removed the thumb bolt (Fig. 16.10/3) and the two thumb nuts (Fig. 16.10/4).
- Remove cog from the shaft, turn it and reinsert.
 - In the „**slow speed**“ the cog (Fig. 16.10/1) is in gear with the second cog
 - in the „**fast speed**“ the cog (Fig. 16.11/1) runs freely (is disengaged).
- Shut lid (Fig. 16.10/2).



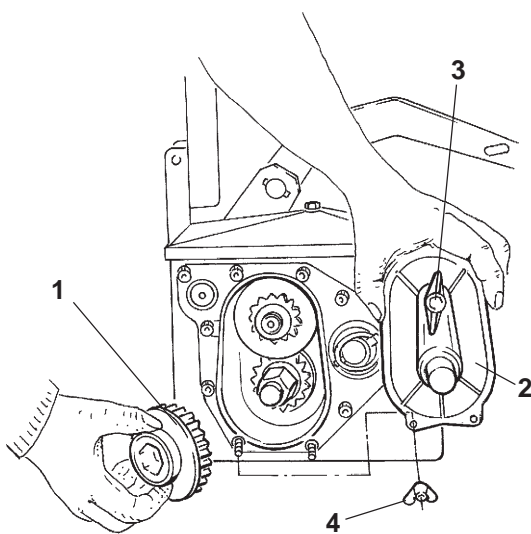
After any changing of the gearbox into another speed range the desired seed rate should be determined and set as described in para. 16.0.



711712t1

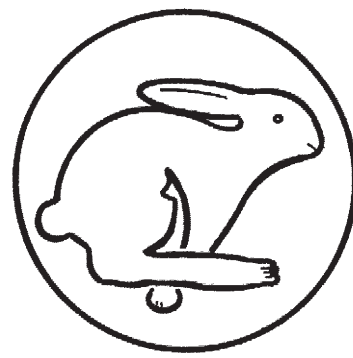


711t2

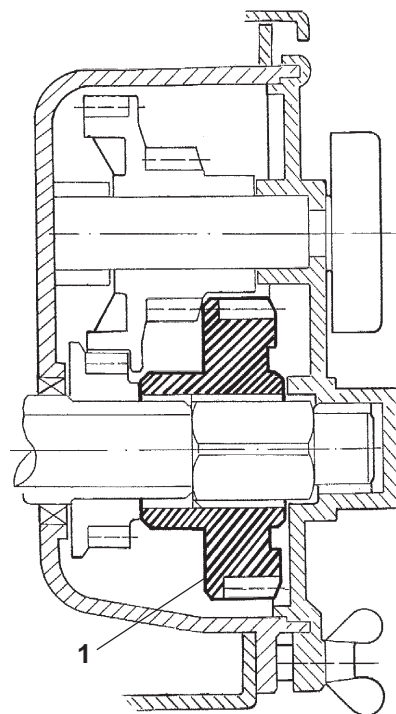


711t3

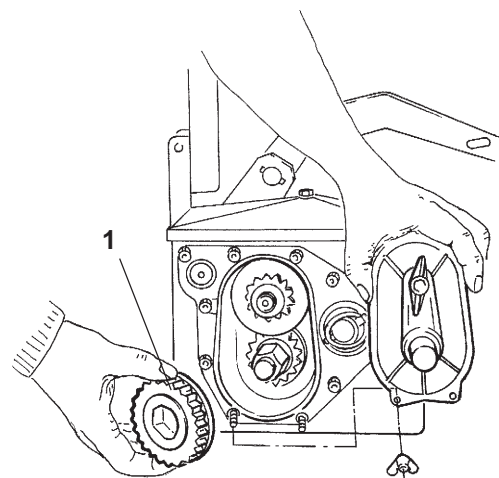
Fig. 16.10



711712t1



712t2



712t

Fig. 16.11

16.4 Rate deviations between setting and sowing

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

When sowing dressed seeds

The distributor head of the sowing module should regularly be checked and cleaned.

When sowing moist dressed seeds

The seed should „age“ for at least for one week (better two weeks) after applying a moist dressing and before 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 for the metering units turns less on very light and loose soils than at a same distance on very firm, cloddy soils. In case of high wheel slip the number of crank turns for determining the gearbox setting should be newly determined by actually driving on the field.

For this, measure out on the field the distance for obtaining an area of 250 m². This corresponds at a machine with:

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 counted while travelling the measured travelled distance. With this number of crank turns the gearbox setting according to para. 16.0 should be determined.



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please refer to the instruction manual AMADOS.**

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17.0 Setting the gearbox with AMADOS-seed rate remote control

By the gearbox setting lever (Fig. 17.1/1) the speed of the seed metering wheels and thus the seed rate can be set steplessly.

For setting the seed rate the setting motor (Fig. 17.1/2) functioning as seed rate adjustment is controlled by AMADOS. The setting motor moves the gearbox setting lever on the scale of the two-range gear box. The seed rate set can be read off on the pointer (Fig. 17.1/3).

Set the seed rate on the **stationary** implement as follows:

- Select the desired seed rate via the key board on AMADOS



For details please refer to the AMADOS instruction manual „entering the seed rate“.

- Conducting the calibration test



For details, please refer to AMADOS instruction manual „Conducting the calibration test for seed drills with seed rate adjustment“.

17.1 Preparing the calibration test

- Set the metering unit according to para. 15.0.
- Fill seed tank for at least 1 / 4 with seed.
- Place a collecting bucket underneath each metering unit and open the injector sluice flap (Fig. 17.2/1) on every metering unit.

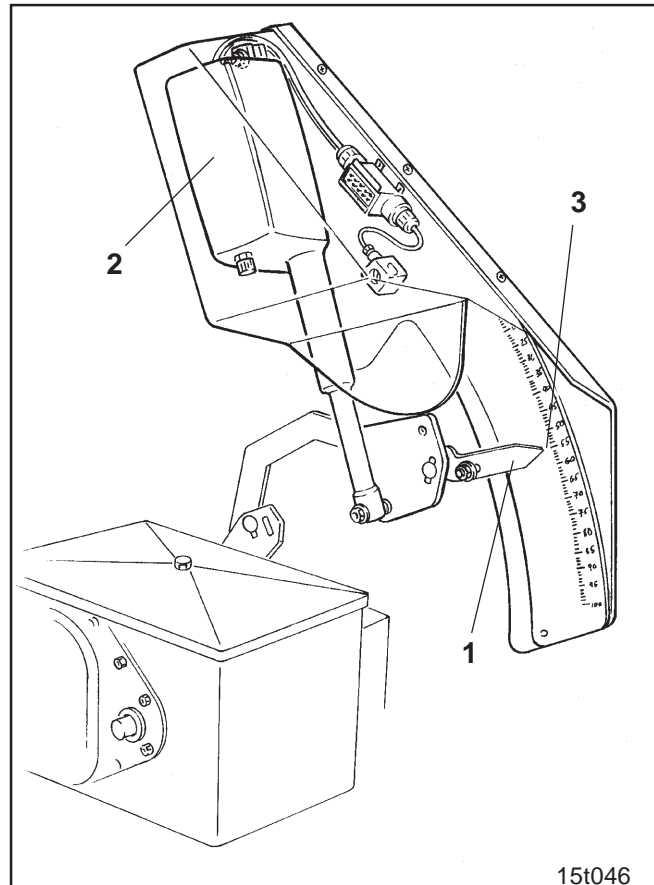


Fig. 17.1

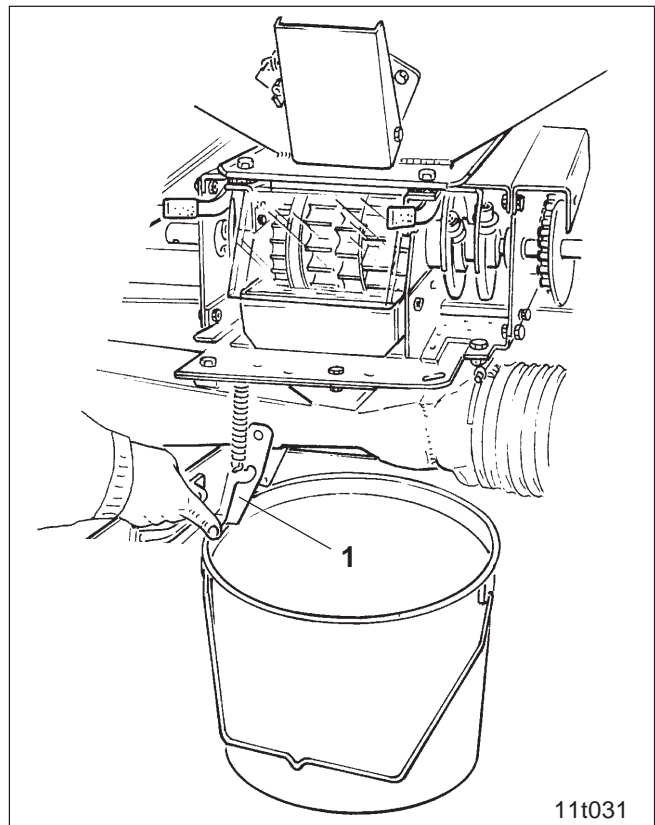


Fig. 17.2

- In order to allow a stationary calibrating of the seed tank pull the clip pin (Fig. 17.3/1) out of the gearbox hollow shaft.
- Take the crank into your hand. The calibration crank (Fig. 17.3/2) is located in a retainer on the right hand frame part.
- Insert the calibration crank (Fig. 17.3/3) into the gearbox and turn the calibration crank clockwise until all chambers of the seed metering wheel(s) have been filled and an even seed stream flows into the collecting bucket(s).
- Empty collecting bucket into the seed tank.

17.2 Conducting the calibration test



For details, please refer to the instruction manual AMADOS „Conducting the calibration test for seed drills with seed rate adjustment“.



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 in the gearbox. The procedure for this you may find in the detailed description in para. 16.3.

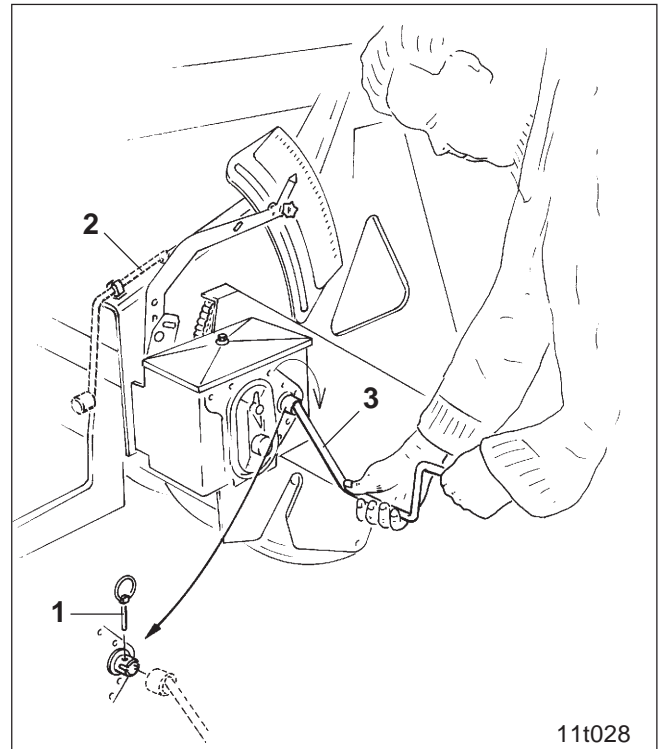


Fig. 17.3

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17.3 After the calibration test

- Place calibration crank (Fig. 17.3/2) into the retainer.
- Insert clip pin (Fig. 17.3/1) into the gearbox hollow shaft.
- Shut injector sluice (Venturi) flap (Fig. 17.2/1).

17.4 Changing the seed rate during sowing operation

During the sowing operation the seed rate can be changed over the AMADOS (see AMADOS instruction manual, „Changing the seed rate during sowing operation“).



In case while travelling the message “ERROR 1” appears, the seed rate cannot be achieved. The exchange of the cogs in the two-range gearbox according to para. 16.3 may possibly remedy the fault.

17.5 Seed rate deviation between setting and sowing

In order to avoid deviations between the setting of the seed rate and the later sowing and to ensure an even distribution of the seed to all sowing coulters, please adhere to the following hints:

In case of deviations between

- the set seed rate and the actual worked area,
- the area determined and displayed by AMADOS and the actually worked area,

New determination of the calibration value by driving along a 100 m measuring distance (please refer to AMADOS instruction manual).

When sowing dressed seeds

the distributor head of the sowing module has to be checked and cleaned in regular intervals.

When sowing moist dressed seeds

The seed should “age” one week (better two weeks) after applying a moist dressing and before sowing.



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21.0 Mounting the Pack Top sowing module AS onto combinations with Tyre packer roller RP or Wedge ring roller KW

In this chapter the mounting of a pack top sowing module AS onto a tyre packer roller RP or a wedge ring roller KW is described. Combinations with 6 m working width consist of each two 3 m rollers and two Pack Top sowing modules.

Fix two PVC rests (Fig. 21.1/1) to the carriers of the Pack Top sowing module AS.

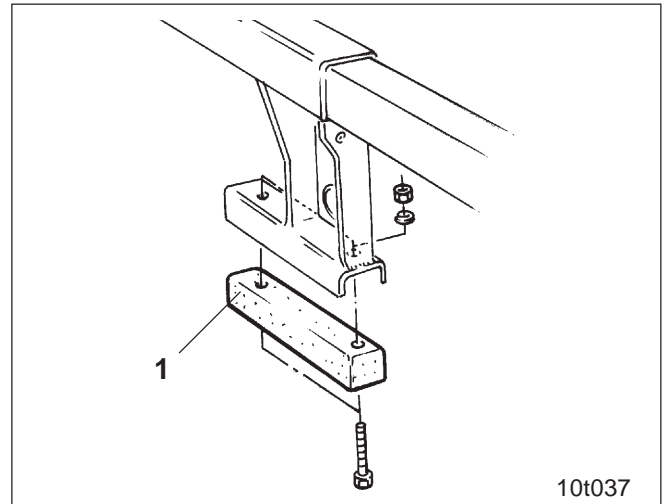


Fig 21.1

Fix catching arms (Fig. 21.2/1) onto the roller.

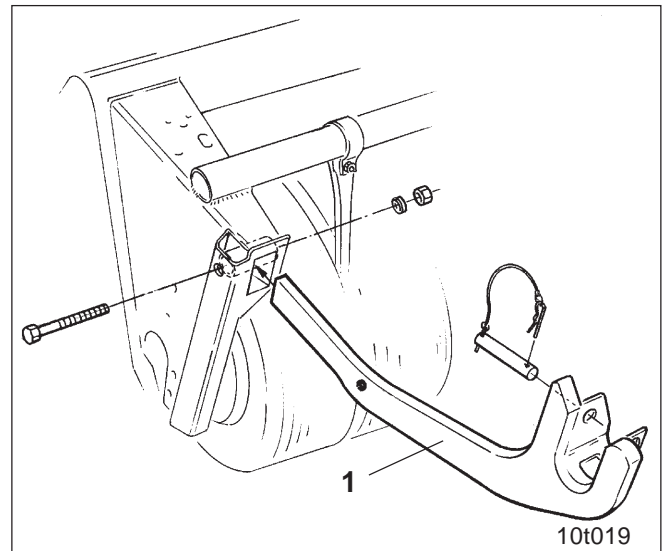


Fig 21.2

Drive with the combination consisting of soil tillage implement and roller from the rear towards the storing supports (Fig. 21.3/2).

Carefully guide the catching arms (Fig. 21.3/2) underneath the quadrant tube (Fig. 21.3/3) of the Pack Top sowing module.

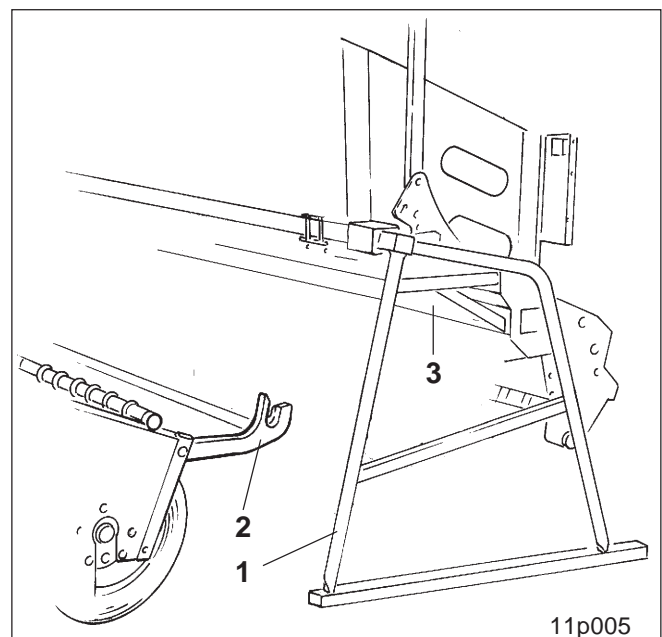


Fig 21.3

At the front right hand side the roller is equipped with an alignment aid (Fig. 21.4/1) which catches into a slotted hole of the AS sowing module when the roller is raised.

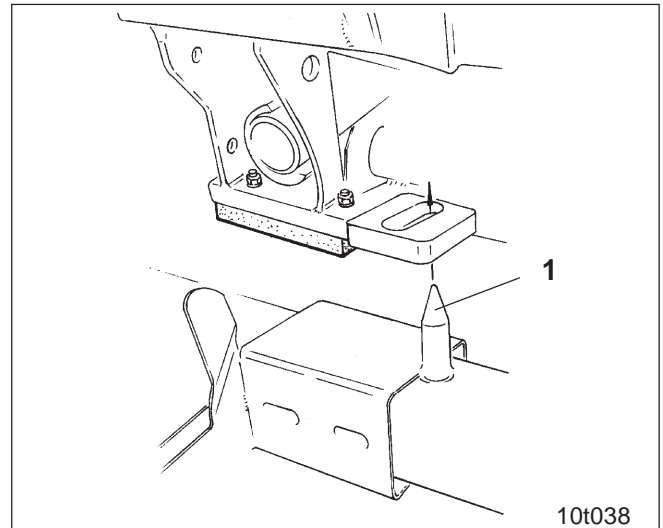


Fig 21.4

Take up bearing shafts (Fig. 21.5/2) of the AS sowing module with the catching arms (Fig. 21.5/1) of the roller, lock with pins (Fig. 21.5/3) and secure with clip pins.

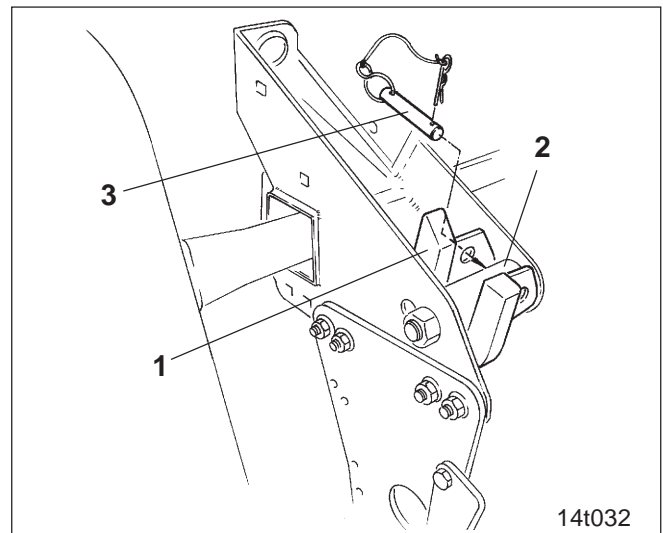


Fig 21.5

Connect AS sowing module and roller with 2 turn-buckles (Fig. 21.6/1). Secure pin (Fig. 21.6/2) with clip pins.

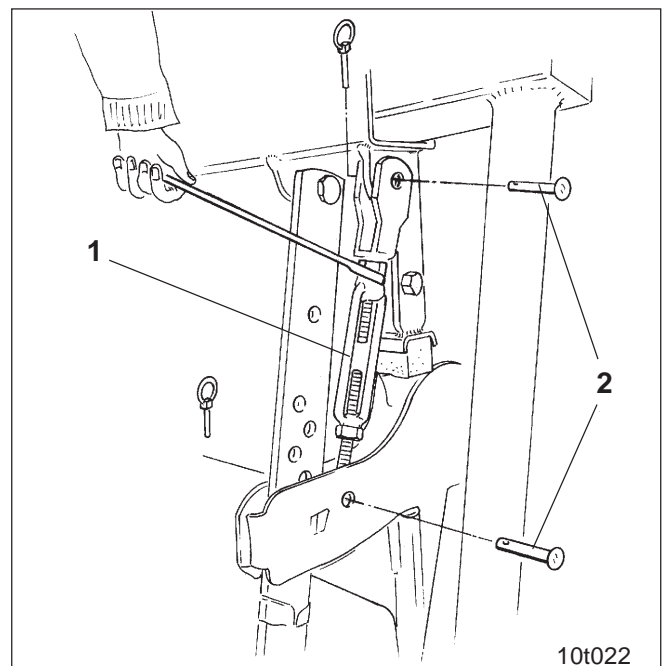


Fig 21.6

Set the upper link (Fig. 21.7/1) on the AS sowing module and on the soil tillage implement (e. g. AMAZONE rotary cultivator KG) and secure the fixing pins with clip pins.

