

Operating Manual

AMAZONE

Seed drills

D9 - 25 Special

D9 - 30 Super

D9 - 30 Special

D9 - 40 Super



MG3883
BAH0007.3 08.10



Please read this operating
manual before first commis-
sioning.
Keep it in a safe place for fu-
ture use.

en



Reading the instruction

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

Leipzig-Plagwitz 1872. Rud. Sack.

Identification data

Enter the machine identification data here. You will find the identification data on the type plate.

Machine identification number:
(ten-digit)

Type: D9

Year of manufacture: _____

Basic weight (kg): _____

Approved total weight (kg): _____

Maximum load (kg): _____

Manufacturer's address

AMAZONEN-WERKE

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Spare part orders

Spare parts lists are freely accessible in the spare parts portal at www.amazone.de.

Please send orders to your AMAZONE dealer.

Formalities of the operating manual

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Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER GmbH & Co. KG. We thank you for your confidence in our products.

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Using the delivery note, check that the machine was delivered in full including the ordered special equipment. Damage can only be rectified if problems are signalled immediately!

Before first commissioning, read and understand this operating manual, and particularly the safety information. Only after careful reading will you be able to benefit from the full scope of your newly purchased machine.

Please ensure that all the machine operators have read this operating manual before commissioning the machine.

Should you have problems or queries, please consult this operating manual or give us a call.

Regular maintenance and timely replacement of worn or damaged parts increases the lifespan of your machine.

User evaluation

Dear Reader,

We update our operating manuals regularly. Your suggestions for improvement help us to create ever more user-friendly manuals. Send us your suggestions by fax.

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1 User Information

The User Information section supplies information on handling the operating manual.

1.1 Purpose of the document

This operating manual

- Describes the operation and maintenance of the machine.
- Provides important information on safe and efficient handling of the machine.
- Is a component part of the machine and should always be kept with the machine or the traction vehicle.
- Keep it in a safe place for future use.

1.2 Locations in the operating manual

All the directions specified in the operating manual are always seen from the direction of travel.

1.3 Diagrams used

Handling instructions and reactions

Activities to be carried out by the user are given as numbered instructions. Always keep to the order of the handling instructions. The reaction to the handling instructions is given by an arrow. Example:

1. Handling instruction 1
→ Reaction of the machine to handling instruction 1
2. Handling instruction 2

Lists

Lists without an essential order are shown as a list with bullets. Example:

- Point 1
- Point 2

Number items in diagrams

Numbers in round brackets refer to the item numbers in the diagrams. The first number refers to the diagram and the second number to the item in the figure.

Example: (Fig. 3/6):

- Figure 3
- Item 6

2 General Safety Instructions

This section contains important information on safe operation of the machine.

2.1 Obligations and liability

Comply with the instructions in the operating manual

Knowledge of the basic safety information and safety regulations is a basic requirement for safe handling and fault-free machine operation.

Obligations of the operator

The operator is obliged only to let those people work with/on the machine who

- Are aware of the basic workplace safety information and accident prevention regulations.
- Have been trained in working with/on the machine.
- Have read and understood this operating manual.

The operator is obliged

- To keep all the warning pictograms on the machine in a legible state.
- To replace damaged warning pictograms.

If you still have queries, please contact the manufacturer.

Duties of the operator

Before starting work, anyone charged with working with/on the machine is obliged

- To comply with the basic workplace safety instructions and accident prevention regulations.
- To read and understand the section "General safety information" of this operating manual.
- To read the section "Warning pictograms and other signs on the machine", on page 17 of this operating manual and to follow the safety instructions of the warning symbols when operating the machine.
- To get to know the machine.
- To read the sections of this operating manual, important for carrying out your work.

If the user discovers that a function is not working properly, then they must eliminate this fault immediately. If this is not the task of the user or if the user does not possess the appropriate technical knowledge, then they should report this fault to their superior (operator).

Risks in handling the machine

The machine has been constructed to the state-of-the art and the recognised rules of safety. However, there may be risks and restrictions which occur when operating the machine

- For the health and safety of the user or third persons,
- For the machine,
- For other goods.

Only use the machine

- For the purpose for which it was intended.
- In a perfect state of repair.

Eliminate any faults immediately, which could impair safety.

Guarantee and liability

Our "General conditions of sales and business" are always applicable. These shall be available to the operator, at the latest on the completion of the contract. Guarantee and liability claims for damage to people or goods will be excluded if they can be traced back to one or more of the following causes:

- Improper use of the machine.
- Improper installation, commissioning, operation and maintenance of the machine.
- Operation of the machine with defective safety equipment or improperly attached or non-functioning safety equipment.
- Non-compliance with the instructions in the operating manual regarding commissioning, operation and maintenance.
- Independently-executed construction changes to the machine.
- Insufficient monitoring of machine parts, which are subject to wear.
- Improperly executed repairs.
- Disasters through the impact of foreign bodies and acts of God.

2.2 Representation of safety symbols

Safety instructions are indicated by the triangular safety symbol and the highlighted signal word. The signal word (DANGER, WARNING, CAUTION) describes the gravity of the risk and has the following significance:

**DANGER**

Indicates an immediate high risk, which will result in death or serious physical injury (loss of body parts or long term damage) if not avoided.

If the instructions are not followed, then this will result in immediate death or serious physical injury.

**WARNING**

Indicates a medium risk, which could result in death or (serious) physical injury if not avoided.

If the instructions are not followed, then this may result in death or serious physical injury.

**CAUTION**

Indicates a low risk, which could incur minor or medium level physical injury or damage to property if not avoided.

**IMPORTANT**

Indicates an obligation to special behaviour or an activity required for proper machine handling.

Non-compliance with these instructions can cause faults on the machine or in the environment.

**NOTE**

Indicates handling tips and particularly useful information.

These instructions will help you to use all the functions of your machine to the optimum.

2.3 Organisational measures

The operator must provide the necessary personal protective equipment, such as:

- Protective glasses
- Protective shoes
- Protective suit
- Skin protection agents etc.



The operation manual

- Must always be kept at the place at which the machine is operated.
- Must always be easily accessible for the user and maintenance personnel.

Check all the available safety equipment regularly.

2.4 Safety and protection equipment

Before each commissioning of the machine, all the safety and protection equipment must be properly attached and fully functional. Check all the safety and protection equipment regularly.

Faulty safety equipment

Faulty or disassembled safety and protection equipment can lead to dangerous situations.

2.5 Informal safety measures

As well as all the safety information in this operating manual, comply with the general, national regulations pertaining to accident prevention and environmental protection.

When driving on public roads and routes, then you should comply with the statutory road traffic regulations.

2.6 User training

Only those people who have been trained and instructed may work with/on the machine. The operator must clearly specify the responsibilities of the people charged with operation, maintenance and repair work.

People being trained may only work with/on the machine under the supervision of an experienced person.

Activity \ People	Person specially trained for the activity ¹⁾	Trained person ²⁾	Person with specialist training (specialist workshop) ³⁾
Loading/Transport	X	X	X
Commissioning	—	X	—
Set-up, tool installation	—	—	X
Operation	—	X	—
Maintenance	—	—	X
Troubleshooting and fault elimination	—	X	X
Disposal	X	—	—

Legend: X..permitted --..not permitted

- ¹⁾ A person who can assume a specific task and who can carry out this task for an appropriately qualified company.
- ²⁾ A person shall be considered as having been instructed, if they have been instructed in the tasks they have to carry out and in the possible risks in the case of improper behaviour and also have been informed about the necessary protective equipment and measures.
- ³⁾ People with specialist technical training shall be considered as a specialist. Due to their specialist training and their knowledge of the appropriate regulations, they can evaluate the work with which they have been charged and detect possible dangers.

Comment:

A qualification equivalent to specialist training can be obtained through long term activity in the appropriate field of work.



Only a specialist workshop may carry out maintenance and repair work on the machine, if such work is additionally marked "Workshop". The personnel of a specialist workshop shall possess the appropriate knowledge and suitable aids (tools, lifting and support equipment) for carrying out the maintenance and repair work on the machine in a way which is both appropriate and safe.

2.7 Safety measures in normal operation

Only operate the machine if all the safety and protection equipment is fully functional.

Check the machine at least once a day for visible damage and check the function of the safety and protection equipment.

2.8 Dangers from residual energy

Note that there may be residual mechanical, hydraulic, pneumatic and electrical/electronic energy on the machine.

Use appropriate measures to inform the operating personnel. You can find detailed information in the appropriate sections of this operating manual.

2.9 Maintenance and repair work, fault elimination

Carry out prescribed setting, maintenance and inspection work in good time.

Secure all media such as compressed air and the hydraulic system against unintentional start-up.

Carefully fix and secure larger subassemblies to lifting gear when carrying out replacement work.

Check all the screw connections for a firm seat. On completing maintenance work, check the function of safety and protection equipment.

2.10 Constructive changes

You may make no changes, expansions or modifications to the machine without the authorisation of AMAZONEN-WERKE. This is also valid when welding support parts.

Any expansion or modification work shall require the written approval of AMAZONEN-WERKE. Only use the modification and accessory parts released by AMAZONEN-WERKE so that the operating permit, for example, remains valid in accordance with national and international regulations.

Vehicles with an official type approval or with equipment connected to a vehicle with a valid type approval or approval for road transport according to the German road traffic regulations must be in the state specified by the approval.



WARNING

Risk of contusions, cuts, dragging, catching or knocks from support parts.

It is forbidden to:

- Drill holes in the frame or on the running gear
- Increasing the size of existing holes on the frame or the running gear
- Welding support parts.



2.10.1 Spare and wear parts and aids

Immediately replace any machine parts which are not in a perfect state.

Use only genuine **AMAZONE** spare and wear parts or the parts cleared by AMAZONEN-WERKE so that the operating permit retains its validity in accordance with national and international regulations. The use of wear and spare parts from third parties does not guarantee that they have been constructed in a way as to meet the requirements placed on them.

AMAZONEN-WERKE accepts no liability for damage arising from the use of non-released spare parts, wear parts or auxiliary materials.

2.11 Cleaning and disposal

Handle and dispose of any materials used carefully, in particular

- When carrying out work on lubrication systems and equipment and
- When cleaning using solvents.

2.12 User workstation

The machine may be operated by only one person sitting in the driver's seat of the tractor.

2.13 Warning pictograms and other signs on the machine



Always keep all the warning pictograms of the machine clean and in a legible state. Replace illegible warning pictograms. You can obtain the warning pictograms from your dealer using the order number (e.g. MD 075).

Warning pictograms - structure

Warning pictograms indicate dangers on the machine and warn against residual dangers. At these points, there are permanent or unexpected dangers.

A warning pictogram consists of two fields:



Field 1

is a pictogram describing the danger, surrounded by triangular safety symbol.

Field 2

is a pictogram showing how to avoid the danger.

Warning pictograms - explanation

The column **Order number and explanation** provides an explanation of the neighbouring warning pictogram. The description of the warning pictograms is always the same and specifies, in the following order:

1. A description of the danger.

For example: danger of cutting!

2. The consequence of nonobservance of the danger protection instructions.

For example: causes serious injuries to fingers or hands.

3. Instructions for avoiding the danger.

For example: only touch machine parts when they have come to a complete standstill.

Order number and explanation

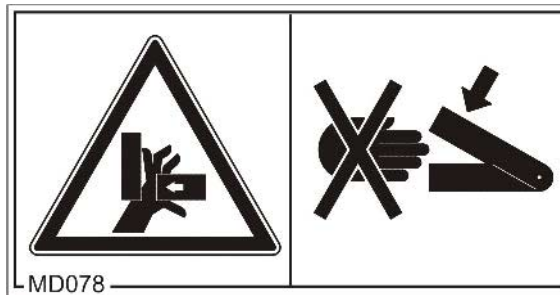
Warning pictograms

MD 078

Risk of contusions for fingers or hands through accessible moving machine parts!

This danger would cause extremely serious injuries with the loss of body parts such as fingers or hands.

Never reach into the danger area when the tractor engine is running with cardan shaft / hydraulic system connected.



MD 082

Danger of falling from treads and platforms when riding on the machine!

This danger will cause serious injuries anywhere on the body or death.

It is forbidden to ride on the machine and/or climb the running machine. This ban also applies to machines with treads or platforms.

Ensure that no-one rides with the machine.