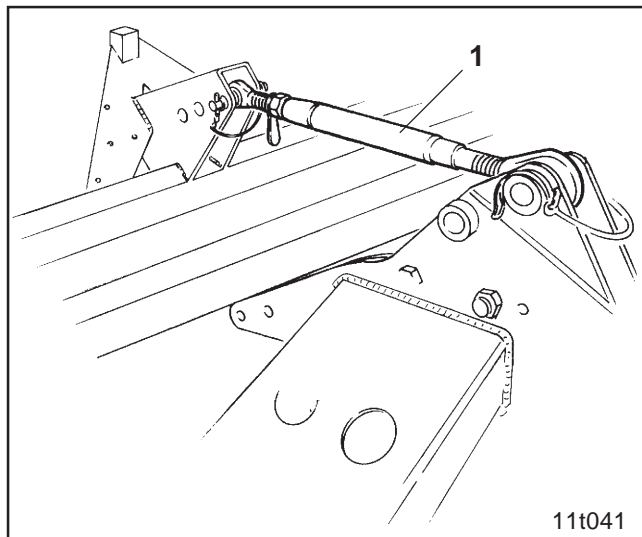


Fig 21.7



In order to allow the AS sowing module with the roller to move freely in the parallel suspension, **the upper carrying arm pins** (Fig. 21.8/2) **have to be removed** from the holes (Fig. 21.8/3) after the AS had been fixed on the roller.

Before, move the upper link (Fig. 21.7/1) until the carrying arm pins can be removed easily. The pins (Fig. 21.8/2) not needed can be set into the carrying arms.

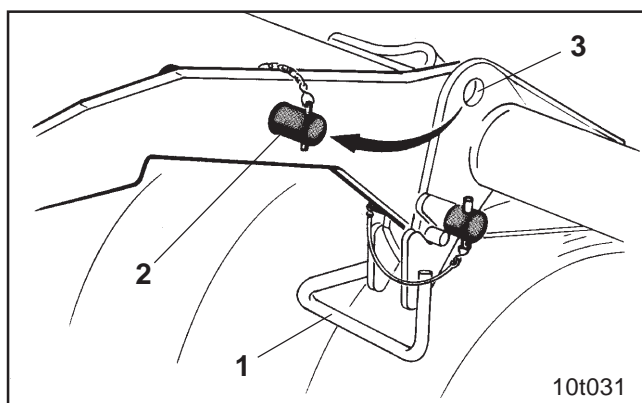


Fig 21.8

Raise entire combination and remove storing supports (Fig. 21.9/1).

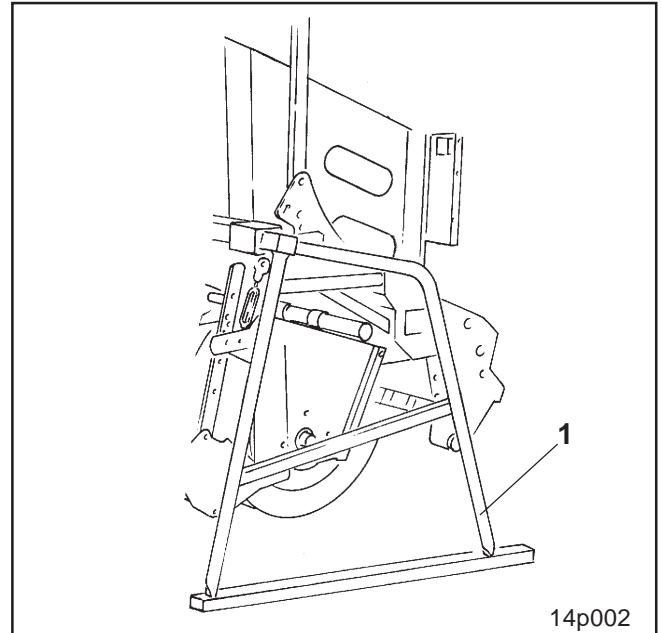


Fig 21.9

only AS 602 sowing module

The AS 602 sowing module, consisting of two Pack Top sowing modules AS, rests in the machine's centre on a storing support (Fig. 21.10/1) which has also to be removed.

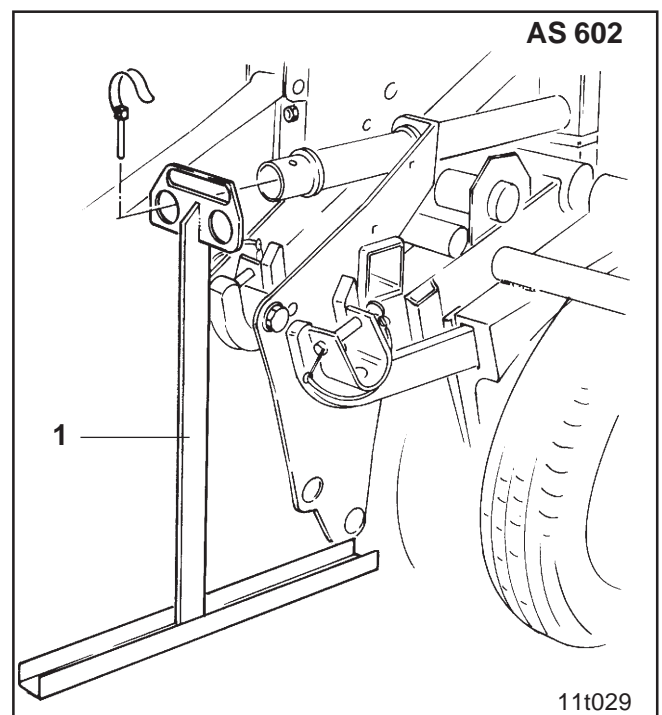


Fig 21.10

Align straight Pack Top sowing module AS by adjusting the upper link (Fig. 21.7/1).



The uncoupling of the Pack Top sowing module is done the other way round.



Before uncoupling the Pack Top sowing module and dismantling the upper link (Fig. 21.7/19) lock the carrying arms with the upper carrying arm pins (Fig. 21.11/19).

Only this way you will avoid accidents!

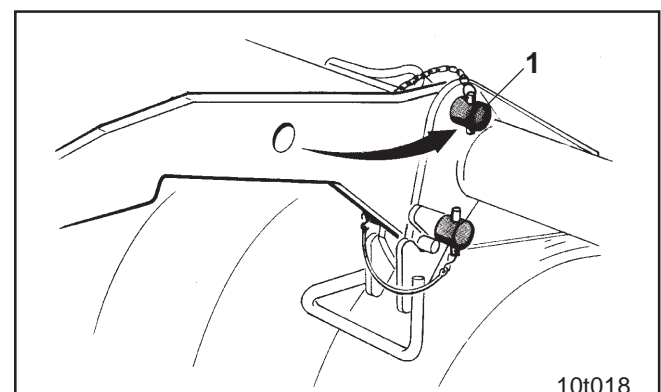


Fig 21.11



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22.0 Mounting pack top sowing rail AS on combinations with tooth packer roller PW

Before coupling the pack top sowing rail AS to an AMAZONE tooth packer roller PW both implements have to be equipped with the relevant coupling parts.

22.1 Coupling parts Pack Top sowing module AS

The Pack Top sowing module AS is equipped with the following linking plates:

Linking plate (Fig. 22.1/1)
for combinations with
tooth packer roller PW 420
(except for 4,5 m working width).

Linking plate (Fig. 22.1/2)
for combinations with
Tooth packer roller PW 500

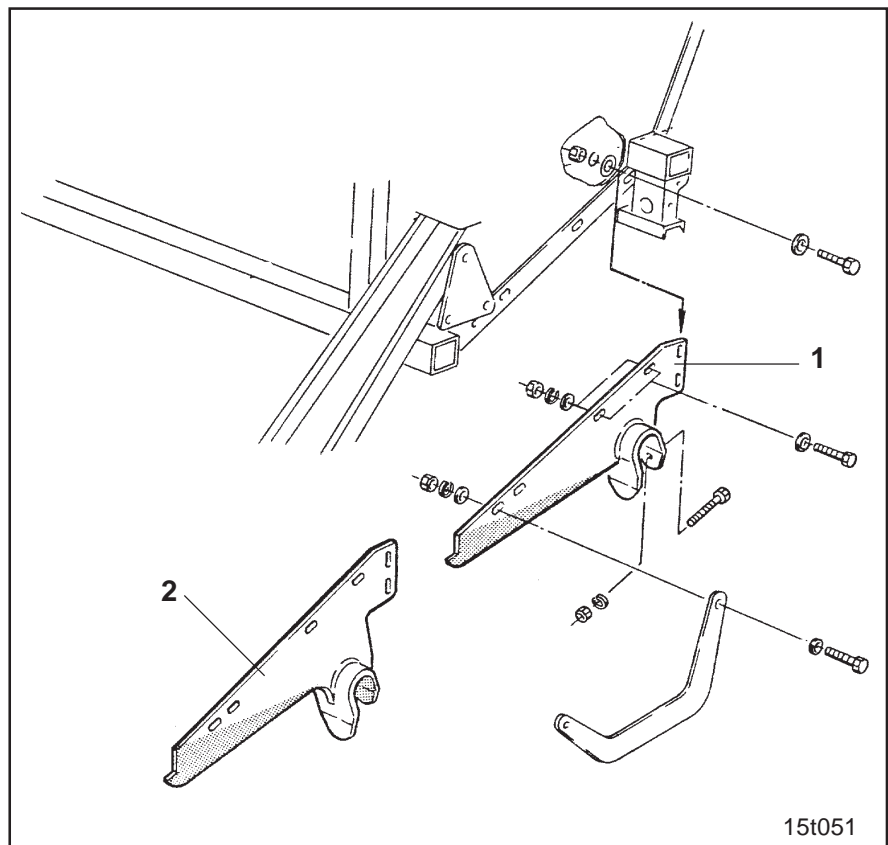


Fig. 22.1

22.2 Coupling parts tooth packer roller PW

Equip tooth packer roller with two bearing consoles (Fig. 22.2/1).

With the U-shaped bolts (Fig. 22.2/2) the bearing consoles (Fig. 22.2/1) have to be tightly bolted in the correct spacing „A“ (Fig. 22.3) to the frame of the tooth packer roller.

AS 302.....Spacing A = 2770 mm

AS 402.....Spacing A = 3770 mm

AS 452.....Spacing A = 4270 mm

The bearing consoles (Fig. 22.2/1) may as well be mounted to the packer rollers PW 420 as also to the packer rollers PS 500.

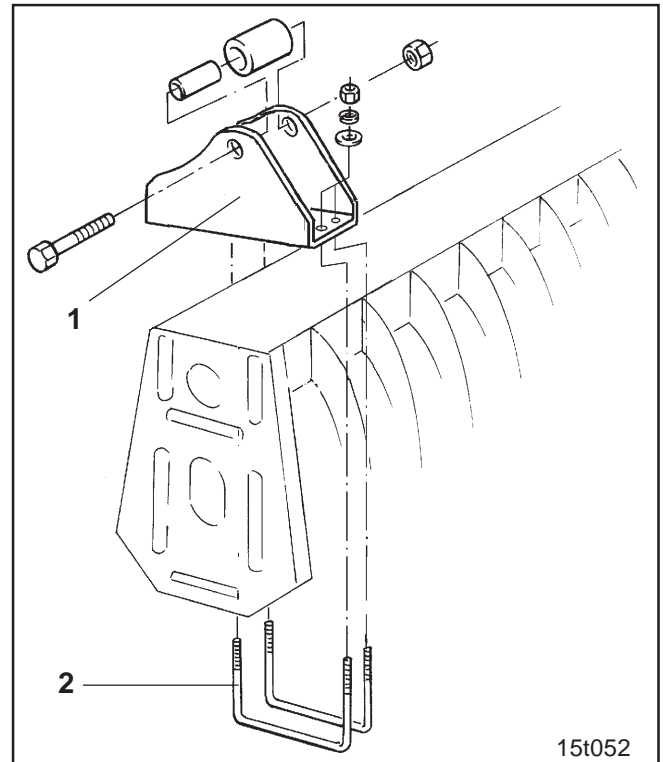


Fig. 22.2

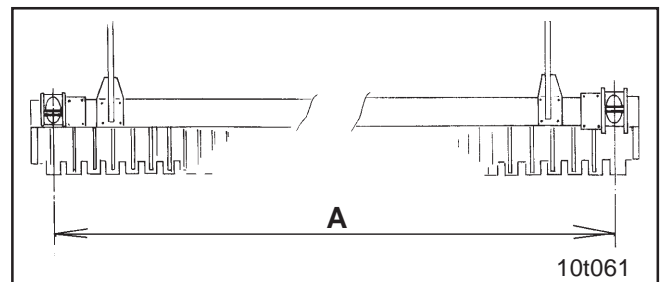


Fig. 22.3

22.3 Coupling the Pack Top sowing module AS

- Raise soil tillage implement and packer roller with the tractor hydraulics.
- Drive backwards with the combinations to the Pack Top sowing module resting on its storing supports.
- Connect bearing shafts (Fig. 22.4/1) and catching arm (Fig. 22.4/2), lock with pins (Fig. 22.4/3) and secure with clip pins.

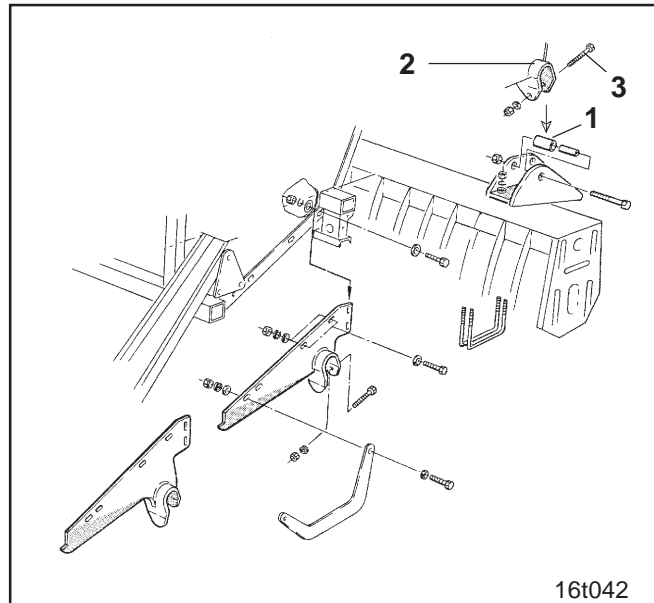


Fig. 22.4

- Fix upper link (Fig. 22.5/1) on the Pack Top sowing module and the soil tillage implement and secure fixing pins with clip pins.
- Raise the entire combination and remove storing supports (Fig. 22.6/1).
- Align Pack Top sowing module AS by adjusting the upper link (Fig. 22.5/1).

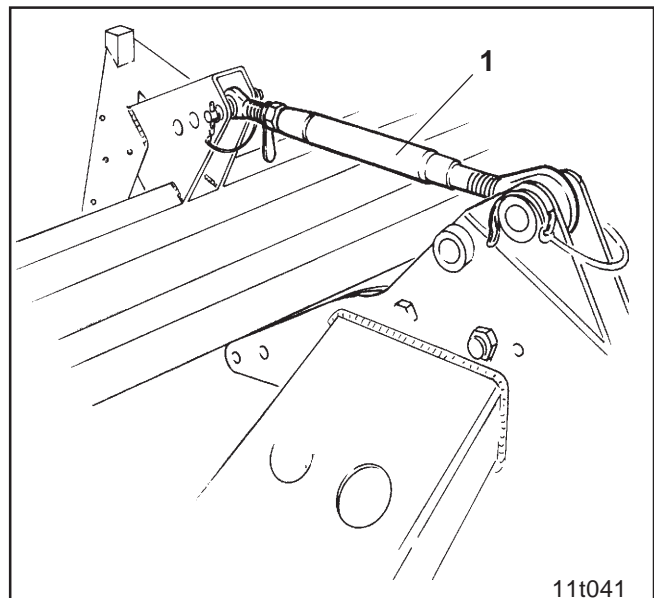


Fig. 22.5



The uncoupling of the Pack Top sowing module is done the other way round.

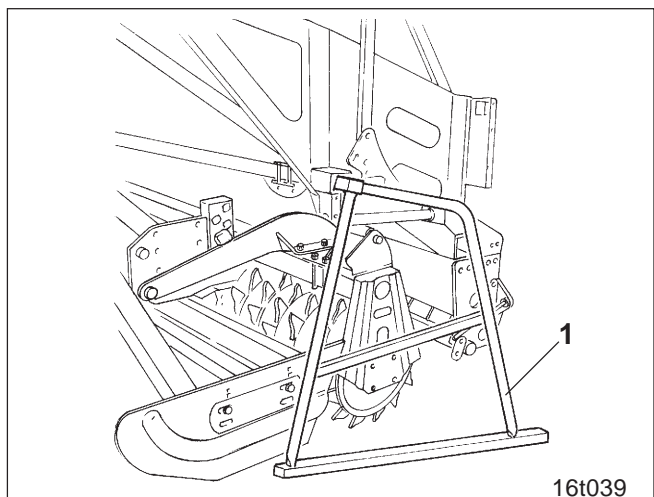


Fig. 22.6



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23.0 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 sowing module 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 machine in 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 actuated manually by an adjustment spindle (Fig. 23.1) or a hydraulic ram (Fig. 23.3) (option).

The hydraulic ram (Fig. 23.3) allows to control the coulter pressure from the tractor cab during operation when changing from normal soil to heavier soil or vice versa.

23.1 Setting the placement depth of the seed by adjustment spindle

The coulter pressure and thus the placement depth of the seed is increased by turning the spindle (Fig. 23.1/1) clockwise, by turning it counter clockwise it is reduced.

In case the roll disc coulters are equipped with **depth limiters** (option) and if the desired planting depth cannot be achieved by turning the adjustment (Fig. 23.1/1), all roll disc coulter depth limiters would have to be readjusted according to para. 23.3.1.

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. 23.0!

For actuating the adjustment spindle (Fig. 23.1/1) the coulter pressure adjustment crank (Fig. 23.1/2) has to be plugged onto the adjustment spindle.

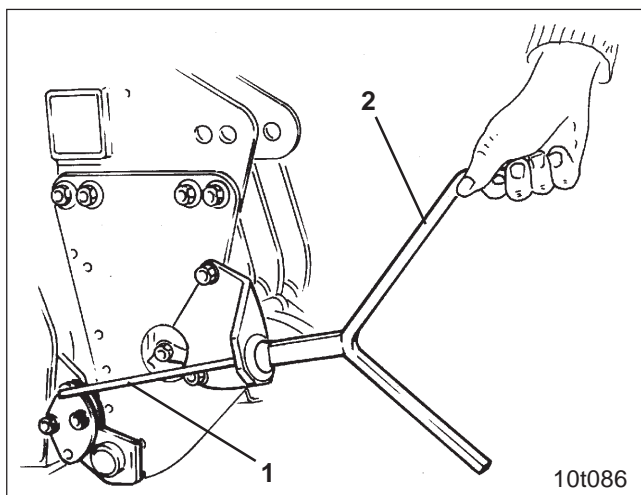


Fig. 23.1

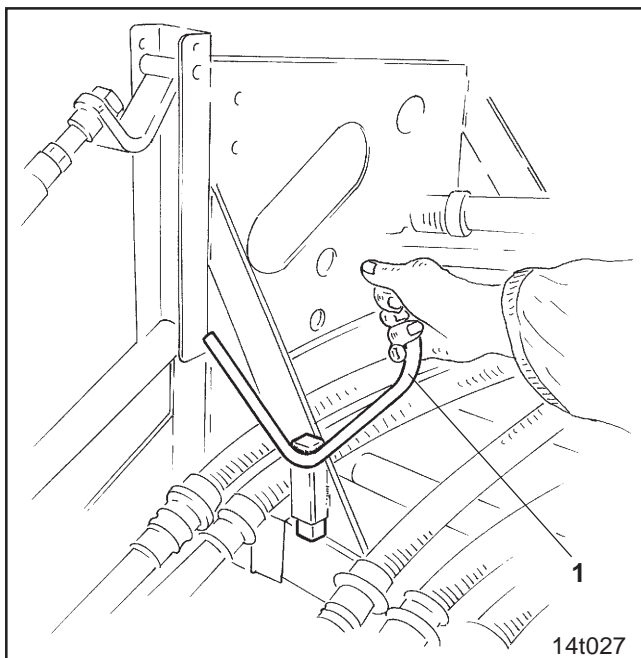


Fig. 23.2

The coulter pressure adjustment crank (Fig. 23.2/1) is placed in a retainer on the left hand of the main frame.