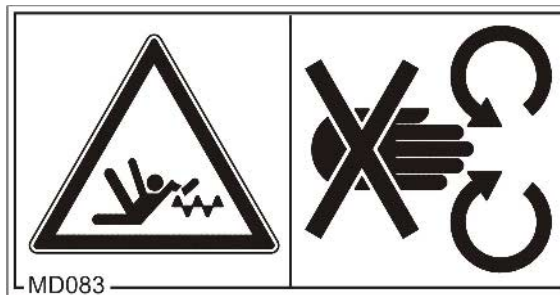


MD 083

Danger of your arm or upper torso being drawn in or caught by power driven, unprotected machine elements!

This danger can cause extremely serious injuries to the arm or upper torso.

Never open or remove guard devices from driven machine elements when the tractor engine is running with the cardan shaft connected / hydraulic drive engaged.



MD 084

Risk of contusions over the whole body from machine parts moving down from above!

This danger will cause serious injuries anywhere on the body or death.

It is forbidden to stand in the swivel area of moving machine parts.

Instruct people to leave the swivel area of moving machine parts before the machine parts move down.



MD 089

Danger

Risk of crushing of whole body in the danger area of suspended loads/machine parts

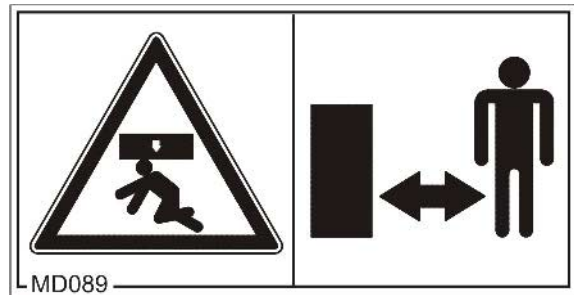
This danger will cause serious injuries anywhere on the body or death.

The presence of persons under suspended loads/machine parts is prohibited.

Maintain a sufficient safety clearance between you and any suspended loads/machine parts.

Ensure that all personnel maintain a sufficient safety clearance from suspended loads/machine parts.

Direct persons out of the danger area of suspended loads/machine parts.

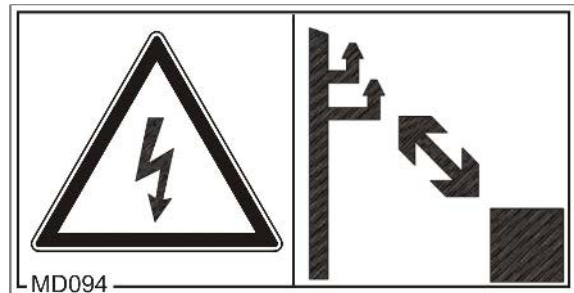


MD 094

Danger of electric shock due to unintentionally touching electrical overhead transmission cables!

This danger will cause serious injuries anywhere on the body or death.

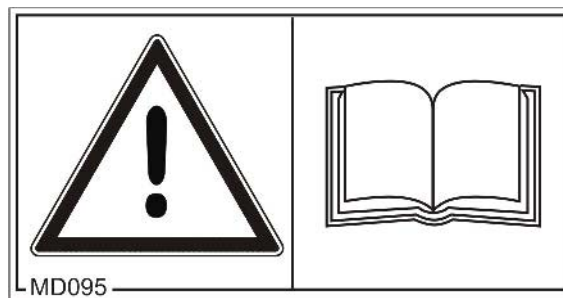
Maintain a sufficient distance from electrical overhead cables when swinging any parts of the machine in and out.



General Safety Instructions

MD 095

Read and understand the operating manual safety information before starting up the machine!



MD 096

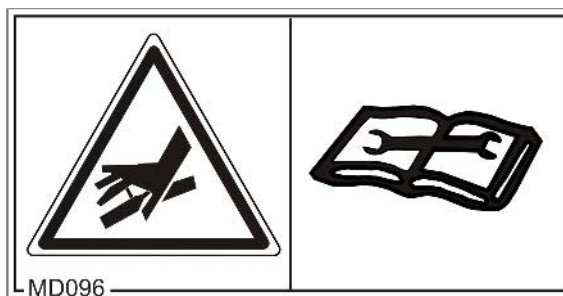
Danger of infection to the whole body from liquids escaping at a high pressure (hydraulic fluid)!

This danger will cause serious injuries over the whole body, if hydraulic fluid escaping at high pressure passes through the skin and into the body.

Never try to bung untight hydraulic lines with your hand or with your fingers.

Read and understand the information in the operating manual before carrying out maintenance and repair work.

If you are injured by hydraulic fluid, contact a doctor immediately.



MD 097

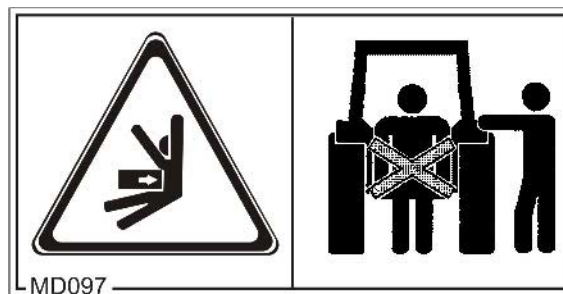
Danger of crushing your torso in the stroke range of the three-point suspension due to the narrowing spaces when the three-point hydraulic system is actuated!

This danger causes extremely serious injuries and even death.

Personnel are prohibited from entering the stroke area of the three-point suspension when the three-point hydraulics are actuated.

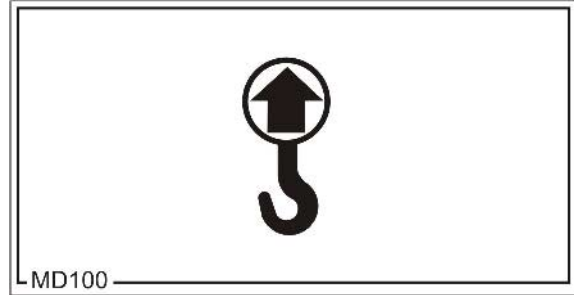
Only actuate the operator controls for the tractor's three-point hydraulic system

- from the intended workstation.
- if you are outside of the danger area between the tractor and the machine.



MD 100

This symbol indicates lashing points for fastening slinging gear when loading the machine.



MD 102

Danger from unintentional machine starting and rolling during intervention in the machine, e.g. installation, adjusting, troubleshooting, cleaning, maintaining and repairing.

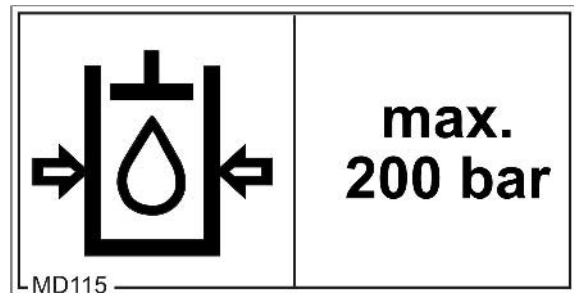
This danger will cause serious injuries anywhere on the body or death.

- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- Depending on the type of intervention, read and understand the information in the appropriate sections of the operating manual.



MD 115

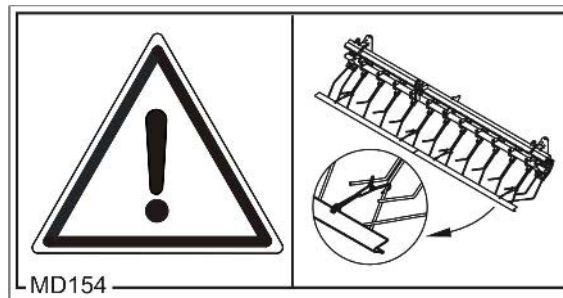
The maximum operating pressure of the hydraulic system is 200 bar.



MD 154

During transportation, risk of stabbing injuries to other road users from uncovered, sharp spring tines of the exact harrow pointing backwards!

Transportation without a correctly fitted transport guard rail is forbidden.



2.13.1 Positioning of warning pictograms and other labels

Warning pictograms

The following diagrams show the arrangement of the warning pictograms on the machine.

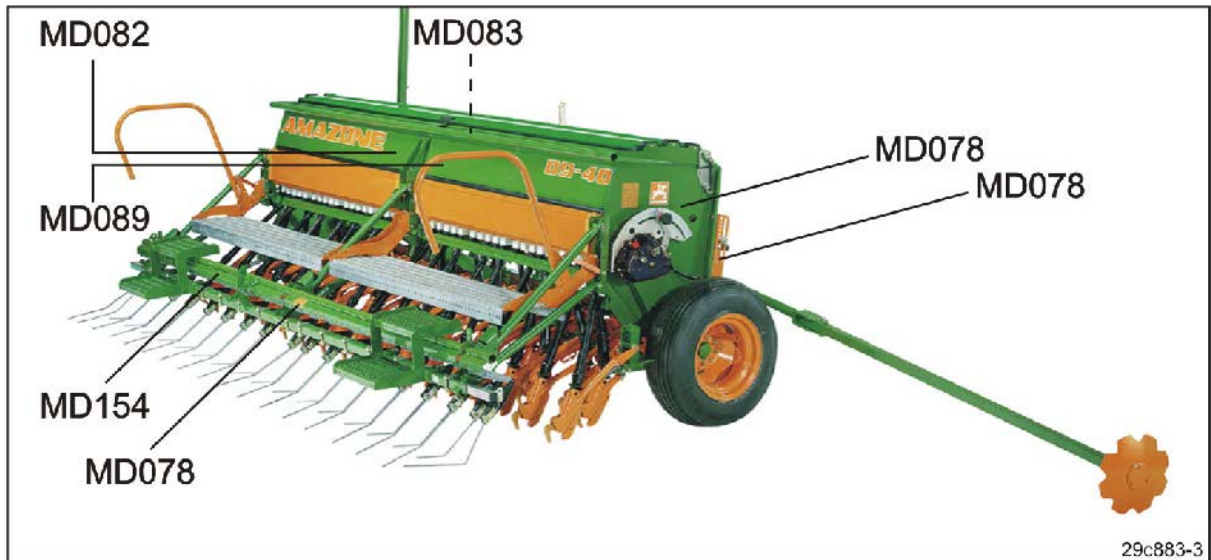


Fig. 1

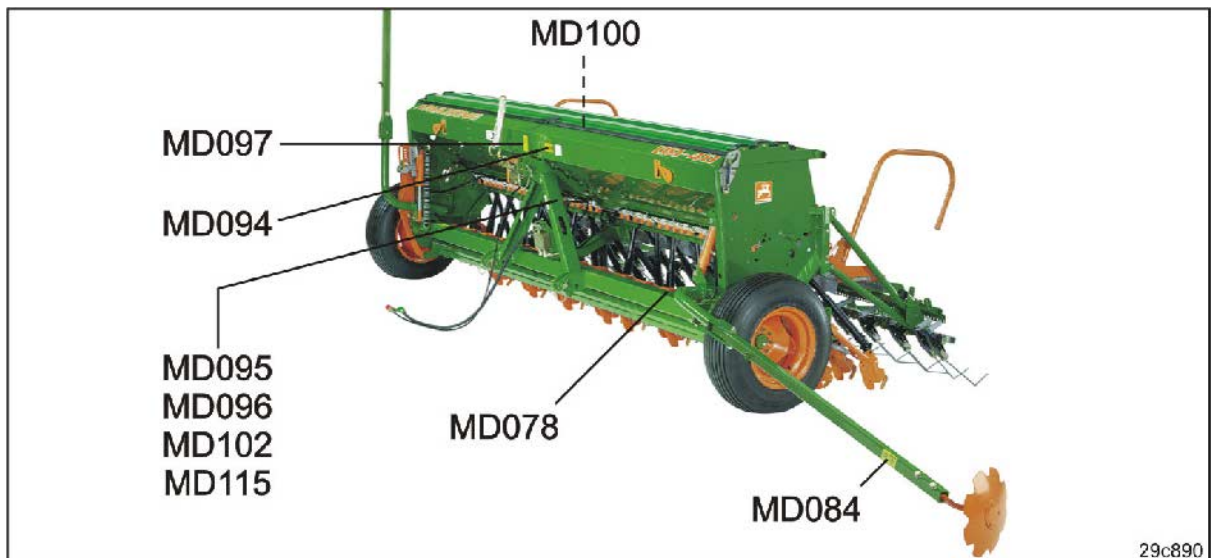


Fig. 2

2.14 Dangers if the safety information is not observed

Nonobservance of the safety information

- Can pose both a danger to people and also to the environment and machine.
- Can lead to the loss of all warranty claims.