23.2 Setting the placement depth with a hydraulic ram (option)

The coulter pressure and thus the placement depth can centrally be set by a hydraulic ram (Fig. 23.4/1). During the operation the coulter pressure can be increased in areas with heavier soils.

When supplied the setting mechanism (Fig. 23.3/1) is mounted to your machine.

Connect the hydraulic ram (Fig. 23.4/1) to a single acting control valve on your tractor (see para. 3.7) and actuate the control valve from the tractor seat.

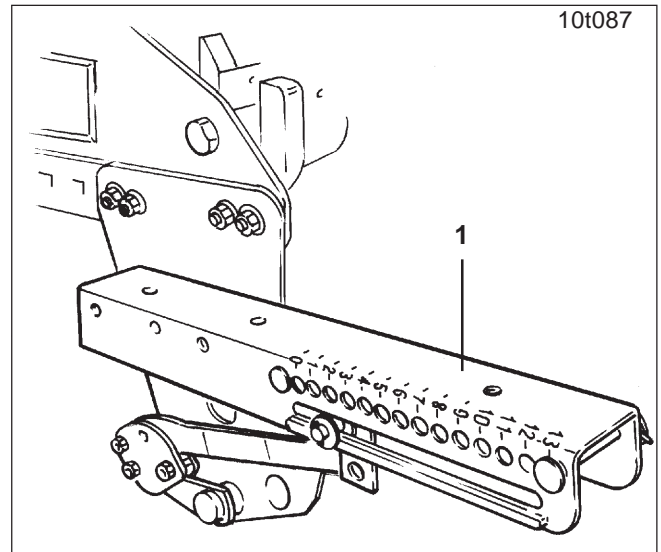


Fig. 23.3



The hydraulic coulter pressure adjustment is coupled with the hydraulic extra coverage harrow adjustment (if existent). If more coulter pressure is applied, the extra coverage harrow pressure is automatically increased.



When actuating the control valves simultaneously the hydraulic rams of the coulter pressure adjustment and the extra coverage following harrow adjustment are pressurised!

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

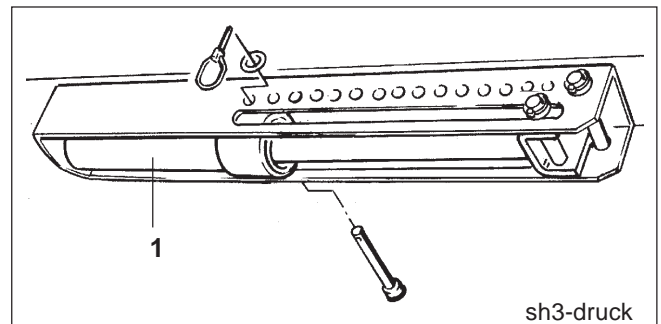


Fig. 23.4

Two pins (Fig. 23.5/3 and Fig. 23.5/4) function as limiter for the hydraulic ram (Fig. 23.5/1) in the setting segment. When the hydraulic ram is without pressure its top rests on the pin (Fig. 23.5/3) and when the hydraulic ram is pressurised it rests on the pin (Fig. 23.5/4).

Setting the normal coulter pressure

- Pressurise the hydraulic ram (Fig. 23.5/1).
- Insert pin (Fig. 23.5/3) into one of the holes of the quadrant plate and secure by a clip pin (Fig. 23.5/2).

Every hole of the quadrant plate is marked with a figure. With increasing figure the coulter pressure is increased.

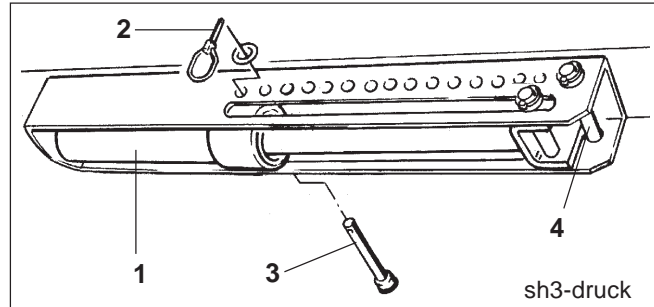


Fig. 23.5

Increasing the coulter pressure

- Relieve the hydraulic ram (Fig. 23.6/1) from pressure.
- Insert the pin (Fig. 23.6/3) in a hole of the quadrant plate and secure with a clip pin (Fig. 23.6/2).

Every hole of the quadrant plate is marked with a figure. With increasing figure the coulter pressure is increased.

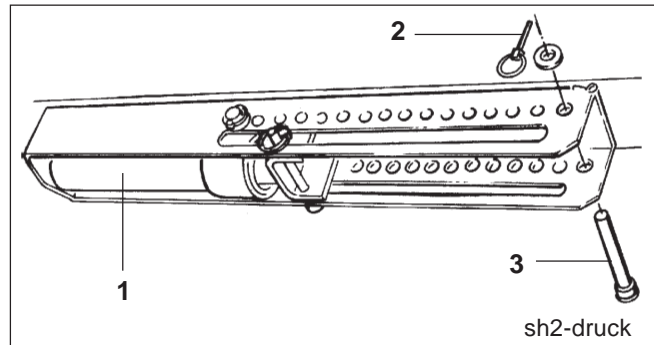


Fig. 23.6

Sowing modules with roll disc coulters

If your sowing rail is equipped with roll disc coulters and depth limiters (option) and the desired placement depth cannot be achieved by resetting the pins, all roll disc coulter depth limiters would have to be readjusted according to para. 23.3.1.

The fine adjustment then is again conducted by resetting the pins.



Always check placement depth before starting to operate:

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

23.3 Placement depth of the seed by adjusting the roll disc coulters depth limiters (option)

To achieve an even placement of the seed also at varying types of soil, the roll disc coulters can be equipped with depth limiters (Fig. 23.7/1).

Ex factory the depth limiters have been set on a placement depth of approx. 2.5 cm for medium soils (always check placement depth of the seed before commencing to operate. In order to place the seed slightly deeper, the coulter pressure should be increased with the aid of the coulter pressure adjustment according to para. 23.1 respectively 23.3.



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

If the desired placement depth cannot be achieved by changing the coulter pressure, or when the wear of the depth limiters by too high a pressure shall be avoided, adjust all depth limiters (Fig. 23.7/1) evenly according to para. 23.3.1.

23.3.1 Fitting and setting roll disc depth limiters

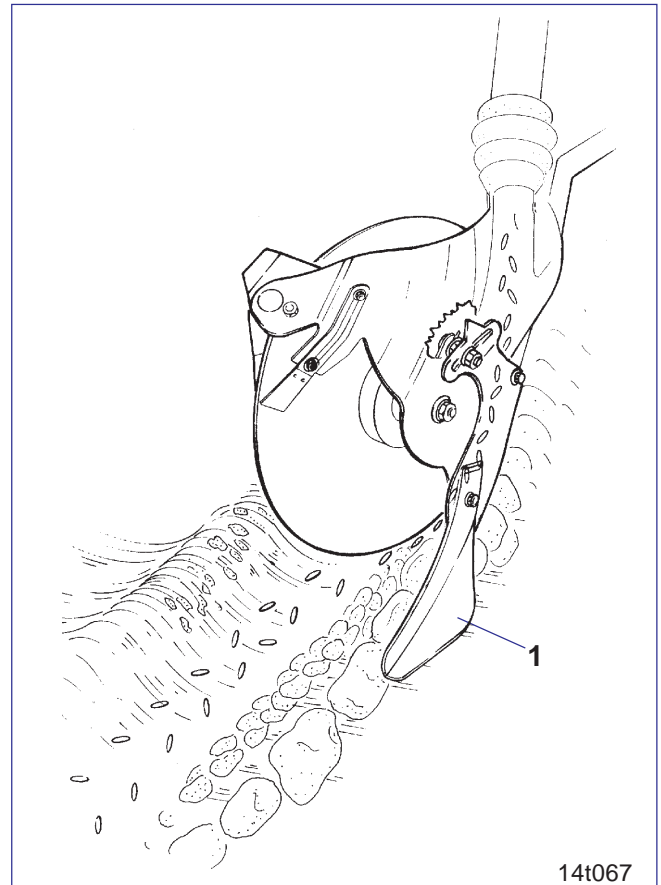
First fitting

Bolt hex. bolts (Fig. 23.8/2) onto the roll disc coulter. Plug depth limiters (Fig. 23.8/1) on the hex bolts (Fig. 23.8/2) and tighten loosely with fixing nuts (Fig. 23.8/3).

Setting the depth limiters

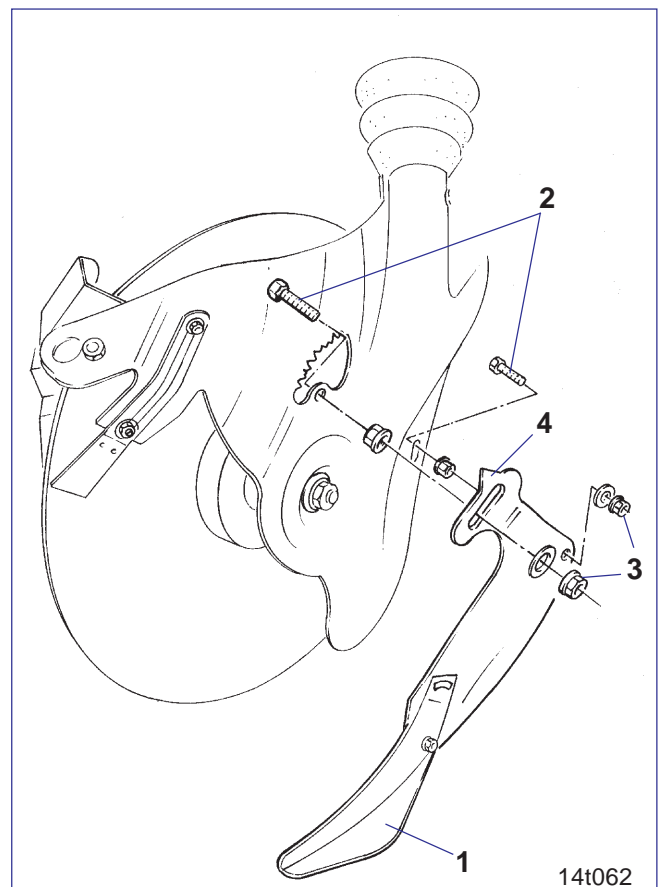
Set all depth limiters (Fig. 23.8/1) uniformly, e.g. set all pointers (Fig. 23.8/4) into the same position. The V-cutting in the roll disc coulter serve as setting aid.

Before, slacken fixing nuts (Fig. 23.8/3) (do not remove) and then tighten firmly.



14t067

Fig. 23.7



14t062

Fig. 23.8

The setting of the depth limiter from one V-cutting (Fig. 23.9) to the next corresponds to a change in the placement depth by approx. 1.5 cm on medium heavy soils. The more the pointer (Fig. 23.9/1) is moved to the right hand, the deeper the seed placement will become.

The setting as shown in Fig. 23.9 corresponds to a seed placement depth of approx. 2.5 cm on medium heavy soils.



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. 23.1 respectively para. 23.2!

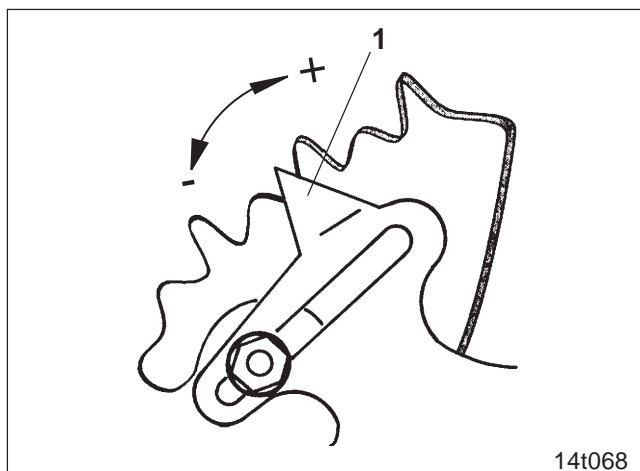


In extremely sticky soils

The roll disc coulters may come to a stand-still because of the scrapers on the disc front side.

Remove the scraper from the disc's front side together with the carrier, so that the disc will turn again. However, then soil will stick to the disc's front side.

Set the depth limiters in such a way that you have to operate with high coulter pressure. Then the placement depth will not change, even if soil sticks to the front side of the roll coulter disc.



14t068

Fig. 23.9



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24.0 Track markers

The machine is equipped with track markers (Fig. 24.1) **for marking a trace in the tractor centre.**

The trace is marked during sowing by one marker disc (Fig. 24.1/1).

After turning on the headland the tractor follows the centrally marked trace when travelling the next bout.

When travelling in the field in the one and then in the other direction both track markers are used one after the other. One track marker (Fig. 24.2/1) is always located tightly to the side part of the sowing module.

The track markers are raised by two hydraulic rams (Fig. 24.3/1).

The hydraulic rams are connected to the track marker shuttle valve (Fig. 24.4/1) (please also refer to para. 3.7).

Only actuate the track marker shuttle valve from the tractor seat with a single acting tractor control valve. When pressurising the track marker shuttle valve the track marker being in operation is raised, in floating position the second track marker lowers.

When both track markers are lifted and the tractor control valve actuated four times:

1. the first track marker is brought into operational position
2. the first track marker is lifted
3. the second track marker is brought into operational position
4. the second track marker is lifted.

Lift both track markers

- before turning at the headlands
- prior to obstacles in the field
- before transport.



Danger of injury where parts are moving!

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!

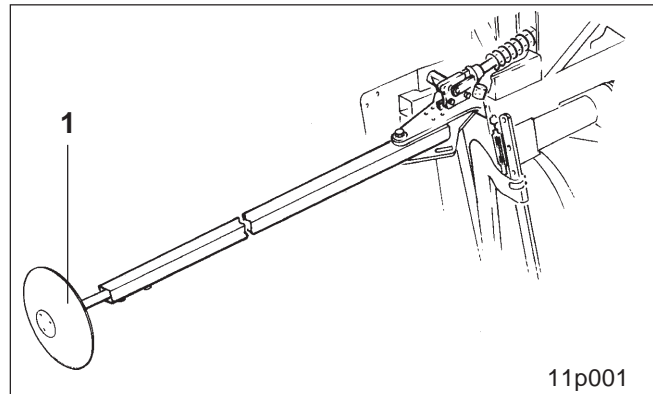


Fig. 24.1

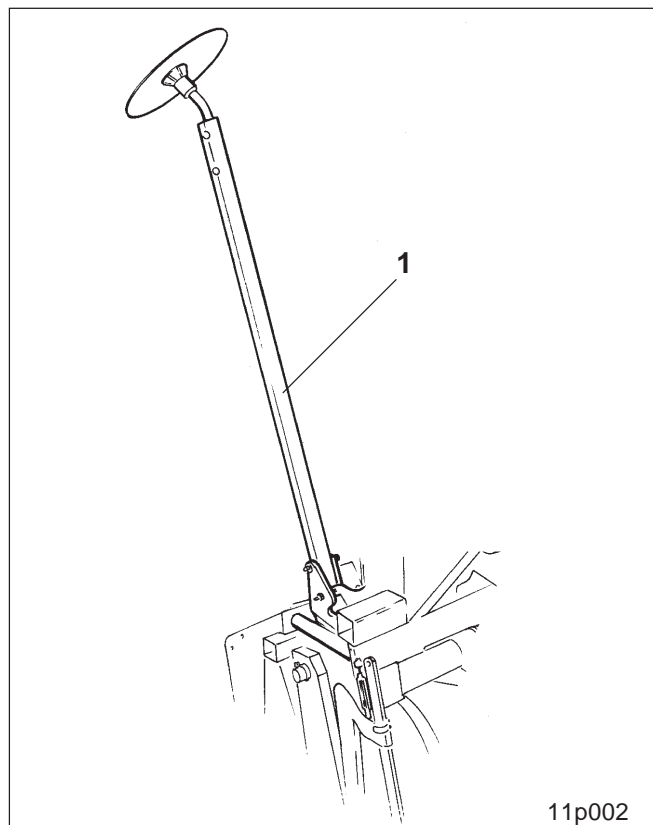


Fig. 24.2

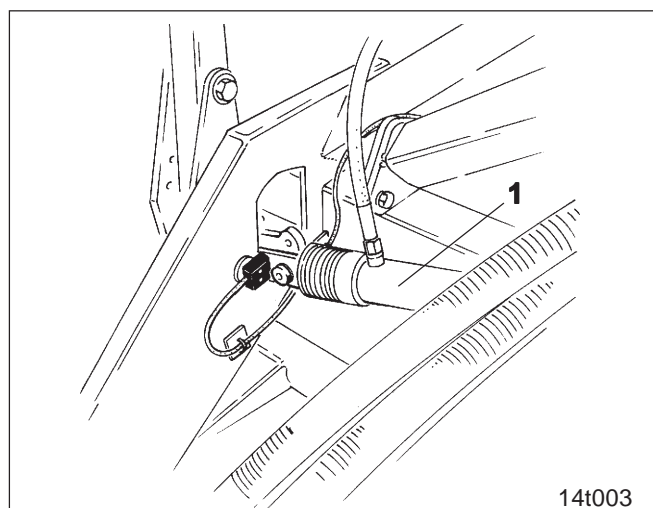


Fig. 24.3

24.1 Fitting the track marker arms

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

3 m working width:

The hydraulic ram (Fig. 24.5/1) has to be fitted to the bracket (Fig. 24.5/2) in the longer slotted hole (Fig. 24.5/3). If necessary, bolt the bracket (Fig. 24.5/2) into another hole.

Bolt marker arms (Fig. 24.5/4) by:

- a hex bolt M6 x 90, 8.8 DIN 931 (Fig. 24.5/5),
- two washers 6,4 x 18 x 1,6 DIN 9021 (Fig. 24.5/6) and
- one securing nut M6, 8 DIN 980V (Fig. 24.5/7).
- one hex. bolt M14 x 100, 8.8 DIN 931 (Fig. 24.5/8),
- two spring washers 14 DIN 6796 (Fig. 24.5/9) and
- one securing nut M14, 8 DIN 980V (Fig. 24.5/10).

4,0 m and 4,5 m working width:

The hydraulic ram (Fig. 24.6/1) has to be fitted to the bracket (Fig. 24.6/2) in the short slotted hole (Fig. 24.6/3). If necessary, bolt the bracket (Fig. 24.6/2) into another hole.

Bolt on track marker arm (Fig. 24.6/4) (for fixing material to be used, please refer to description for 3 m working width).

Bolt track marker arm (Fig. 24.6/4) with hex. bolt M6 x 90, 8.8 DIN 931 (Fig. 24.6/5) into hole "B" (Fig. 24.6).

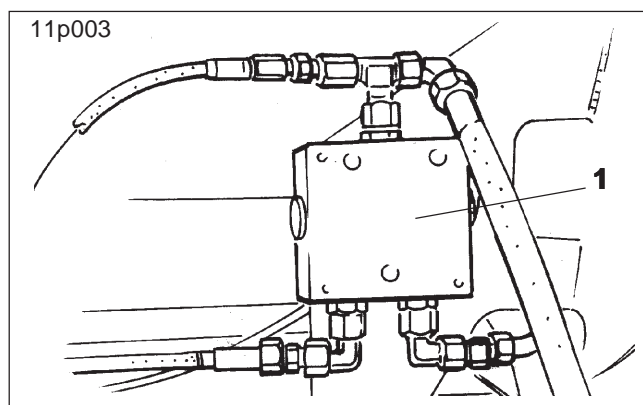


Fig. 24.4

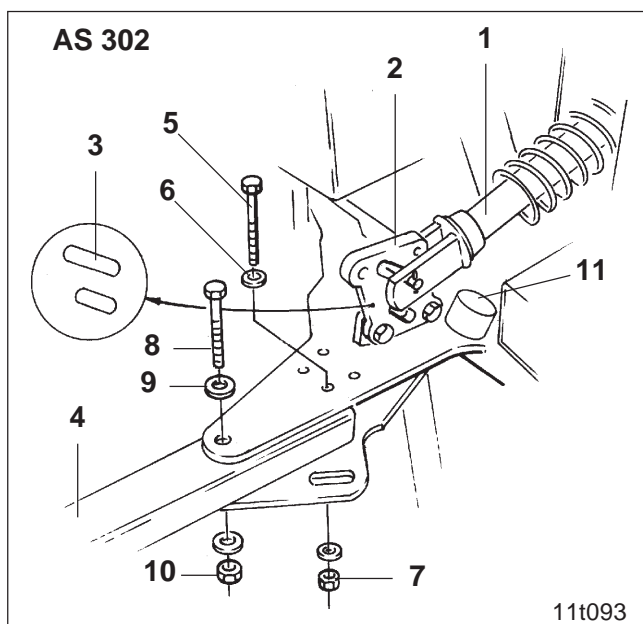


Fig. 24.5

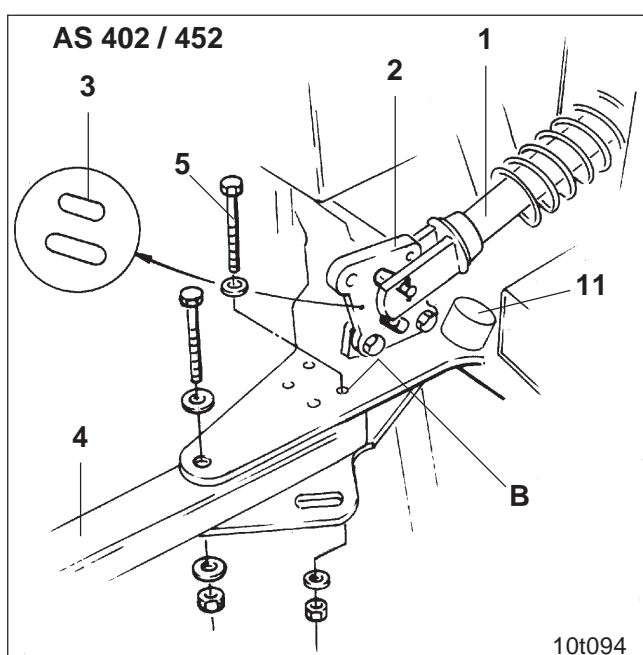


Fig. 24.6

6,0 m working width:

The hydraulic ram (Fig. 24.7/1) has to be fitted to the bracket (Fig. 24.7/2) in the short slotted hole (Fig. 24.7/3). If necessary, bolt the bracket (Fig. 24.7/2) into another hole.

Bolt on track marker arm (Fig. 24.7/4)) (for fixing material to be used, please refer to description for 3 m working width).

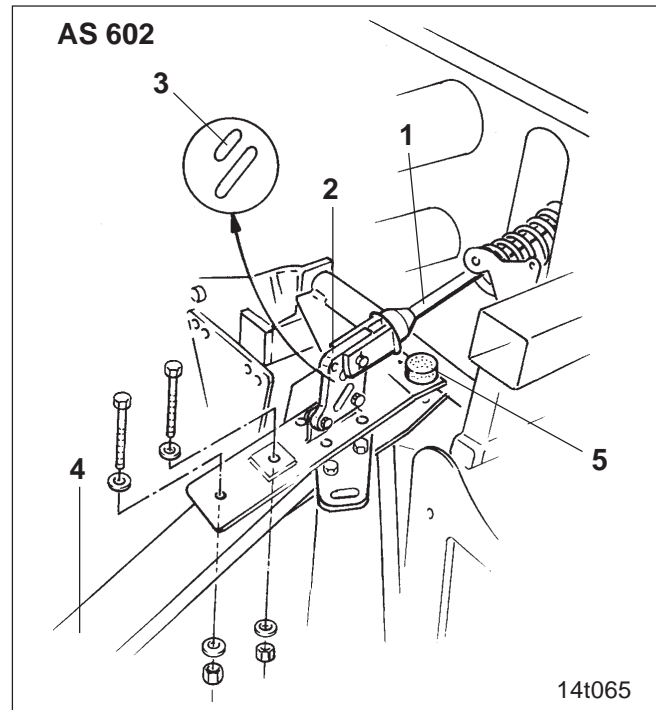


Fig. 24.7

Fit track marker pendulum tube (Fig. 24.8/1) to the track marker arm and secure with washer 36 x 50 x 2 (Fig. 24.8/2) and expansion pin 10 x 50 DIN 1481 (Fig. 24.8/3).

Fix wire cable (Fig. 24.8/4) with tensioning spring.

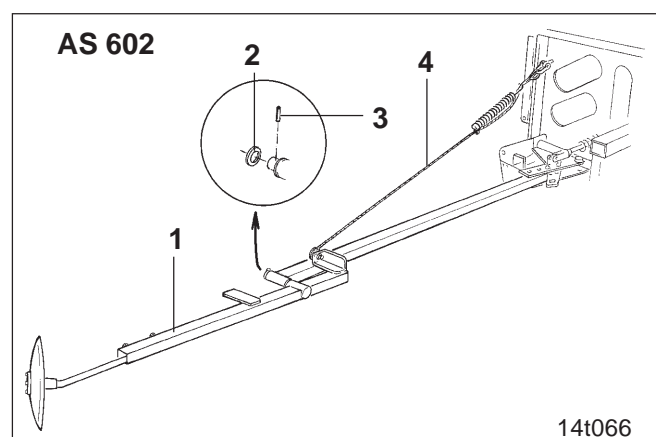


Fig. 24.8

all working widths:

Firmly clamp track marker discs with two hex. bolts (Fig. 24.9/1).

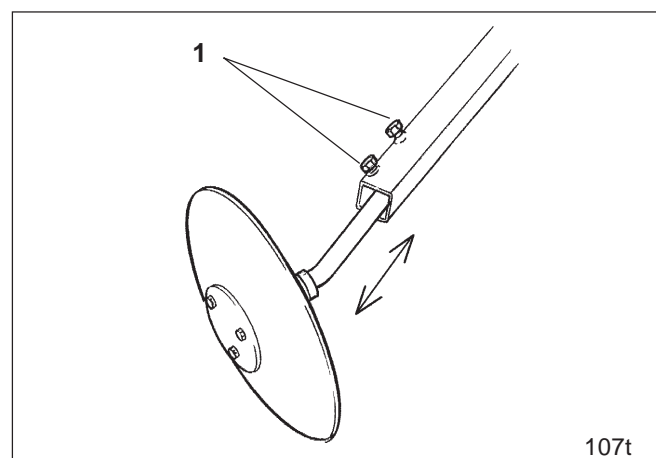


Fig. 24.9

24.2 Bringing the track marker into operational position

3,0 m; 4,0 m and 4,5 m working width:

right before beginning operation in the field

- Firmly hold track marker arm (Fig. 24.10/1) and remove clip pin (Fig. 24.10/2) (necessary for transport).
- If not used, insert clip pin (Fig. 24.10/2) into the bracket (Fig. 24.10/3).

6,0 m working width:

right before beginning operation in the field

- Firmly hold track marker arm (Fig. 24.11/1) and remove clip pin (Fig. 24.11/2) (necessary for transport).
- If not used, insert clip pin (Fig. 24.11/2) into the bracket (Fig. 24.11/3).



After the clip pin (Fig. 24.10 bzw. Fig. 24.11) has been removed, the track marker arm slightly tilts to the side.



Advise people to leave the area of danger and bring track marker arms into working position by actuating the tractor control valve from the tractor seat.

24.3 Bringing the track markers into transport position

Before transport, the track marker arms have to be fixed to the implement in reverse order as described in para. 24.2 and to be secured by clip pins.



The buffer blocks (Fig. 24.5/11, Fig. 24.6/11 respectively Fig. 24.7/5) must never be removed and must be replaced in case of wear!

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

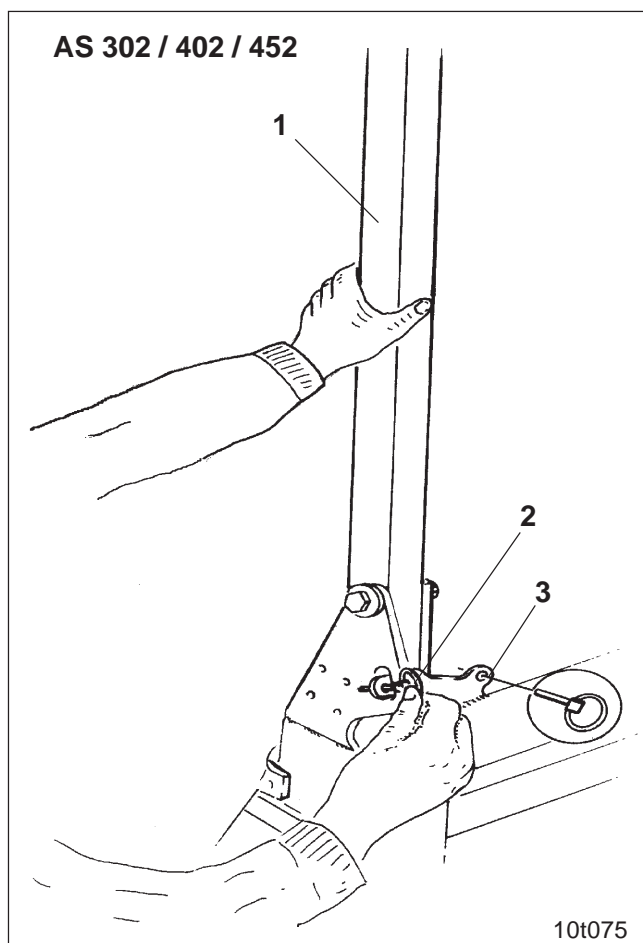


Fig. 24.10

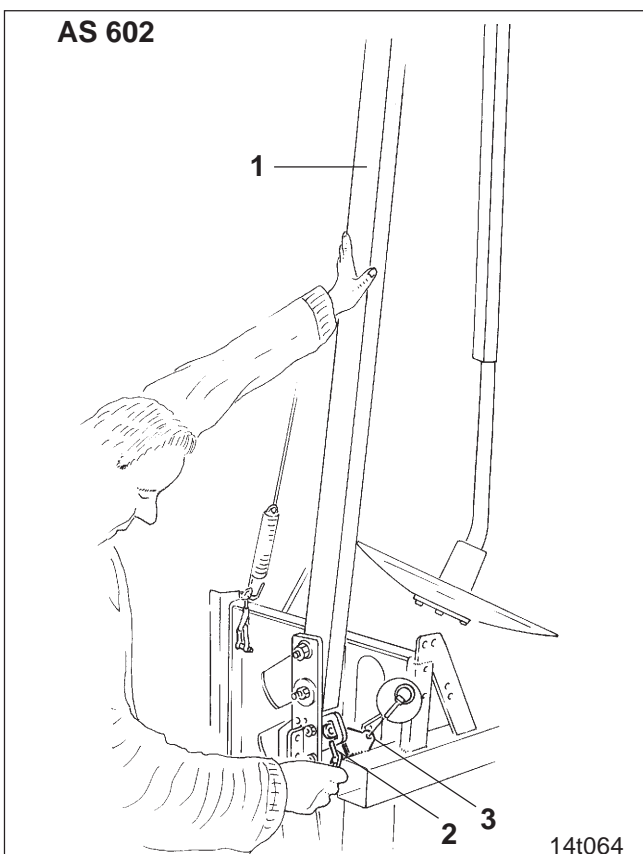


Fig. 24.11

24.4 Setting the track markers to the correct length

The sowing module is equipped with **track markers for tracing a track in the tractor's centre.**

The spacing is measured either from the centre of the implement or from the outer sowing coulter (see Fig. 24.12).

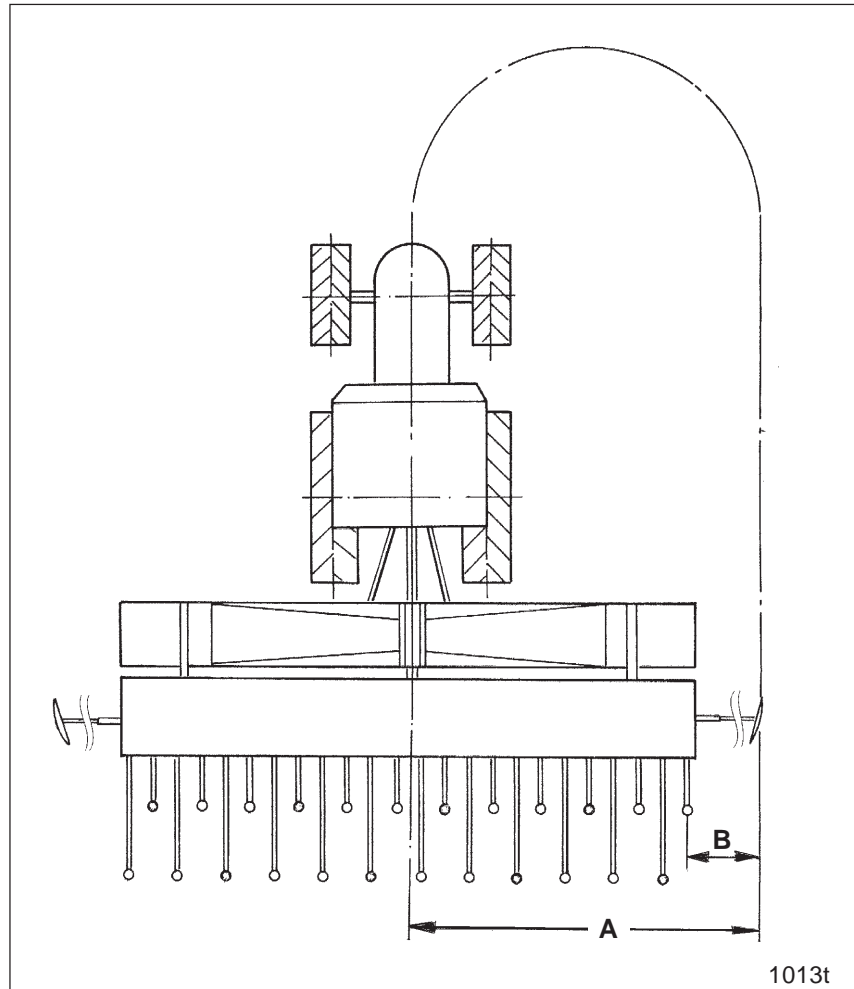


Fig. 24.12

The **spacing "A"** (Fig. 24.12) from track marker disc to machine's centre is at the sowing modules:

AS 302 with 24 rows / 12,5 cm row spacing:	Spacing A = 300,0 cm
AS 402 with 32 rows / 12,5 cm row spacing:	Spacing A = 400,0 cm
AS 452 with 36 rows / 12,5 cm row spacing:	Spacing A = 450,0 cm
AS 602 with 48 rows / 12,5 cm row spacing:	Spacing A = 600,0 cm.

The **spacing "B"** (Fig. 24.12) from track marker disc to the outer sowing coulter is at the sowing modules:

AS 302 with 24 Rows / 12,5 cm Row spacing:	Spacing B = 156,0 cm
AS 402 with 32 Rows / 12,5 cm Row spacing:	Spacing B = 206,0 cm
AS 452 with 36 Rows / 12,5 cm Row spacing:	Spacing B = 231,0 cm
AS 602 with 48 Rows / 12,5 cm Row spacing:	Spacing B = 306,0 cm.

The marker discs (Fig. 24.13) can be moved in the track marker arm. Prior to it, two hex. bolts (Fig. 24.13/1) have to be slackened and to be retightened firmly afterwards.



When setting the marker disks (Fig. 24.13), please note that they should be set for light soil about parallel with the direction of operation and more “on grip” on heavier soils.

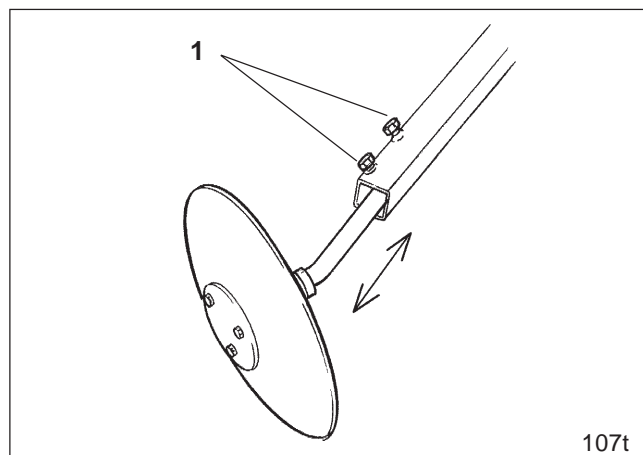


Fig. 24.13

only module AS 602:

The wire cable (Fig. 24.14/1) on the track marker arm has to be fixed in such a way that the track marker disc is limited to a **working depth of between 60 to 80 mm.**

If the track trace in the soil is too deep because of the tensile force of the tensioning spring (Fig. 24.14/2) the tensioning spring force has to be relieved.

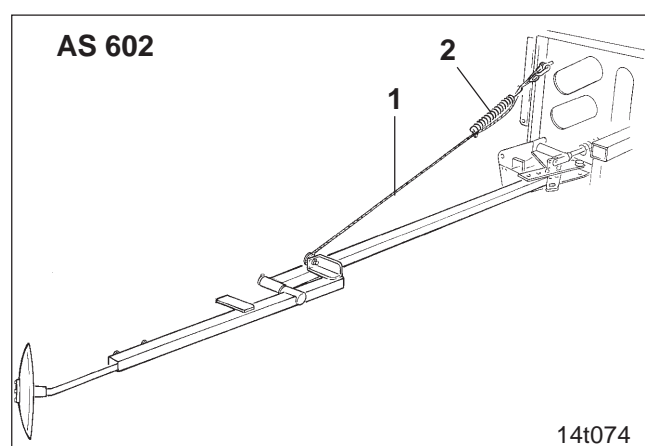
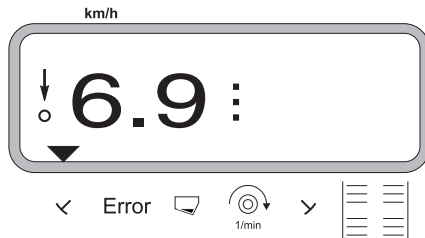


Fig. 24.14

24.5 During operation

With its sensors (Fig. 24.15/1) AMADOS monitors the movements of the track markers. The actual working track marker is shown in the display by the **black triangle**.



The information given by the sensors (Fig. 24.15/1) are additionally needed for switching on the tramling rhythm (see chapitre for tramlining control).

24.5.1 Safety shear pins

To avoid damages, the track markers raise before an obstacle in the field.

If, while operating, the track marker hits an obstacle, the track marker arm gives way to the obstacle to the rear.

Hereby a **hex. bolt M6 x 90, 8.8 DIN 931** (Fig. 24.16/1) shears off. Figure 24.16 shows the track marker of the module AS 302.

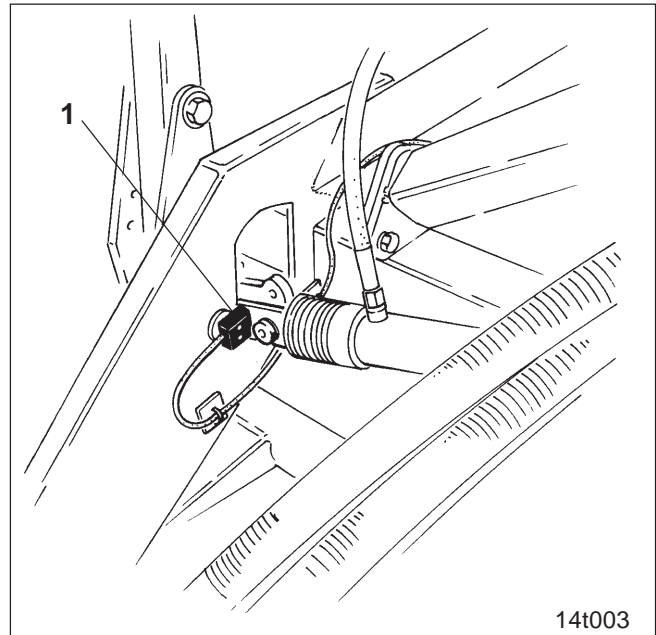


Fig. 24.15

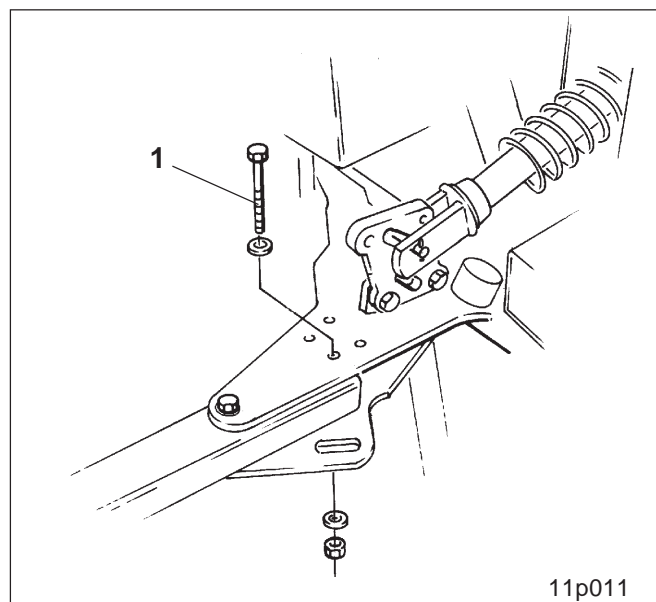


Fig. 24.16



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25.0 Extra coverage following harrow

The extra coverage following harrow (Fig. 25.1) evenly covers the seed sown with soil.