Seen individually, non-compliance with the safety information could pose the following risks:

- Danger to people through non-secured working areas.
- Failure of important machine functions.
- Failure of prescribed methods of maintenance and repair.
- Danger to people through mechanical and chemical impacts.
- Risk to environment through leakage of hydraulic fluid.

2.15 Safety-conscious working

Besides the safety information in this operating manual, the national general workplace safety and accident prevention regulations are binding.

Comply with the accident prevention instructions on the warning pictograms.

When driving on public roads and routes, comply with the appropriate statutory road traffic regulations.

2.16 Safety information for users



WARNING

Risk of contusions, cuts, dragging, catching or knocks from insufficient traffic and operational safety.

Before starting up the machine and the tractor, always check their traffic and operational safety.

2.16.1 General safety and accident prevention information

- Beside these instructions, comply with the general valid national safety and accident prevention regulations.
- The warning pictograms and labels attached to the machine provide important information on safe machine operation. Compliance with this information guarantees your safety!
- Before moving off and starting up the machine, check the immediate area of the machine (children)! Ensure that you can see clearly!
- It is forbidden to ride on the machine or use it as a means of transport!
- Drive in such a way that you always have full control over the tractor with the attached machine.

In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.

Connecting and disconnecting the machine

- Only connect and transport the machine with tractors suitable for the task.
- When connecting machines to the tractor three-point hydraulic system, the attachment categories of the tractor and the machine must always be the same!
- Connect the machine to the prescribed equipment in accordance with the specifications.
- When coupling machines to the front or the rear of the tractor, the following may not be exceeded:
 - The approved total tractor weight
 - The approved tractor axle loads
 - The approved load capacities of the tractor tyres
- Secure the tractor and the machine against unintentional rolling, before coupling or uncoupling the machine.
- It is forbidden for people to stand between the machine to be coupled and the tractor while the tractor is approaching the machine.

Any helpers may only act as guides standing next to the vehicles, and may only move between the vehicles when both are at a standstill.



- Secure the operating lever of the tractor hydraulic system so that unintentional raising or lowering is impossible, before connecting the machine to or disconnecting the machine from the tractor's three-point hydraulic system.
- When coupling and uncoupling machines, move the support equipment (if available) to the appropriate position (stability).
- When actuating the support equipment, there is a danger of injury from contusion and cutting points!
- Be particularly careful when coupling the machine to the tractor or uncoupling it from the tractor! There are contusion and cutting points in the area of the coupling point between the tractor and the machine.
- It is forbidden to stand between the tractor and the machine when actuating the three-point hydraulic system.
- Coupled supply lines:
 - Must give without tension, bending or rubbing on all movements when travelling round corners.
 - May not scour other parts.
- The release ropes for quick action couplings must hang loosely and may not release themselves when lowered.
- Also ensure that uncoupled machines are stable!

Use of the machine

- Before starting work, ensure that you understand all the equipment and actuation elements of the machine and their function. There is no time for this when the machine is already in operation!
- Do not wear loose-fitting clothing! Loose clothing increases the risk over being caught by drive shafts!
- Only start-up the machine, when all the safety equipment has been attached and is in the safety position!
- Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor. If necessary, drive only with a partially-filled hopper.
- It is forbidden to stand in the working area of the machine.
- It is forbidden to stand in the turning and rotation area of the machine.
- There are contusion and cutting points at externally-actuated (e.g. hydraulic) machine points.
- Only actuate externally-actuated machine parts when you are sure that there is no-one within a sufficient distance from the machine!
- Secure the tractor against unintentional start-up and rolling, before you leave the tractor.
For this:
 - Lower the machine onto the ground
 - Apply the parking brake
 - Switch off the tractor engine
 - Remove the ignition key.

Machine transportation

- Comply with the national road traffic regulations when using public highways.
- Before moving off, check:
 - The correct connection of the supply lines
 - The lighting system for damage, function and cleanliness
 - The brake and hydraulic system for visible damage
 - That the parking brake is released completely
 - The function of the brake system.
- Ensure that the tractor has sufficient steering and braking power.
Any machines and front/rear weights connected to the tractor influence the driving behaviour and the steering and braking power of the tractor.
- If necessary, use front weights.
The front tractor axle must always be loaded with at least 20% of the empty tractor weight, in order to ensure sufficient steering power.
- Always fix the front or rear weights to the intended fixing points according to regulations.



- Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor.
- The tractor must guarantee the prescribed brake delay for the loaded vehicle combination (tractor plus connected machine).
- Check the brake power before moving off.
- When turning corners with the machine connected, take the broad load and balance weight of the machine into account.
- Before moving off, ensure sufficient side locking of the tractor lower links, when the machine is fixed to the three-point hydraulic system or lower links of the tractor.
- Before moving off, move all the swivel machine parts to the transport position.
- Before moving off, secure all the swivel machine parts in the transport position against risky position changes. Use the transport locks intended for this.
- Before moving off, secure the operating lever of the three-point hydraulic system against unintentional raising or lowering of the connected machine.
- Check that the transport equipment, e.g. lighting, warning equipment and protective equipment, is correctly mounted on the machine.
- Before transportation, carry out a visual check that the upper and lower link bolts are firmly fixed with the lynch pin against unintentional release.
- Adjust your driving speed to the prevailing conditions.
- Before driving downhill, switch to a low gear.
- Before moving off, always switch off the independent wheel braking (lock the pedals).

2.16.2 Hydraulic system

- The hydraulic system is under a high pressure.
- Ensure that the hydraulic hose lines are connected correctly.
- When connecting the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the machine and tractor sides.
- It is forbidden to block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:
 - are continuous or
 - are automatically locked or
 - require a float position or pressure position due to their function.
- Before working on the hydraulic system
 - Lower the machine
 - Depressurize the hydraulic system
 - Switch off the tractor engine
 - Apply the parking brake
 - Take out the ignition key.
- Have the hydraulic hose line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line if it is damaged or worn. Only use original **AMAZONE** hydraulic hose lines.
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural ageing, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose connections made from thermoplastics, other guide values may be decisive.
- Never try to bung untight hydraulic lines with your hand or with your fingers.

Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!
If you are injured by hydraulic fluid, contact a doctor immediately.
Danger of infection.
- When searching for leakage points, use suitable aids, to avoid the serious risk of infection.