25.1 Mounting the extra coverage following harrow to the sowing module

Bolt the chanel irons (Fig. 25.2/1, through hole "A") to the side part of the seed drill.

- Bolt on swing metal buffer (Fig. 25.3/1).
- Fix parallel tubes (Fig. 25.3/2) with pins (Fig. 25.3/3) to the retainers (Fig. 25.3/4) of the extra coverage following harrow and secure with clip pins (Fig. 25.3/5).

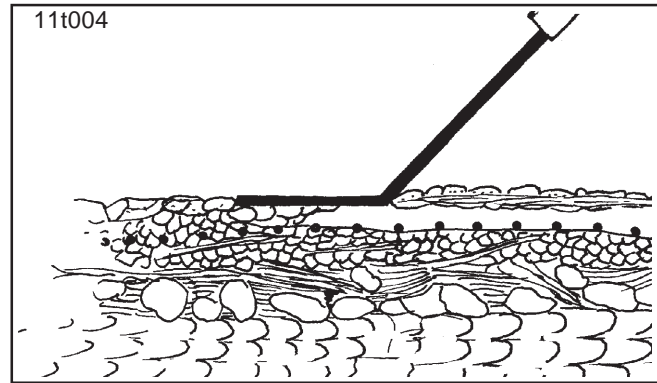


Fig. 25.1

- Fix the tubes (Fig. 25.3/2) with pins (Fig. 25.3/6) to the retainers (Fig. 25.3/7) and secure with clip pins (Fig. 25.3/8).

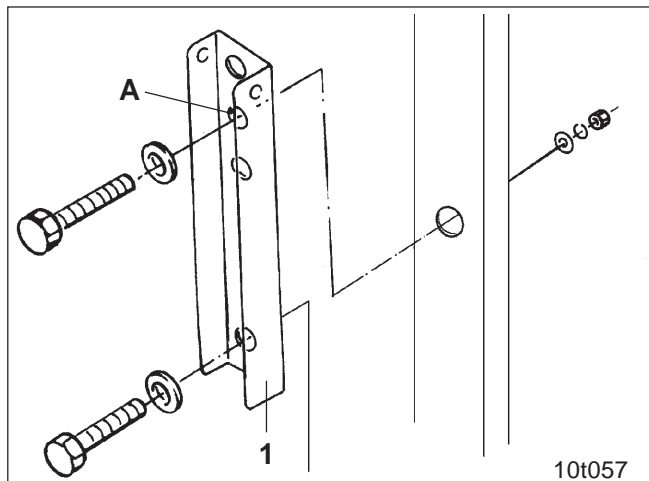


Fig. 25.2

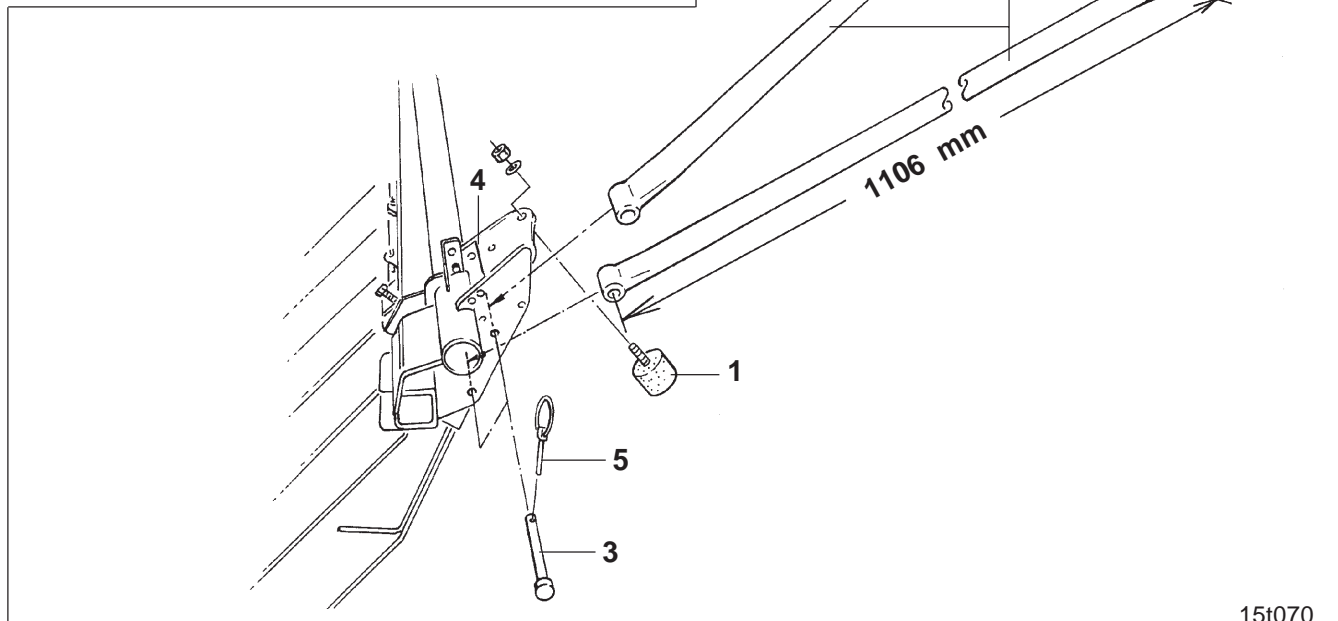


Fig. 25.3

25.1.1 Connecting the hydraulic ram (option)

The hydraulic ram (Fig. 25.4/1) is fitted to the extra coverage following harrow when supplied. Connect the hydraulic hose (Fig. 25.4/2) to the hydraulic ram (Fig. 25.4/1).



Allow the hydraulic hose (Fig. 25.4/2) 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 ram (Fig. 25.4/1) to a single acting tractor control valve (see para. 3.7) and actuate the valve only from the tractor seat.

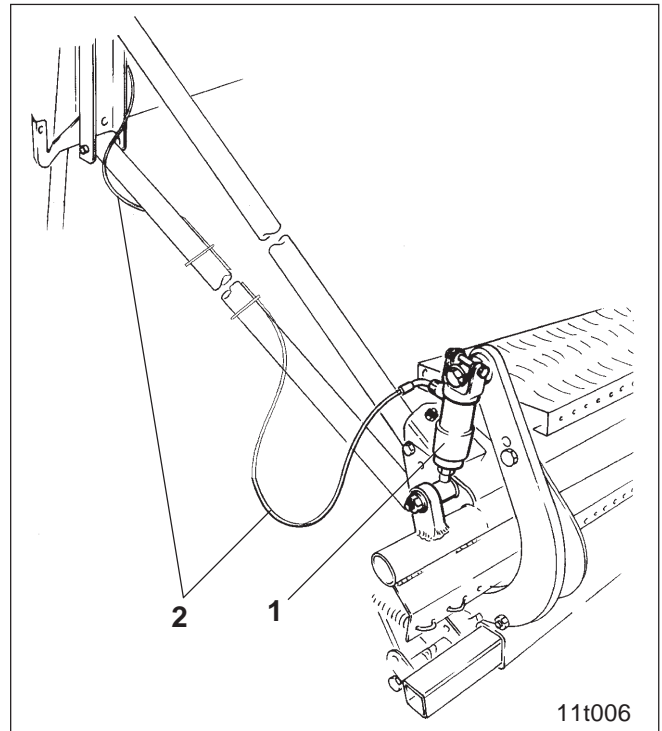


Fig. 25.4



The hydraulic pressure adjustment of the extra coverage following harrow is coupled to the hydraulic coulter pressure adjustment (if existent). If the coulter pressure is increased simultaneously also the pressure of the extra coverage following harrow tines is increased.



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

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

25.2 Bring outer following harrow tines into operating position

Packer roller and coulters of the sowing module throw the soil in different distances to the sides, depending on forward speed and soil condition.

Set the outer following harrow tines (Fig. 25.5/1) in such a way, that the soil is being guided backwards to achieve a wheelmark free seed bed.

The higher the forward speed the more the square tube (Fig. 25.5/2) 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 clamping bolts (Fig. 25.5/3).



Check the settings prior to starting the operation! Travel with the later operational speed a distance of approx. 30 m. Check settings and correct, if necessary.

25.3 Position of the harrow tines

The spring tines (Fig. 25.6) of the extra coverage harrow have to be set in 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 soil and square tube should then measure 230 mm to 280 mm, depending on the soil condition.

This setting is conducted by lengthening or shortening the top link (Fig. 25.7/1), by which the sowing module is coupled to the soil tillage implement.

If the sowing module hereby is slightly tilted forwards or backwards, this has **no** influence on the seed rate.

Should the settability of the top link (Fig. 25.7/1) be insufficient, the length of the upper fixing tubes on the retainers (Fig. 25.3/9) should be readjusted.

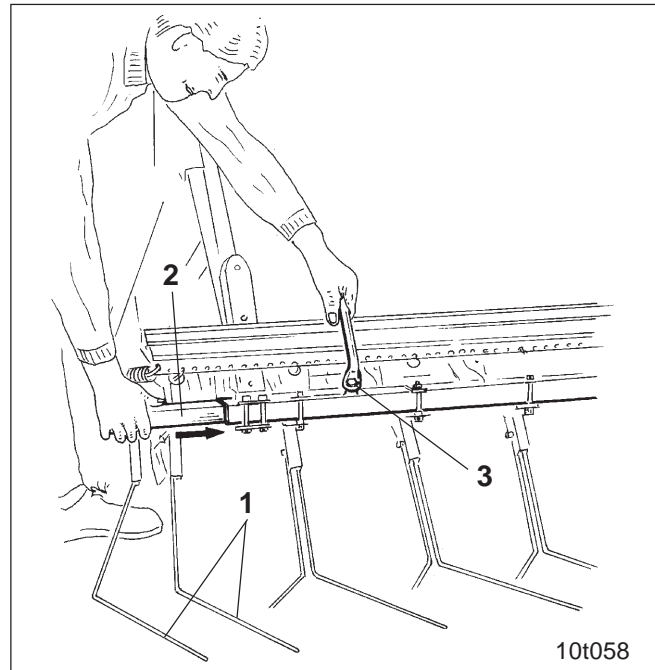


Fig. 25.5

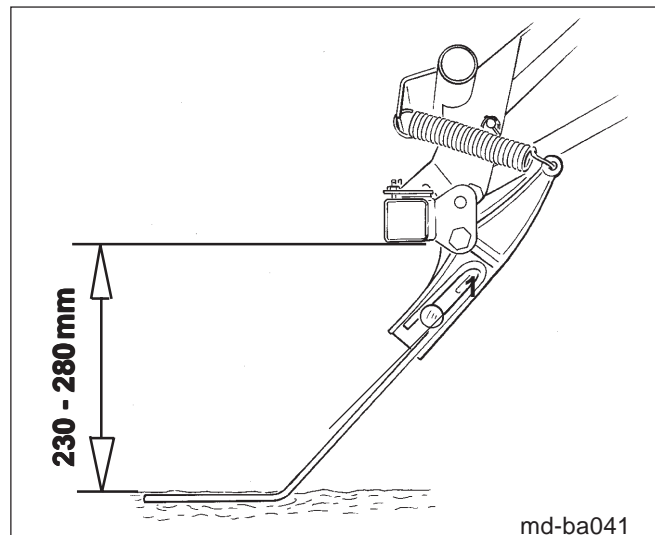


Fig. 25.6

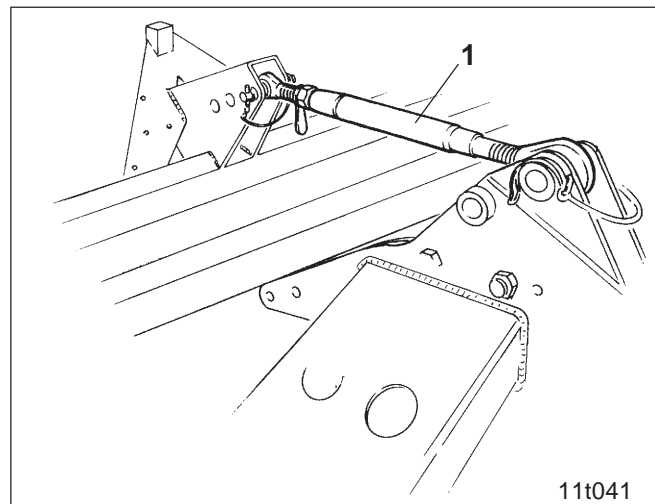


Fig. 25.7

25.4 Setting the harrow pressure on the extra coverage following harrow without the hydraulic ram

The pressure by which the spring tines (Fig. 25.8/1) 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. 25.8/2) **upwards**. Insert the pin (Fig. 25.8/3) into a hole **below** the stop lever (Fig. 25.8/2) and secure by a clip pin (Fig. 25.8/4). 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. 25.8/2) is actuated with the coulter pressure adjustment crank (Fig. 25.8/5).



Prior to operation check the settings!

Travel with your machine about approx. 30 m in the field with the later forward speed and check whether the seed is evenly covered with soil and no ridge of soil remains in the field.

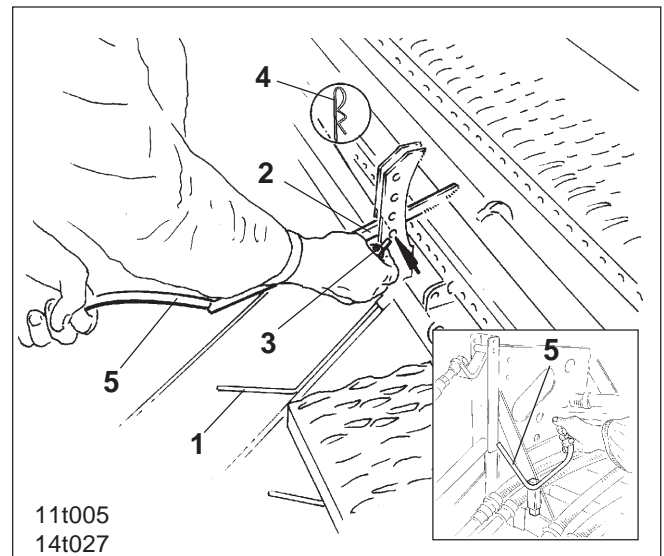


Fig. 25.8

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

The pressure by which the spring tines (Fig. 25.8/1) 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 remaining in the field. In fields with frequently changing soil conditions the harrow pressure can be increased with the aid of the hydraulic extra coverage following harrow adjustment where heavier soils prevail.

When changing from normal soils to heavy soils or vice versa, the coulter pressure is readjusted by a hydraulic ram (Fig. 25.9/1).

Two pins (Fig. 25.10/1 und Fig. 25.10/2) are placed as a stop for the lever (Fig. 25.10/3) in the setting segment. The lever (Fig. 25.10/3), which is actuated by the hydraulic ram (Fig. 25.9/1), lays on the pin I (Fig. 25.10/1) when the hydraulic ram is without pressure and it lays on pin II (Fig. 25.10/2) when the

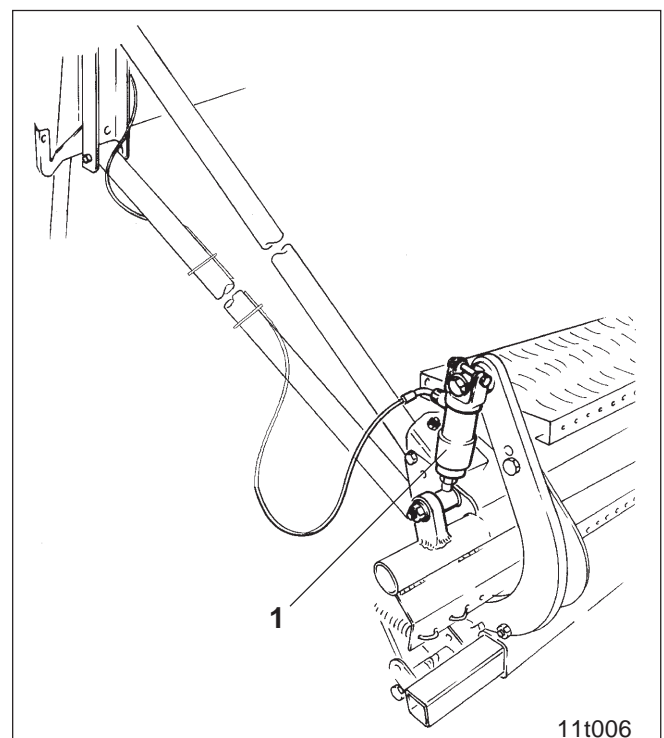


Fig. 25.9

hydraulic ram has been pressurised.

For setting the increased harrow pressure

- make the hydraulic ram (Fig. 25.9/1) pressureless.
- Place pin II (Fig. 25.10/2) into a hole **above** the lever (Fig. 25.10/3) in the setting segment and secure with a clip pin (Fig. 25.10/4).

For setting the normal harrow pressure

- Pressurise the hydraulic ram (Fig. 25.9/1).
- Place pin I (Fig. 25.10/1) into a hole **below** the lever (Fig. 25.10/3) and secure with a clip pin (Fig. 25.10/4).



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

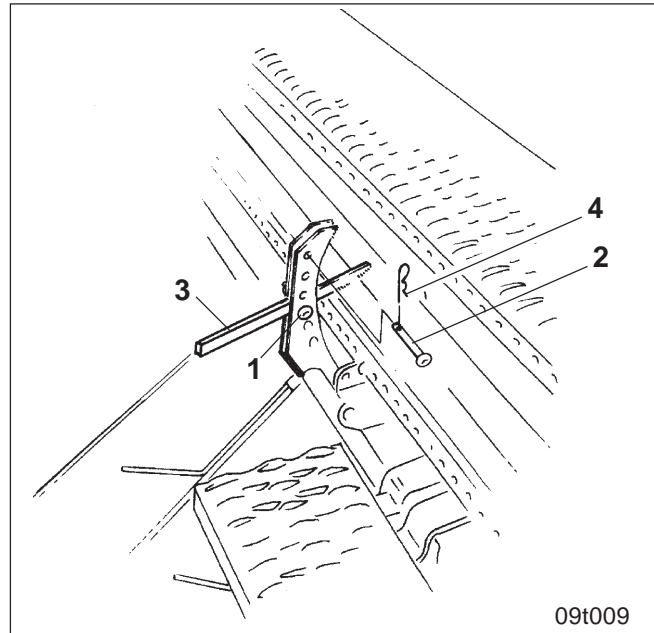


Fig. 25.10



Check settings prior to operation!

Travel with your implement about 30 m in the field with the later forward speed and check whether the seed on light to medium heavy soils is covered evenly with soil, and that no ridge of soil remains in the field with a normal harrow pressure and on heavy soils with increased pressure.

25.6 Road transport

For transport on public roads the outer square tubes (Fig. 25.11/1) with the outer harrow elements (Fig. 25.11/2) should be inserted till the stop into the larger carrier tube. Prior to this slacken clamping bolt (Fig. 25.11/3) and retighten.

In the field the outer harrow elements (Fig. 25.11/2) should be brought into operational position according to para. 25.2.



Before transport on public roads insert the square tubes (Fig. 25.11/1) with the outer harrow elements until the stop into the harrow carrying tube and secure with clamping bolts.

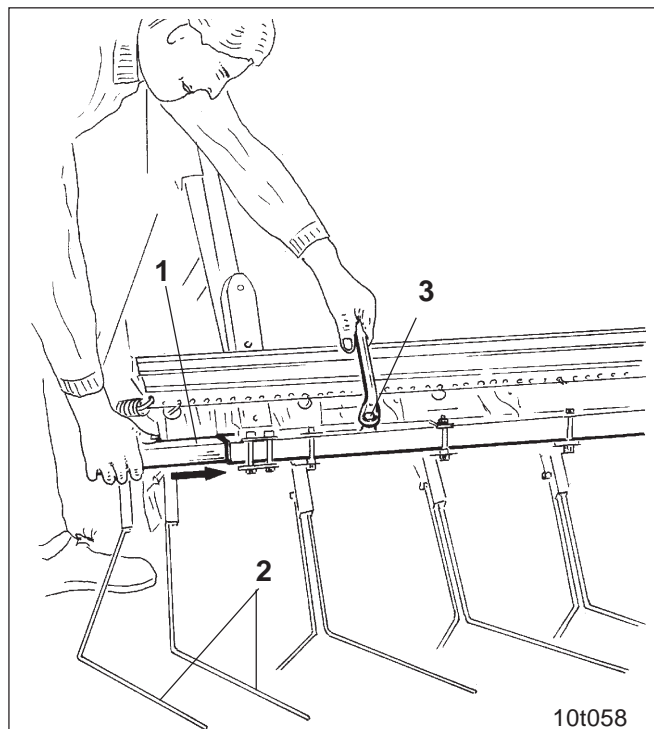


Fig. 25.11

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**For information for the use of the AMADOS-computer,
please refer to the instruction manual AMADOS.**

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26.0 Creating tramlines with the AMADOS-tramlining control

With the aid of the tramlining control, tramlines are created in the field, in which the fertiliser broadcaster or sprayers with exact working widths operates. Tramlines are marks (Fig. 26.1/1), in which no seed

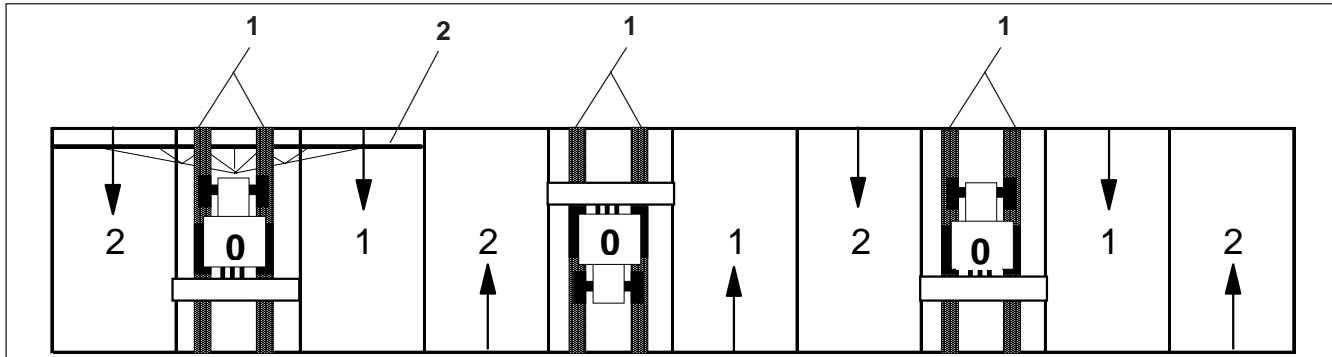


Fig. 26.1

is sown. The husbandry tractor determines the track width. **The spacing between the tramlines corresponds to the working width of the sprayer** (Fig. 26.1/2) and of the **centrifugal broadcaster**. The switching rhythm depends on the working width of the seed drill and the working widths of the

fertiliser broadcaster or of the field sprayer.

26.1 Assembly and function

Switching rhythm	Working widths of the seed drills				
	2,5 m	3,0 m	4,0 m	4,5 m	6,0 m
	Spacing between the tramlines (working width of the fertiliser broadcaster and of the field sprayer)				
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	36 m
7		21 m	28 m		42 m
8	20 m	24 m	32 m	36 m	
9		27 m	36 m		
2	10 m	12 m	16 m	18 m	24 m
6 plus	15 m	18 m	24 m	27 m	24 m 36 m
5 / 13 right hand			18 m		
5 / 13 left hand					

Fig. 26.2

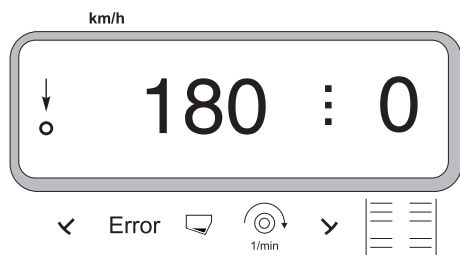
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When your implement is supplied (correct ordering provided) the tramline is set to the wheel marks of your husbandry tractor.

The hydraulic ram (Fig. 26.3/1) actuates the shutters (Fig. 26.4/1) in the distributor head which close the outlets towards the tramline coulter.

The hydraulic ram (Fig. 26.3/1) is connected to an electro hydraulic valve (Fig. 26.5/1) and is actuated with a single acting control valve in the tractor cab (please also refer to para. 3.7). When switching over the track markers (see chapter: track markers) the sensors send a signal to AMADOS and the tramline counter goes on counting.

Display when creating a tramline



When the tramline counter jumps on „0“, the electro hydraulic valve (Fig. 26.5/1) is opened and tramlines are created. AMADOS controls the shutter position with the aid of a sensor (Fig. 26.3/2) and sends an alarm in case of a wrong position.



The hydraulically actuated shutter control in the distributor head is coupled with the hydraulically actuated track markers.

When the tractor control valve is actuated while turning at the head lands, the marker is switched over and the tramline counter is advanced on the AMADOS-display.

When the tramline counter jumps to „0“, the shutters in the distributor head close the outlets towards the tramline coulters.

Advise persons to leave the area of danger!

Danger of injury on moving parts!

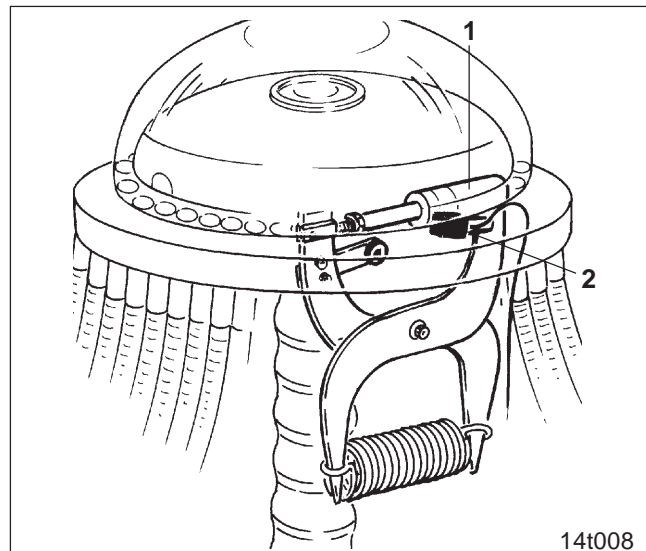


Fig. 26.3

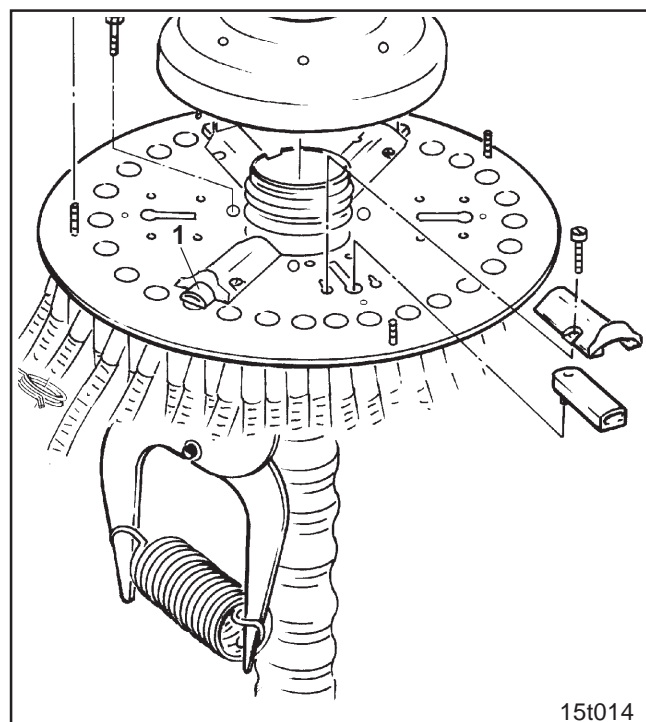


Fig. 26.4

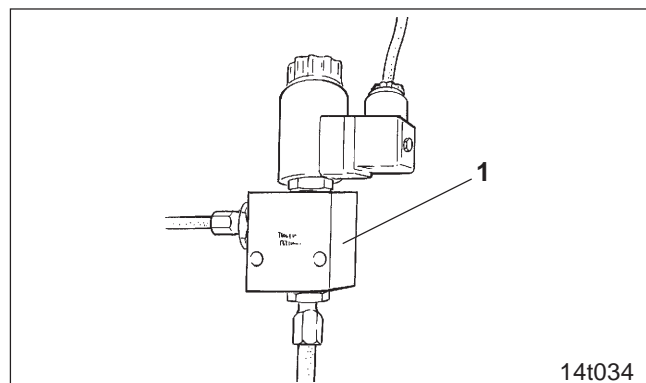


Fig. 26.5

AMADOS receives the necessary informations for switching on the tramlining control on machines

- **with track markers,**
during track marker change by the sensors (Fig. 26.6/1), which are fitted on the track marker arms.

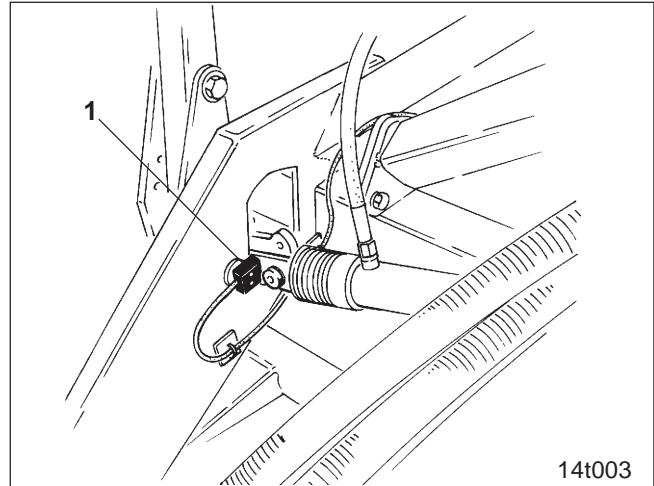


Fig. 26.6

- **without track markers,**
as soon as the distance sensor (Fig. 26.7/1) does not send impulses any longer, e. g. when the machine is lifted at the headlands, however, also when stopping in the field.



When lifting the marker prior to obstacles, observe the advice given also in para. 26.4).

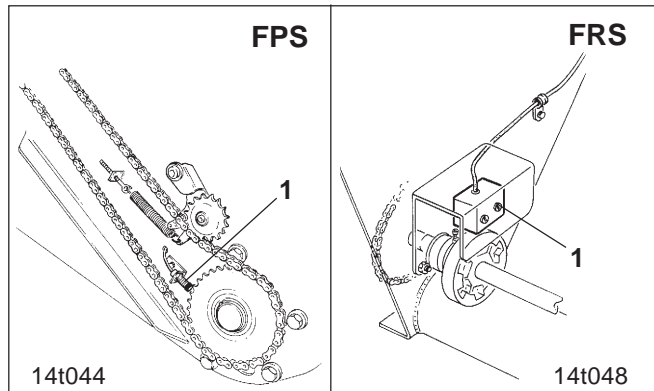


Fig. 26.7

26.2 Preselect switching rhythm and position of the tramline counter for creating tramlines

AMADOS controls creating tramlines. The switching rhythm to be pre-selected is determined by the working width of the seed drill and the desired tramline spacing.

In para. 26.3 the „Schedules for creating tramlines“ are listed up.

The columns „A“ to „D“ contain:

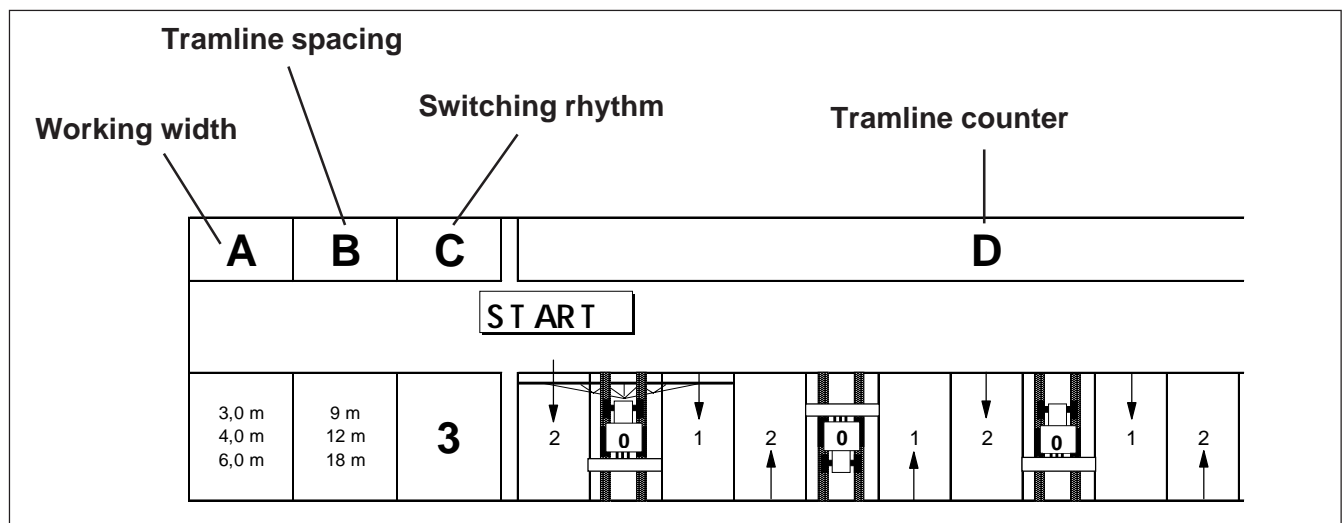


Fig. 26.8

- Find in the schedules the line in which the seed drill's working width (**e. g. 6 m**) and the desired tramline spacing (**e. g. 18 m**) are listed side by side.
- Read off the applicable switching rhythm „**e. g. 3**“ and preselect on the AMADOS.
- For correctly creating tramlines advance the tramline counter before starting to work and thus select the figure which is indicated under the duct „**START**“, **e. g. „2“**.

marker actuation before setting the tramline counter.



For further details regarding „Switching rhythm for creating tramlines“ and „Switching forward the tramline counter“, please refer to the AMADOS instruction manual.



Before starting operation, check the position of the tramline counter.



The hydraulically actuated slide in the distributor head is coupled with the hydraulically actuated track marker. Before setting the tramline counter ensure that the correct track marker lowers when starting to operate. If necessary, switch through once more the track

Possible switching rhythms and the relevant tramline counters

Switching rhythm		1	2	3	4	5	6	7
Tramline counter, controlled and displayed by the on-board computer	0	0	0	0	0	0	0	0
	1	1	0	1	1	1	1	1
			1	2	2	2	2	2
			2		3	3	3	3
						4	4	4
							5	5
								6

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Switching rhythm	8	9	10	11	12	13	14	15
Tramline counter, controlled and displayed by the on-board computer	0	0	1	1	0	0	0	1
	1	1	2	0	1	1	1	2
	2	2	3	3	2	2	2	3
	3	3	0	4	3	3	3	4
	4	4	5	5	4	4	4	5
	5	5	6	6	5	5	5	6
	6	6	0	7	6	6	6	7
	7	7	8	8	7	7	7	8
		8	9	0	8	8	8	9
			10	10	9	9	9	10
					10	10	10	11
					11	11	11	12
						12	12	13
							13	14
								15
								no tramlines are created

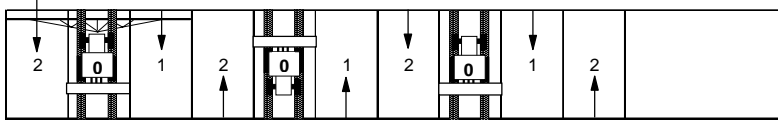
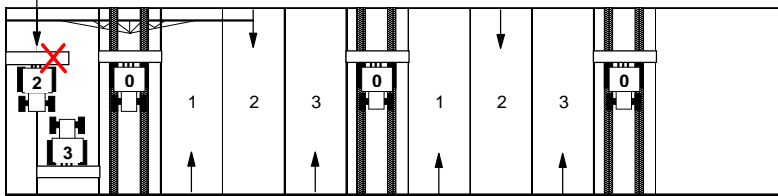
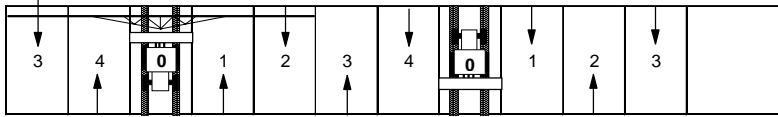
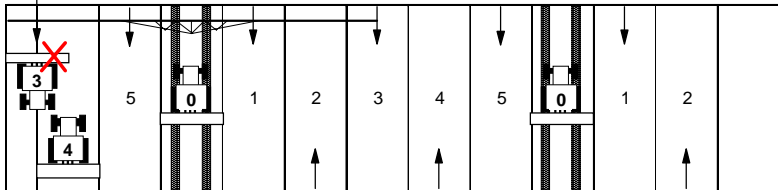
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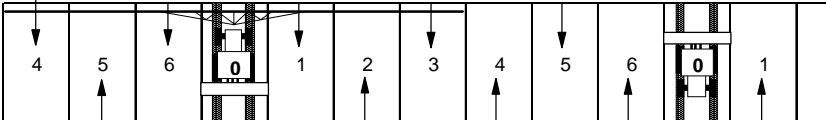
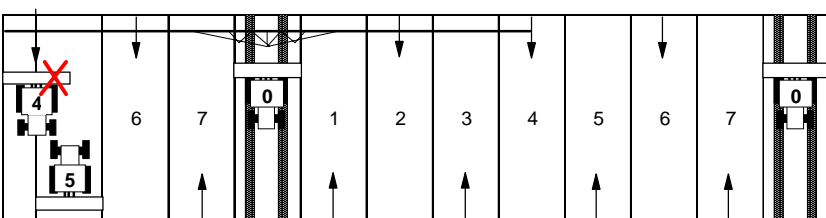
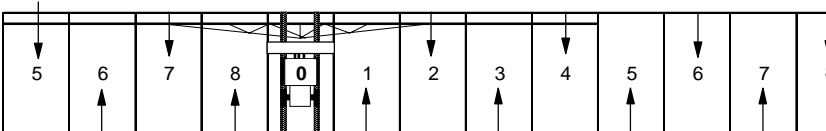
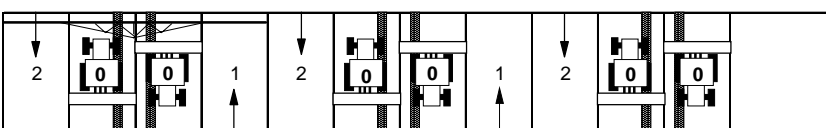
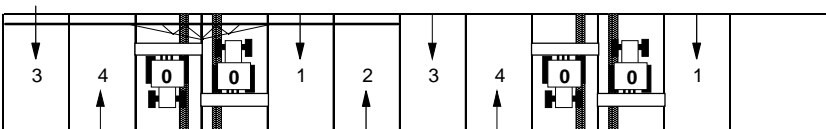
Switching rhythm	16	17	Double tramlining system				20	21	22	23
			18 r.h.	18 l.h.	19 r.h.	19 l.h.				
Tramline counter, controlled and displayed by the on-board computer	0	0	1	1	1	1	0	0	0	0
	1	1	2	2	2	2	1	0	0	0
	2	2	3	0	0	3	2	1	1	1
	3	3	4	4	4	4	3	2	2	2
	4	4	5	5	5	5	4	3	3	3
	5	5	6	6	6	6	5	4	4	4
	6	6	0	0	0	0	6		5	5
	7	7	8	8	8	8	7		6	6
	8	8	9	9	9	9	8			7
	9	9	10	10	10	10	9			8
	10	10	11	11	11	11				
	11	11	0	0	0	0				
	12	12	13	13	13	13				
	13	13	14	14	14	14				
	14	14	15	15	15	15				
	15	15	16	0	0	16				
		16	17	17	17	17				
			18	18	18	18				

Fig. 26.9

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26.3 Schedules for creating tramlines

A	B	C	D
START			
3,0 m 4,0 m 6,0 m	9 m 12 m 18 m	3	
2,5 m 3,0 m 4,0 m 4,5 m 6,0 m	10 m 12 m 16 m 18 m 24 m	4	
3,0 m 4,0 m 6,0 m	15 m 20 m 30 m	5	
2,5 m 3,0 m 4,0 m 4,5 m	15 m 18 m 24 m 27 m	6	

A	B	C	D
START			
3,0 m 4,0 m	21 m 28 m	7	
2,5 m 3,0 m 4,0 m	20 m 24 m 32 m	8	
3 m	27 m	9	
2,5 m 3,0 m 4,0 m 4,5 m	10 m 12 m 16 m 18 m	2	
2,5 m 3,0 m 4,0 m 4,5 m 6,0 m	15 m 18 m 24 m 27 m 36 m	6 plus	



26.4 Interrupting the sowing operation or folding in the markers during the sowing operation (Stop-Key)



The STOP-Key has become functional on 14th of Jan., 1998 on AMADOS.