2.16.3 Electrical system

- When working on the electrical system, always disconnect the battery (negative terminal).
- Only use the prescribed fuses. If fuses are used that are too highly rated, the electrical system will be destroyed – danger of fire!
- Ensure that the battery is connected correctly - firstly connect the positive terminal and then connect the negative terminal. When disconnecting the battery, disconnect the negative terminal first, followed by the positive terminal.
- Always place the appropriate cover over the positive battery terminal. If there is accidental earth contact, there is a danger of explosion!
- Danger of explosion! Avoid the production of sparks and naked flames in the vicinity of the battery!
- The machine can be equipped with electronic components, the function of which may be influenced by electromagnetic interference from other units. Such interference can pose risks to people, if the following safety information is not followed.
 - In the case of retrofitting of electrical units and/or components on the machine, with a connection to the on-board power supply, the user must check whether the installation might cause faults on the vehicle electronics or other components.
 - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 2004/108/EEC in the appropriate version and carry the CE label.

2.16.4 Attached tools

- When tools are attached, the attachment categories of the tractor and the machine must always coincide or be matched to one another.
- Take note of the manufacturer's instructions
- Before attaching machines to or removing them from the three-point suspension, shift the operating equipment to a position in which unintended raising or lowering is impossible.
- There is a risk of crushing or shearing injury around the three-point linkage.
- The machine may only be transported and towed by the tractors intended for this purpose.
- There is a risk of injury when machines are coupled to and uncoupled from the tractor.
- Do not step between tractor and machine when operating the external control for the three-point attachment!
- There is a risk of crushing and shearing injury when operating the support devices.
- When devices are attached to the front or the rear of the tractor, the following may not be exceeded:
 - The approved total tractor weight
 - The approved tractor axle loads
 - The approved load capacities of the tractor tyres.
- Observe the maximum payload of the attached devices and the permissible axle loads of the tractor.
- Always ensure that the tractor lower links are adequately locked against sideways movement before transporting the machine.
- The operating lever for the tractor lower links must be secured against lowering when the machine is being towed on the road.
- Shift all equipment into the transport position before travelling on the road.
- Any devices and ballast weights attached to a tractor influence the driving behaviour and the steering and braking power of the tractor.
- The front tractor axle must always be loaded with at least 20% of the tractor's empty weight to ensure sufficient steering capability. If necessary, use front weights.
- Only ever carry out any servicing, maintenance or cleaning operations or remedy malfunctions with the ignition key removed.
- Leave safety devices attached and always position them in the protective position.

2.16.5 Operation of the seed drill

- Observe the permissible fill levels of the seed box (capacity of the seed box).
- Only use the steps and the platform when filling the seed box. It is forbidden to ride on the machine during operation!
- During the calibration test, note the danger points from rotating and oscillating machine parts.
- Before transportation, remove the thrust collars of the track marking unit.
- Do not place any parts in the seed box.
- Before transportation, lock the marker (construction-dependent) in the transport position.

2.16.6 Cleaning, maintenance and repairs

- Only carry out cleaning, maintenance and repair work on the machine when:
 - The drive is switched off
 - The tractor engine is at a standstill
 - The ignition key has been removed
 - The machine's connector has been disconnected from the on-board computer!
- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- Secure the raised machine and/or raised machine parts against unintentional lowering before performing any cleaning, maintenance or repair work on the machine!
- When replacing work tools with blades, use suitable tools and gloves.
- Dispose of oils, greases and filters in the appropriate way.
- Disconnect the cable to the tractor generator and battery, before carrying out electrical welding work on the tractor and on attached machines.
- Spare parts must meet at least the specified technical requirements of AMAZONEN-WERKE! This is ensured through the use of original **AMAZONE** spare parts.

3 Loading and unloading

**DANGER**

Do not stand under a machine that has been hoisted by a crane.

Suspend the D9 Super/Special seed drills from a crane hook with the seed box lid open in order to load it.

Hook the crane hook into one of the two cut-outs (Fig. 3/1) depending on the equipment and centre of gravity of the seed drill.

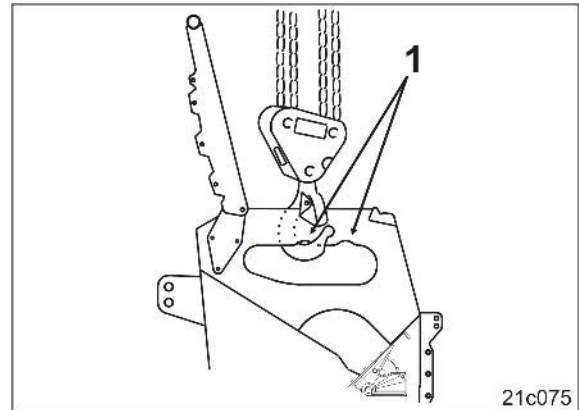


Fig. 3

**DANGER**

Only transport the D9-40 Super seed drill with the bout markers tilted to the side so that the maximum transport height is not exceeded (see "Transporting the D9-40 Super", on page 129).

4 Product description

This section:

- Provides a comprehensive overview of the machine structure.
- Provides the names of the individual modules and controls.

Read this section when actually at the machine. This helps you to understand the machine better.