In case it becomes necessary to **interrupt** the **sowing operation** on seed drills **without** track markers

- by stopping in the middle of the field,
- by lifting the seed drill (e. g. when giving way to obstacles)

or

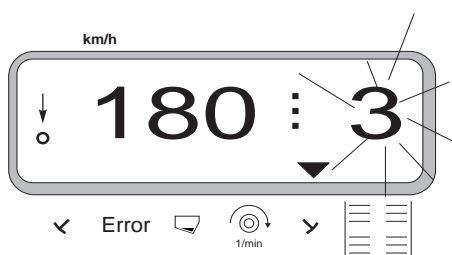
in case it becomes necessary to fold in the marker arms on seed drills **with** track markers (e. g. when giving way to obstacles),

implicitly press key



before interrupting the sowing operation or before folding in the marker arms in order to avoid the unintended advancing the tramline counter.

Display after pressing the Stop-Key



After pressing the key



the tramline counter (3) on the display flicks.

- Immediately after continueing the sowing operation or after folding down the marker arms,

press key again, so that the tramline counter does not flick any longer in the operation display.

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

In chapter 26.3 you may find examples for creating tramlines with 4-, 6- and 8-fold switching rhythm. Illustrated is the operation of the seed drill with half the working width whilst travelling the **first bout in the field**.

On 6 m-combinations the right hand machine side can be switched off by pulling the clip pin (Fig. 26.10/1) out of the connecting tube between the metering units on the front seed tank. Contrary to the illustration in Figure 26.11 the operation is started on the left hand field side.



After having travelled along **the first bout in the field** do not forget to reset the full working width of your machine.

On sowing modules **AS up to 4,5 m working width** operation is only possible with full working width. Therefore half the working width is sown twice when you start to operate as described in Fig. 26.11 upper illustration.

When you start to operate with full working width and by creating a tramline

- the fertiliser broadcasters spread half-side with a border spreading disc or a boundary spread deflector while travelling the first bout in the field.
- one boom is switched off on field sprayers while travelling the first bout in the field.

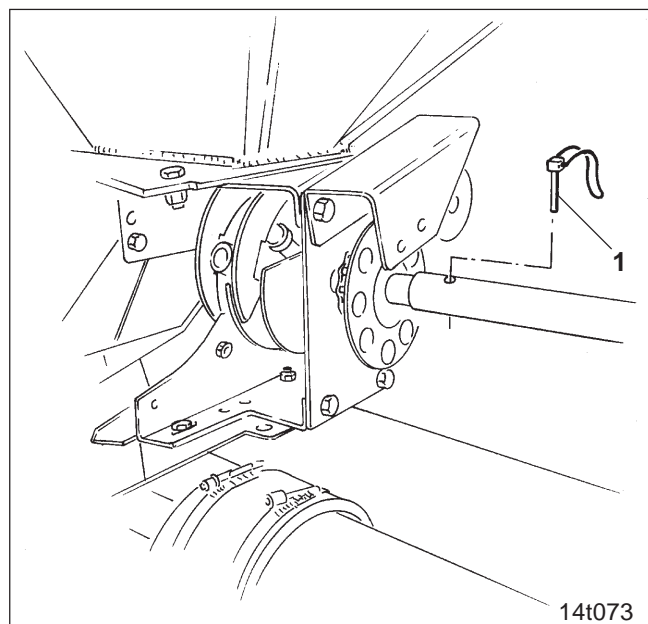


Fig. 26.10

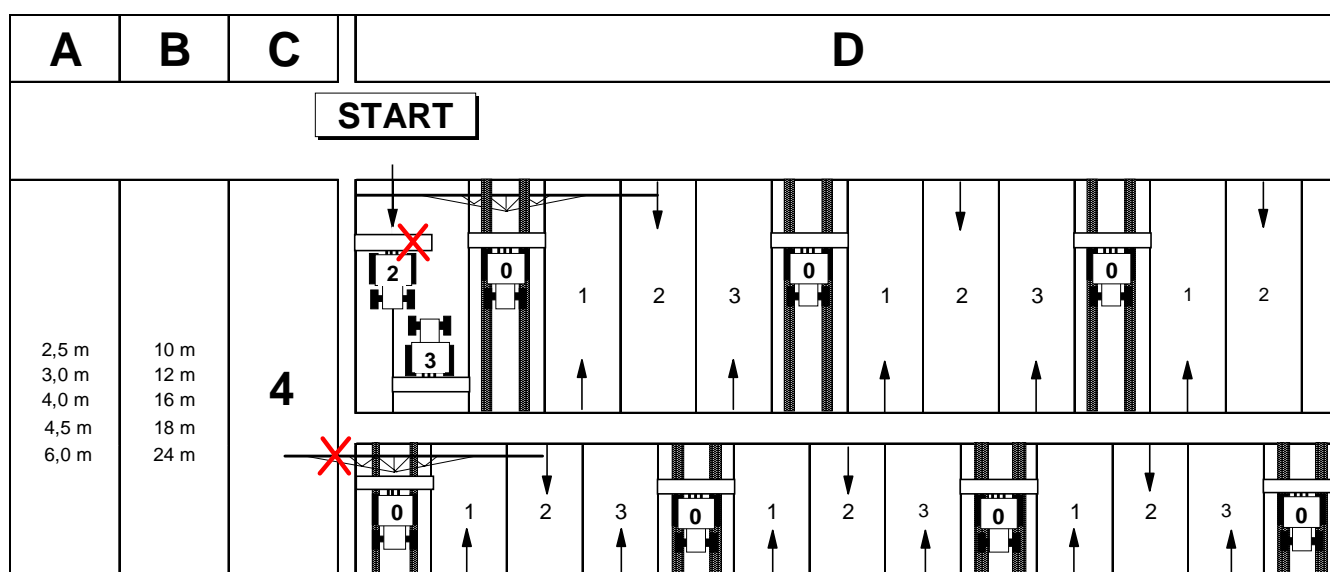


Fig. 26.11

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

When creating tramlines with 2-fold and 6-plus switching rhythm (see Figure 26.12) tramlines 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 machines with

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

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

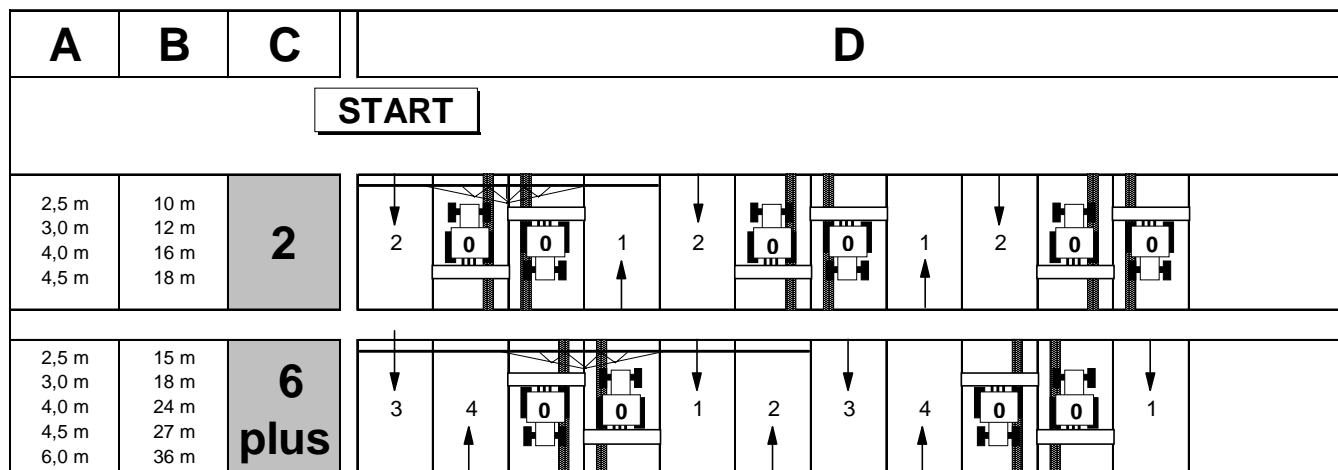


Fig. 26.12

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

Tramlines are marks in which no seed is sown. The spacing of the marks corresponds to the wheel marks of the husbandry tractor. When supplied, the tramlining control of the sowing module is set to the wheel marks of your husbandry tractor. Should it become necessary, e. g. when purchasing a new husbandry tractor, to set the tramlining control to the track of the new tractor, the seed tubes (Fig. 26.13/8) on the distributor head have to be interchanged. Hereby observe that the tramlining coulters are fixed to the outlets which can be closed by the shutters (Fig. 26.13/9).

For creating two marks, up to 3 seed outlets in the distributor head may be closed.



Seed drills with 2-fold switching rhythm.

have only to be equipped with tramlines on the right hand side of the machine (see para. 26.6).



Seed drills with 6-plus switching rhythm

have to be equipped with tramline coulters only on the left hand machine side (see para. 26.6).



When your machine has been equipped with a pre-emergence marker kit, adjust the the spacing of its marker discs accordingly.

26.8 Setting the wheel marks

If you want 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
- Distributor outer hood (Fig. 26.13/1),
O-Ring (Fig. 26.13/2),
Distributor inner hood (Fig. 26.13/3) and
demount foam material insert (Fig. 26.13/4).

It is possible to fit up to 6 shutter slides. Always two shutter slides (Fig. 26.13/6) should be fitted on the base plate opposing each other. For mounting or demounting the shutter slide (Fig. 26.13/5) the shutter slide tunnel (Fig. 26.13/7) has to be removed.

After fitting, check functions of tramlining control.

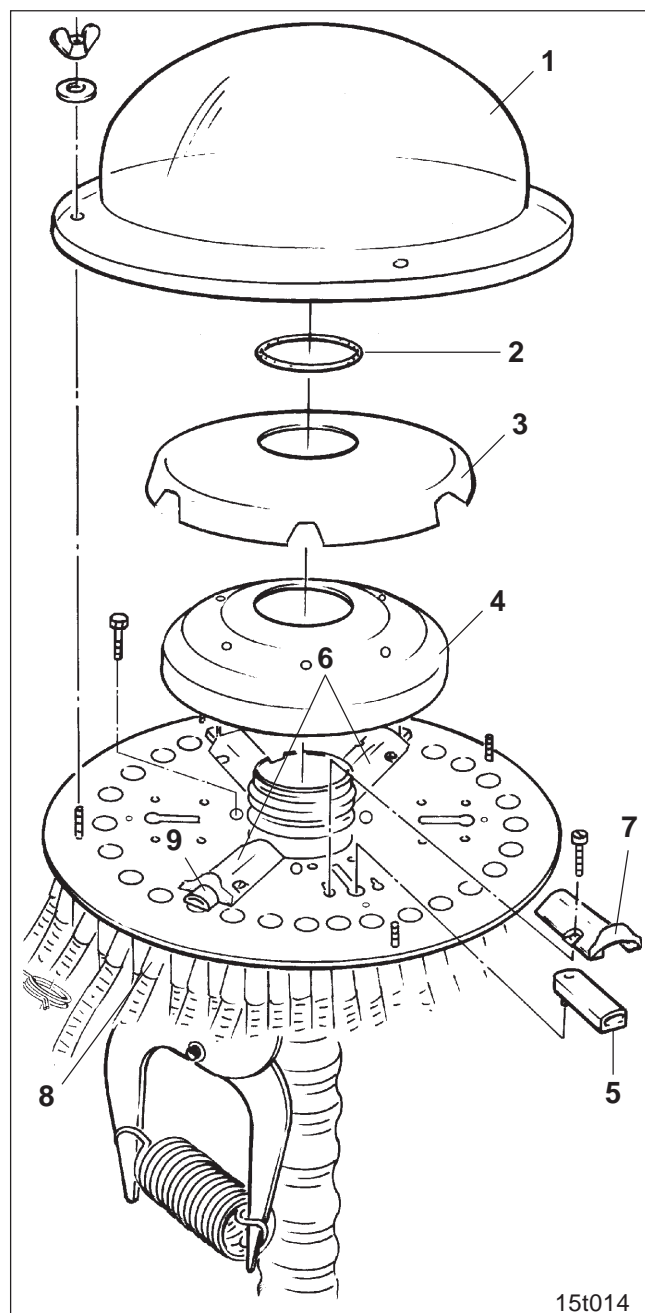


Fig. 26.13

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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:

During transport:

the implement width must not exceed 3 m.

Pack top sowing modules AS in combination with an AMAZONE soil tillage implement of more than 3 m working width may only be transported in longitudinal direction on an AMAZONE transport wagon TV. For further details please refer to the relevant instruction manual.

Standing on the machine

during travel is prohibited.

Travelling with the front sowing tank

As the dimension of 3.50 m from the steering wheel centre to the front edge of the front sowing tank is exceeded, care for an accompanying person in case of restraint visibility towards public roads as traffic director.

Bring the track markers

into transport position (see chapter track markers).

Fit warning plates (red/white striped)

on the front of the soil tillage implement (Fig. 40.1/1) and on the rear of the pack top sowing module (Fig. 40.2/1) with a max. distance towards the outer edge of the machine of 10 cm and in a max. height of 150 cm above ground.

Front traffic lights

The front sowing tanks FRS and FPS are equipped with limiting lights (Fig. 40.3/1).

In case the **tractor headlamps** are hidden by the mounted implement they have to be repeated.

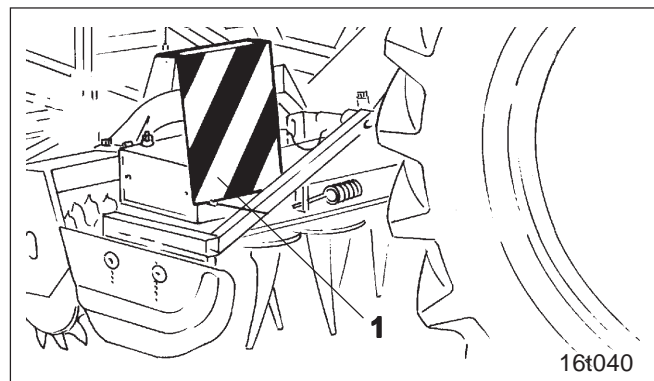


Fig. 40.1

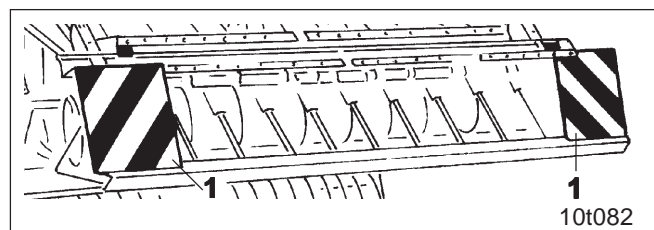


Fig. 40.2

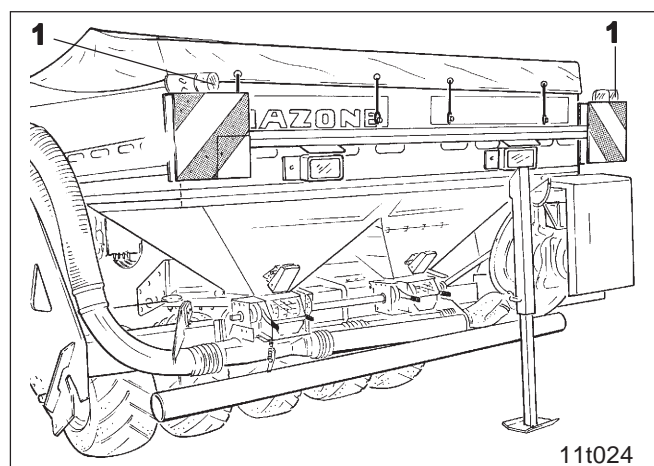


Fig. 40.3

ted. For the second pair of headlamps a special licence is required. Only one pair of headlamps may be switched on at the same time. (Please adhere to your national traffic law).

The **hidden licence registration-plate** of the tractor has to be repeated on the rear mounted implement.

In case the total length of the mounted combination is more than 6.0 m a lateral identification with yellow rear reflectors is required. Please adhere to your national traffic law.

With a special licence the tractor can also be equipped with a yellow all around warning beacon. Please also here adhere to your national traffic law.



For transport on public roads a special licence is required for the second pair of headlamps and the yellow all around warning beacon.

Check traffic lights for proper function before going on the road.

Traffic lights to the rear

The pack top sowing modules AS up to 3 m working widths have to be equipped with the legally prescribed traffic lights before transport on public roads. The sowing module 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.

The clip-on lights must be clipped on to the light carriers fixed to the side of the sowing module, whereby the on top lights show into direction of travel and the lights below should show to the rear. During the operation in the field, the clip-on lights should be removed.

Check traffic lights for proper function before travelling.

Extra coverage

For transport on public roads of the AS sowing module up to 3 m working width push the carrying tubes with the outer harrows until stop into the extra coverage harrow carrying tube (see para. extra coverage following harrow) and all tines protruding to the rear have to be guarded with the traffic safety guard (Fig. 40.4/1, option). A second set of lights (Fig. 40.4/2) should be fixed to the square tube of the extra coverage following harrow.

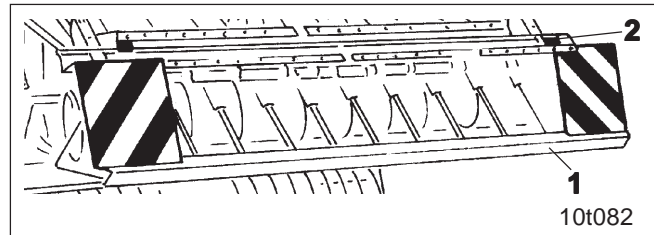


Fig. 40.4

Raise sowing module 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.

only front seed tank FRS with star wheel:

For road transport raise star wheel (Fig. 40.5/1) and fix with a chain (Fig. 40.5/2) on the frame.

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.

Tractor axle loads/ Tractor total weight

The permissible tractor axle loads, the permissible total weight of the tractor and the permissible carrying ability of the tractor tyres must not be exceeded (empty seed tank!).

When the rear mounted combination up to 3 m working width is transported, e. g. without seed tank, the front axle of the tractor is differently relieved of load, depending on the tractor type and size. The **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.

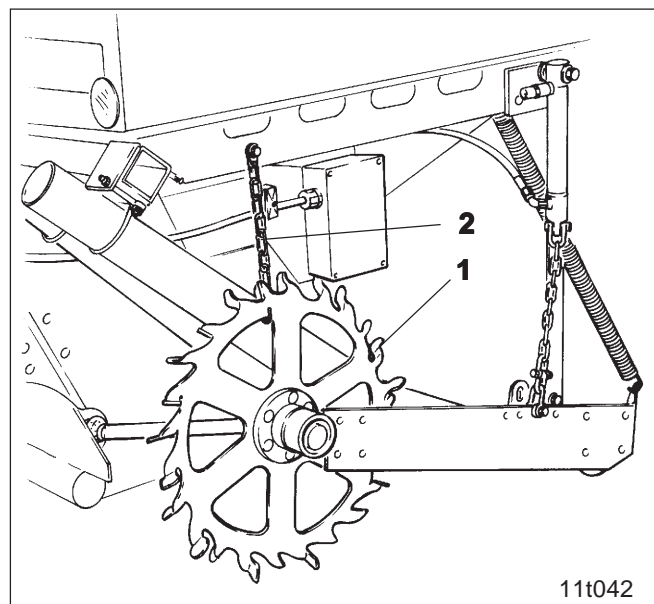


Fig. 40.5

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 (see para. 4.6.5).

50.1 Check bolted connections

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

50.2 Cleaning the implement

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



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



Regularly remove seed residues from the metering unit(s). Before, empty seed tank according to para. 14.3.

Swollen or germinating seed residue in the metering unit may affect the seed rate or block the movement of the seed metering wheels.

For cleaning the metering unit open

- the clear plastic flap (Fig. 50.1/1)
- the injector sluice flap (Fig. 50.1/2) and
- the residue emptying flap.

For opening the residue emptying flap press lever (Fig. 50.1/3) behind the metering unit downwards and arrest.

Empty metering wheels by some turns with the calibration crank.

50.3 Checking oil level in the two-range gearbox

The oil level in the two-range gearbox should be checked at the oil gauge window (Fig. 50.2/1) when

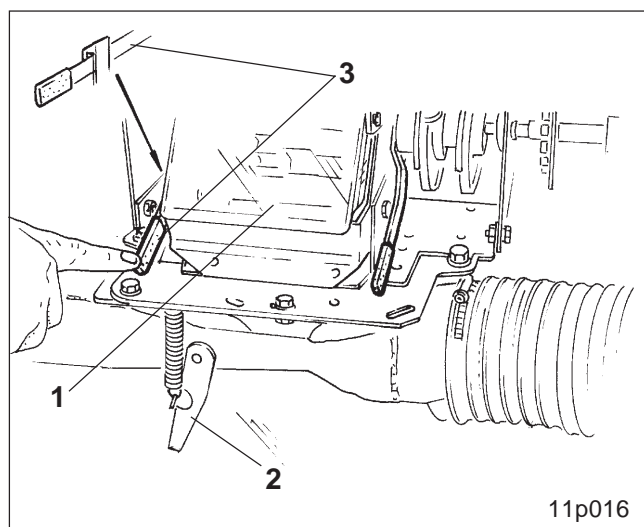


Fig. 50.1

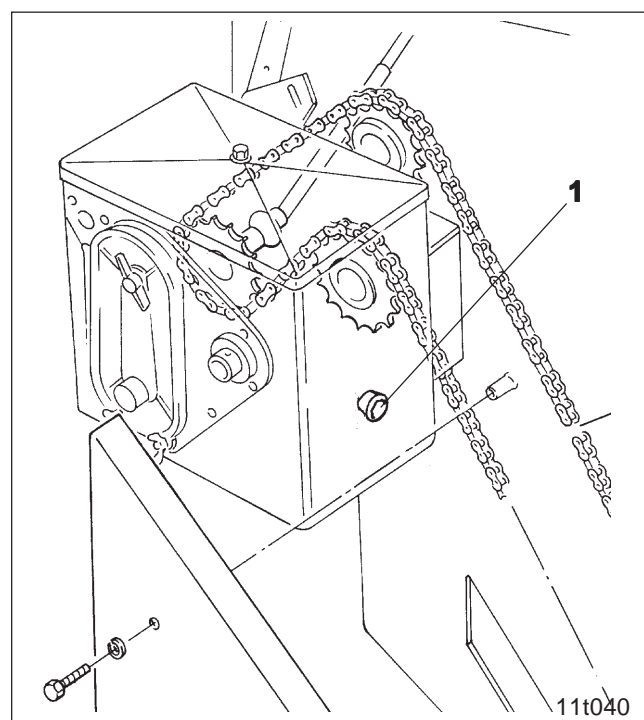


Fig. 50.2

the machine is level to the ground. 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.

50.4 Checking the roller chains

The sowing units of the machine are among others driven by roller chains. After end of the season or before a longer pause of operation

- apply oil to the drive chain (Fig. 50.3/1) of the front packer seed tank. Remove chain guard (Fig. 50.3/2) before and put on back onto place afterwards.

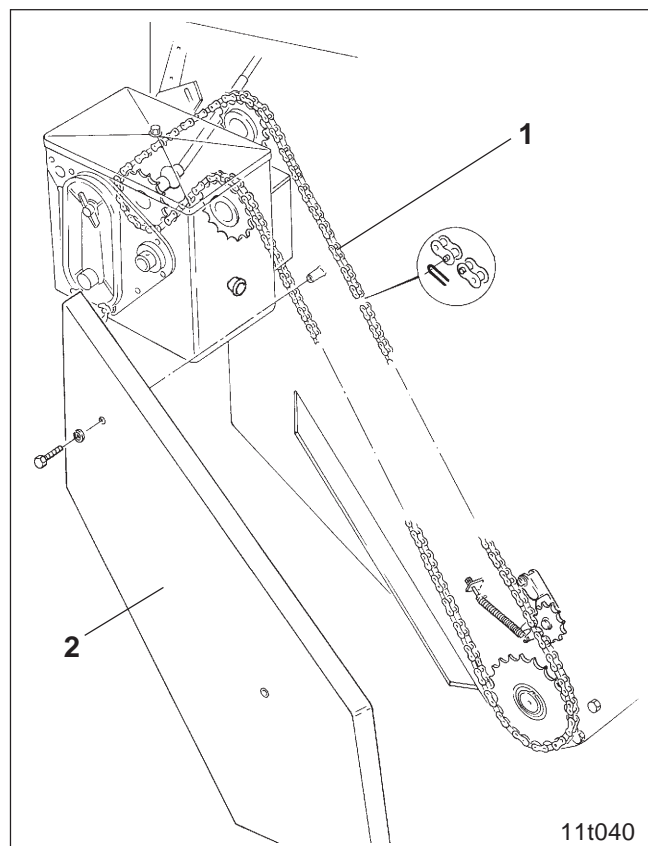


Fig. 50.3

Apply oil to the drive chain (Fig. 50.4/1) of the seed metering wheels.

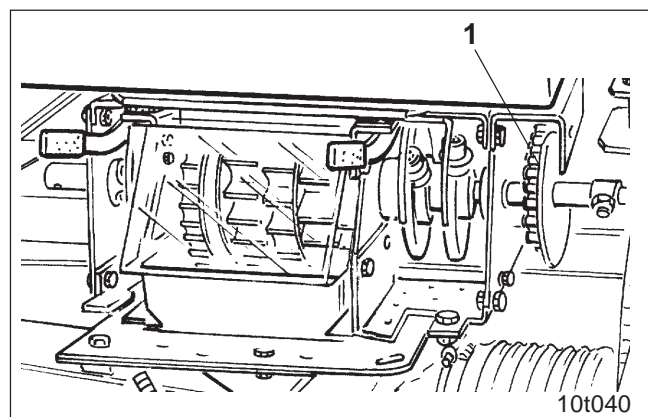


Fig. 50.4

50.5 Checking the air filter of the Diesel engine

Check the air filter (Fig. 50.5/1) of the Diesel engine in regular intervals, i.e. in case of a heavy dust development daily. When the air filter is found to be very dirty, exchange.

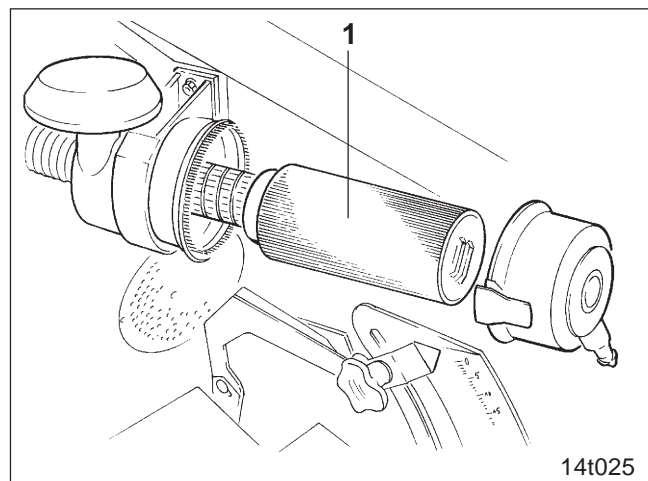


Fig. 50.5

50.6 Air pressure of the front packer tyres

Tyres Front packer FP	Air pressure
Tyres 26x12.00-12 8PR TL AS-Farmer	1,5 bar

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50.6.1 Exchange of a defect tyre

Before tyre exchange clean roller thoroughly.

- Couple front packer-seed tank to the tractor.
- Remove chain guard (Fig. 50.6/1)
- The drive chain (Fig. 50.6/2) is tensioned by a spring loaded chain tensioner (Fig. 50.6/3). Relief drive chain or loosen chain joint (Fig. 50.6/4) and remove drive chain
- Secure roller with chocks against unintended rolling and bolt off the roller (Fig. 50.7/1). For this remove the fixing bolts (Fig. 50.7/2) on both sides
- Raise the seed tank from the roller with the aid of the tractor hydraulic
- Remove hex nuts (Fig. 50.7/3) and pull off tyres

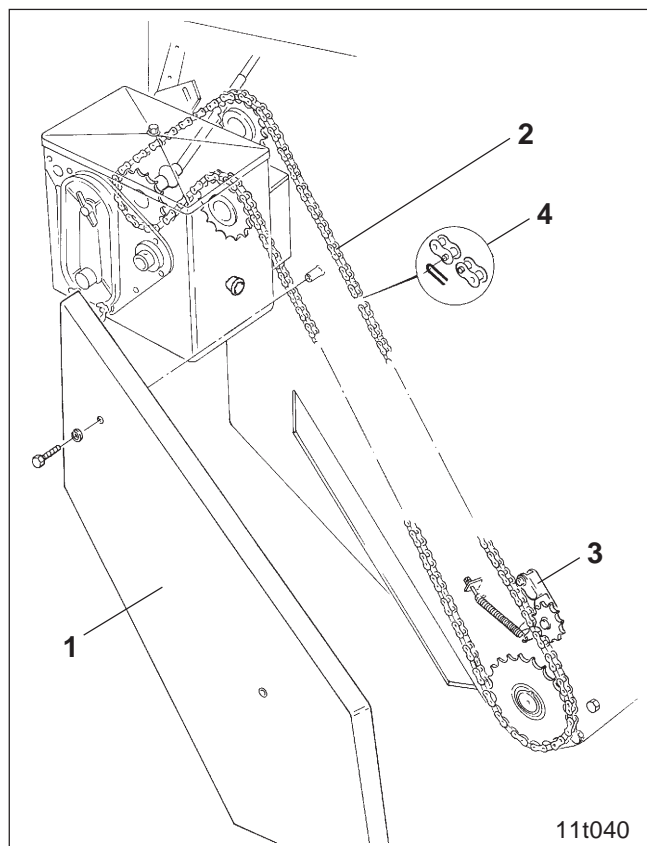


Fig. 50.6

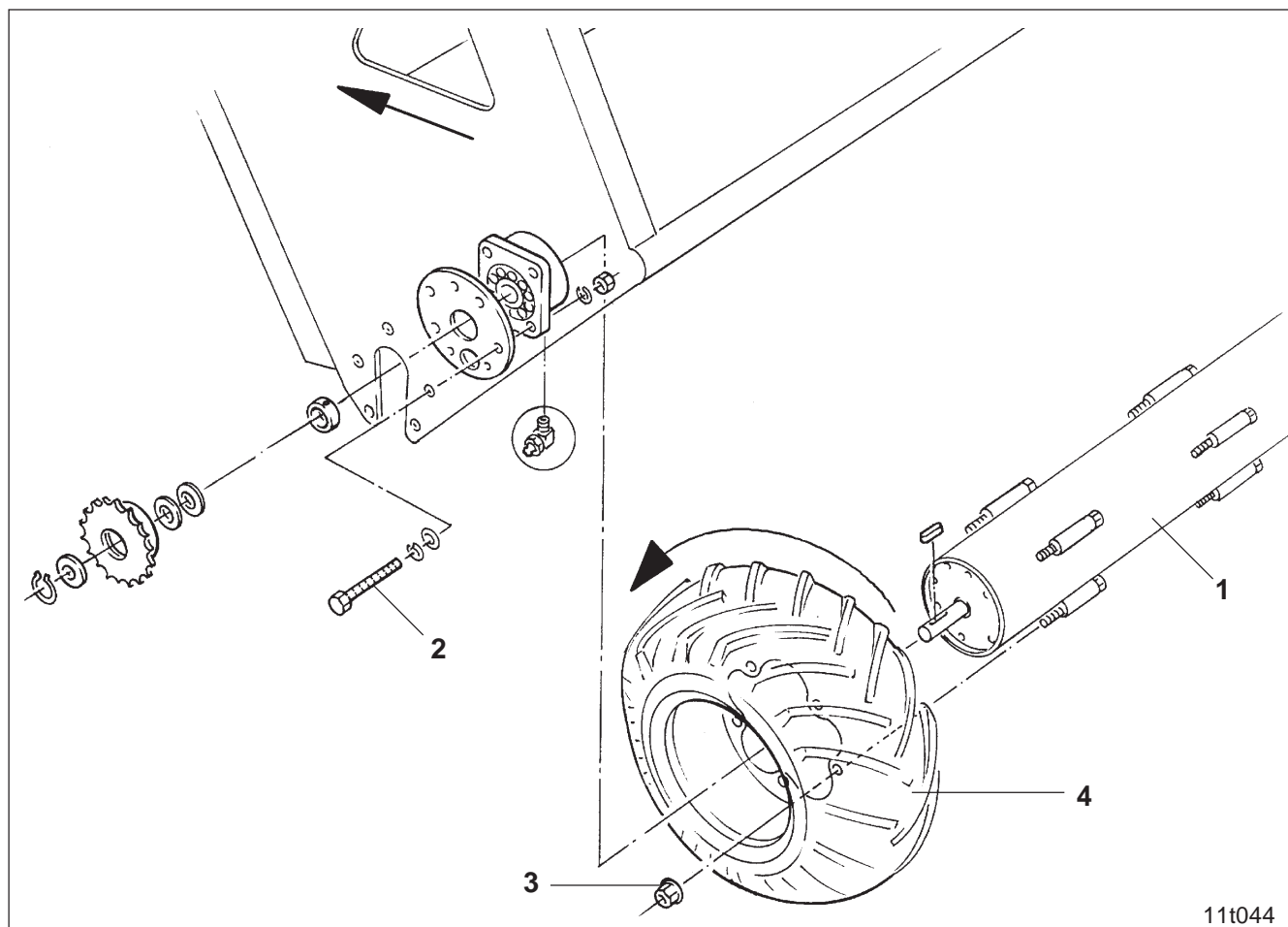


Fig. 50.7

Tyres front packer FP	
Description	Order-No.
tyres cpl. for front packer FP	953202
tyres 26x12.00-12 8PR TL AS-Farmer	LD032
tube for tyres 26x12.00-12	LD042
rim for front packer FP	953201

T691-gb10

(Fig. 50.7/4) from the roller.

The assembly of the roller is done in the reverse manner.



When assembling observe the running direction of the tyres. The tyres may only be mounted as illustrated in Figure 50.7 so that the brake lever cannot be toed in by the tyre profile.

50.7 Setting the spring loaded steering

After a possible repair work the spring loaded steering of the front packer has to be restored.

Two strong springs (Fig. 50.8/1) prevent the seed tank from uncontrollably swinging to and fro when lifted..

After a possible repair hook in both springs into the turnbuckle (Fig. 50.8/2) and tension the springs by turning the turnbuckle with 10 turns. Then secure turnbuckle with counter nut (Fig. 50.8/3).

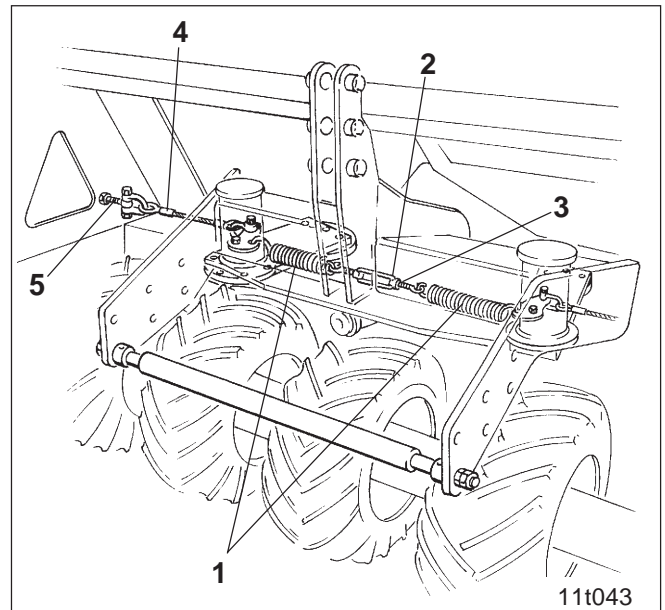


Fig. 50.8



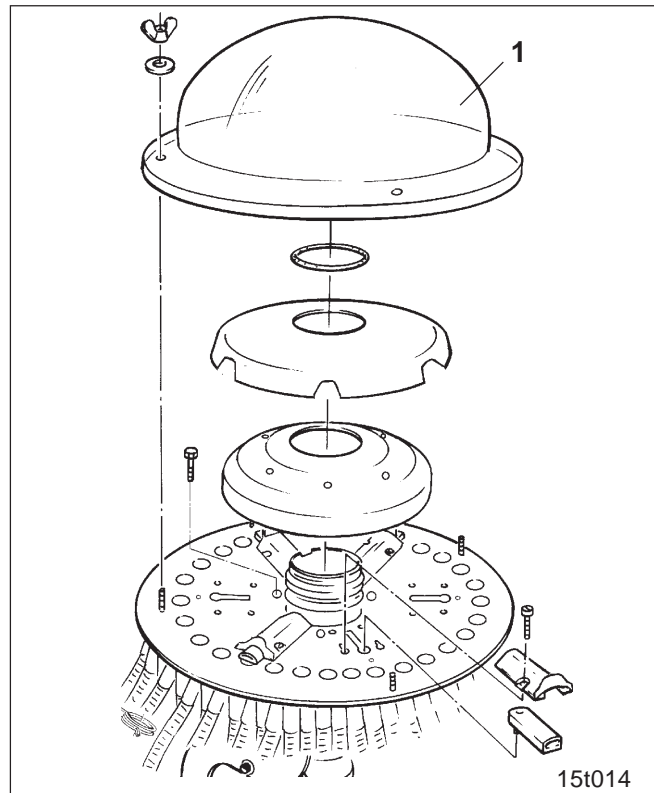
When cramping the steering the springs are tensioned by two ropes (Fig. 50.8/4). The U-bolts (Fig. 50.8/5) with which the ropes are tensioned may not be adjusted.

50.8 Checing the distributor head for pollution

By looking through the clear distributor hood regularly check the distributor head for pollution, during operation from the tractor cab and after operation by an intensive inspection. Dirt and seed residue should be removed immediately. Swollen or geminating seed residue may lead to blockages.

For cleaning the distributor head:

- relieve hydraulic system from pressure
- remove distributor outer hood (Fig. 50.9/1)



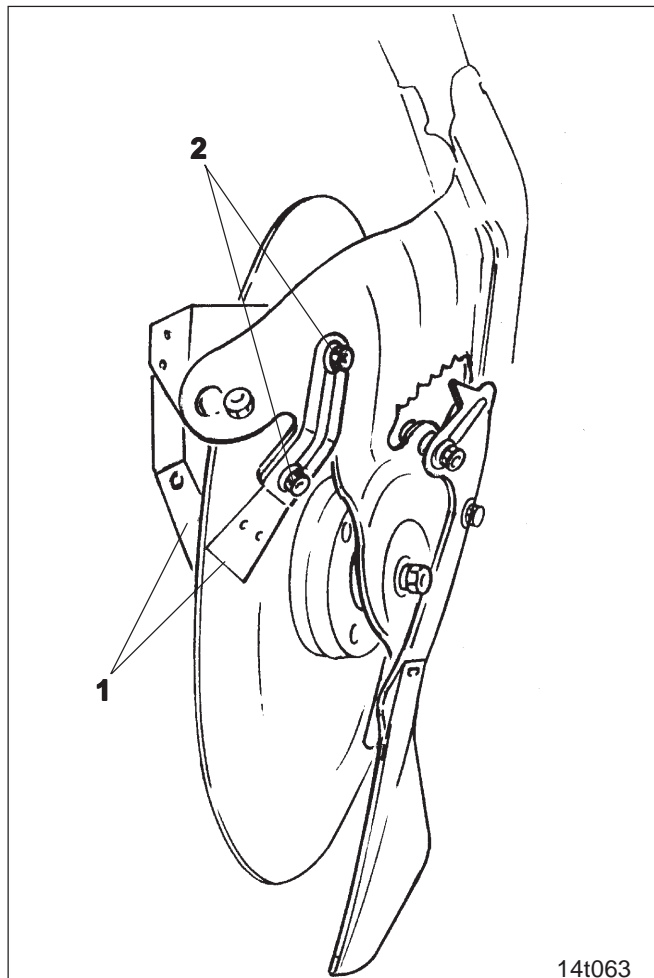
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Fig. 50.9

50.9 Readjusting the roll disc coulter scraper

For cleaning the roll coulter disc from sticking soil, every roll disc coulter is equipped with two scrapers (Fig. 50.10/1).

The scrapers suffer from a certain wear and have to be readjusted if necessary. Set the scrapers in such a way that they rub on the outer edge of the roll coulter disc without braking the disc noticeably. Before any setting slacken the bolts (Fig. 50.10/2) and retighten firmly afterwards.



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Fig. 50.10



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