Main assemblies of the machine

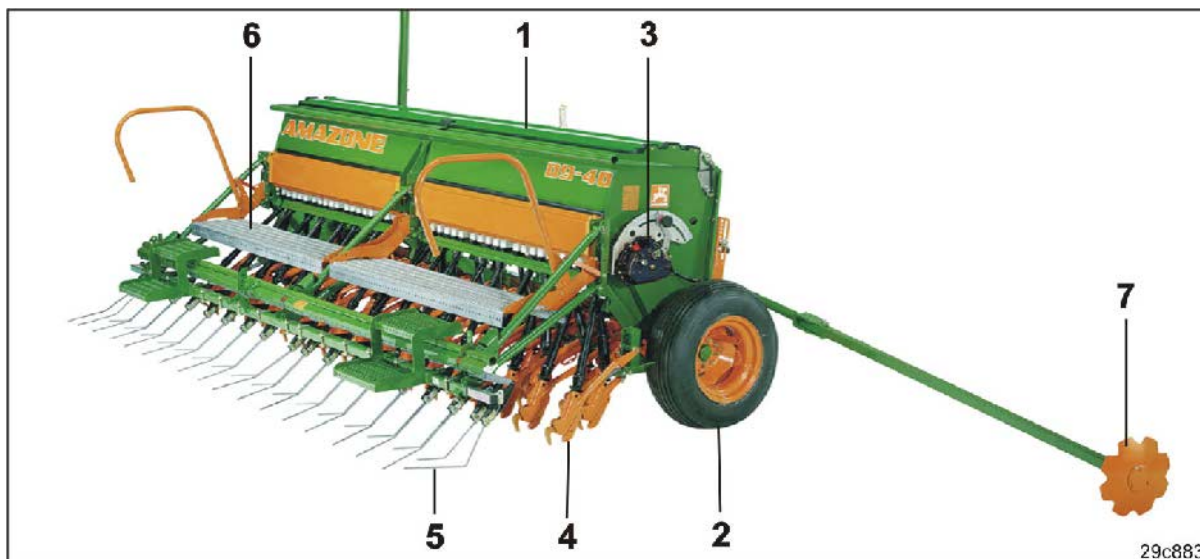


Fig. 4

Fig. 4/...

(1) Seed box

(2) Chassis with tyres

(3) Stepless gearbox with gear lever

(4) Coulter (WS coulter or RoTeC coulter)

(5) Harrowweeder

(6) Loading board

(7) Bout marker

4.1 Overview of subassemblies

Fig. 5/...

- (1) Three-point hitch
- (2) Bout marker shuttle valve



Fig. 5

Fig. 6/...

- (1) Seed wheel (normal and fine seed wheel)
- (2) Seed shaft
- (3) Seed wheel housing
- (4) Shutoff gate
- (5) Base flap
- (6) Base flap shaft

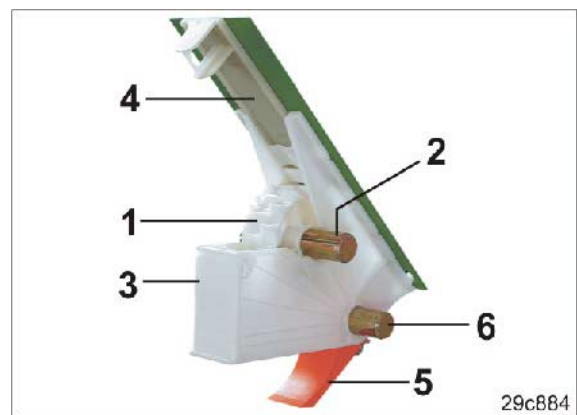


Fig. 6

Fig. 7/...

- (1) Countershaft for tramline selection
- (2) Countershaft bearing
- (3) Wrap spring clutch
- (4) Spur gear



Fig. 7

Fig. 8/...

- (1) Calibrating crank



Fig. 8

Product description

Fig. 9/...

- (1) Fill level indicator ¹⁾
- (2) Control box

¹⁾ **AMALOG⁺ / AMATRON⁺** incorporate a digital fill level indicator



Fig. 9

Fig. 10/...

- (1) Agitator shaft



Fig. 10

Fig. 11/...

- (1) Rapeseed insert



Fig. 11

Fig. 12/...

- (1) WS coulter



Fig. 12

Fig. 13/...

RoTeC coulters

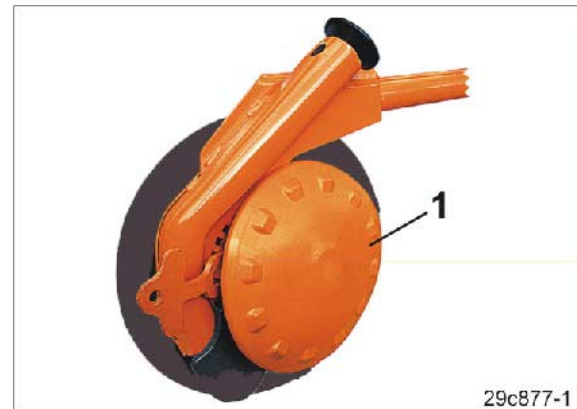


Fig. 13

Fig. 14/...

- (1) Automatic switching for bout markers
(only D9 Special)



Fig. 14

Fig. 15/...

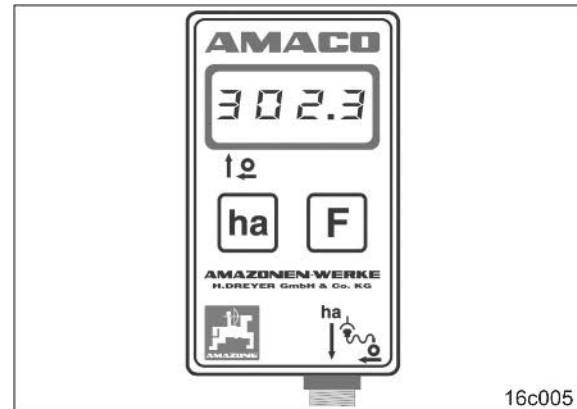
AMACO electronic acreage counter


Fig. 15

Fig. 16/...

AMALOG+ operator terminal


Fig. 16

Product description

Fig. 17/...

AMATRON⁺ operator terminal



Fig. 17

Fig. 18/...

(1) Drag tine harrow



Fig. 18

Fig. 19/...

(1) Tramline marker



Fig. 19

Fig. 20/...

Tractor wheel mark eradicators, with swiveling mounting

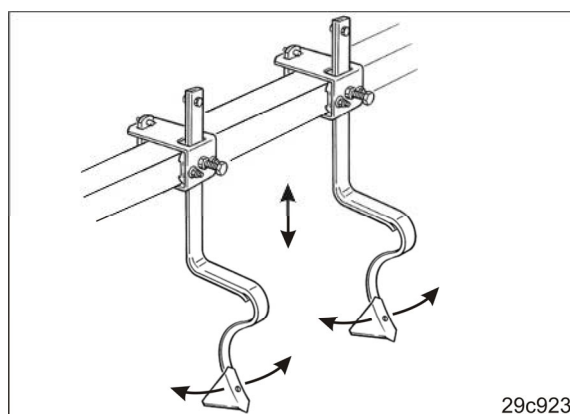
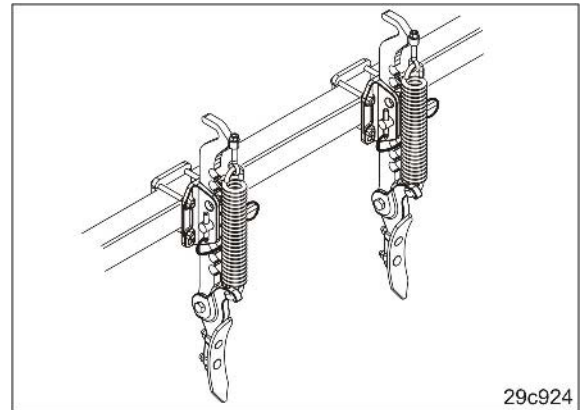


Fig. 20

Fig. 21/...

Tractor wheel mark eradicators, reinforced

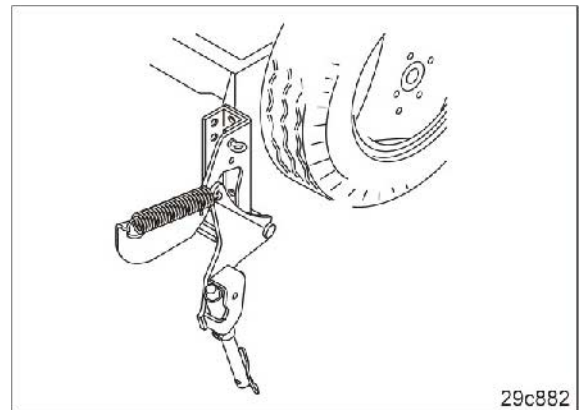


29c924

Fig. 21

Fig. 22/...

Seed drill wheel mark eradicators

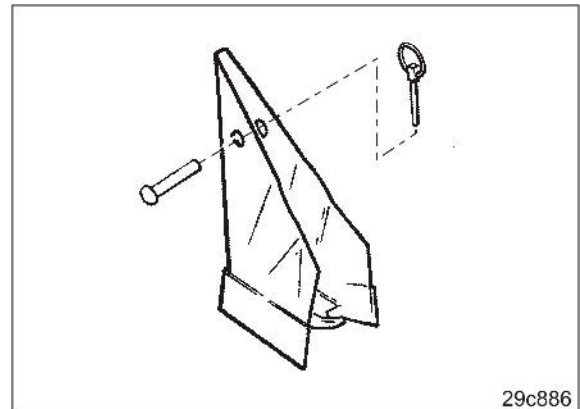


29c882

Fig. 22

Fig. 23/...

Band sowing shoe I

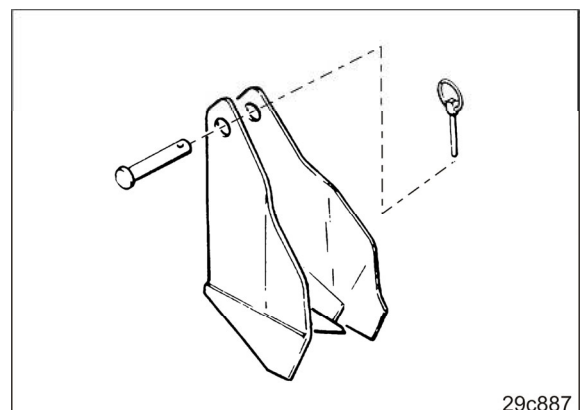


29c886

Fig. 23

Fig. 24/...

Band sowing shoe II



29c887

Fig. 24

4.2 Safety and protection equipment

Fig. 25/...

- (1) Linch pin,
for fastening the bout markers
- (2) Rubber buffer (visual indicator)
The bout marker is not vertical, i.e. the bout
marker has not been secured with the linch
pin (above).

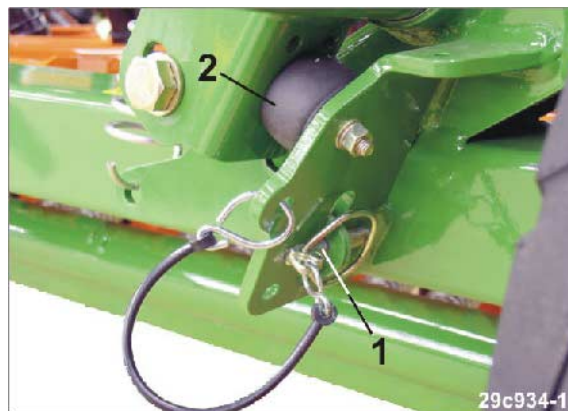


Fig. 25

Fig. 26/...

- (1) Chain guard

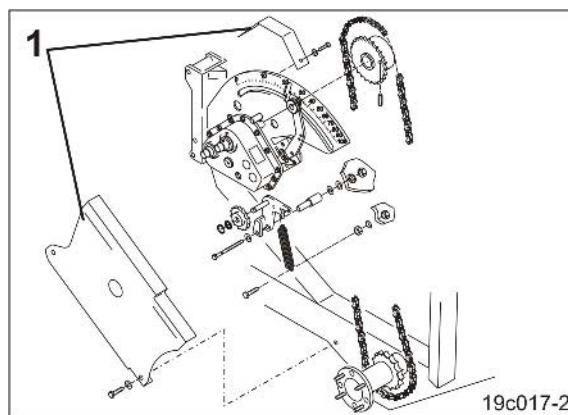


Fig. 26

4.3 Overview – Supply lines between the tractor and the machine



Fig. 27

Fig. 27/..	Designation		Marking	Function
(1)	Hydraulic line 1	Delivery/ return flow	1 cable tie, yellow	- Bout marker left - Bout marker right - Control box - Tramline marking
(2)	Hydraulic line 2	Delivery/ return flow	1 cable tie, blue	- Coulter pressure adjustment - Harroweeder pressure adjustment - Seed rate remote adjustment
(3)	Plug (7-pin) for the road traffic lighting system			
(4)	Machine plug AMACO AMALOG⁺ AMATRON⁺			

4.4 Transportation equipment

Fig. 28/...

- (1) 2 rear-facing turn signals
- (2) 1 lighting for licence plate
- 1 licence plate holder (option)
- (3) 2 red reflectors
- (4) 2 brake and tail lamps
- (5) 2 rear-facing warning boards
- (6) 2 reflectors, yellow

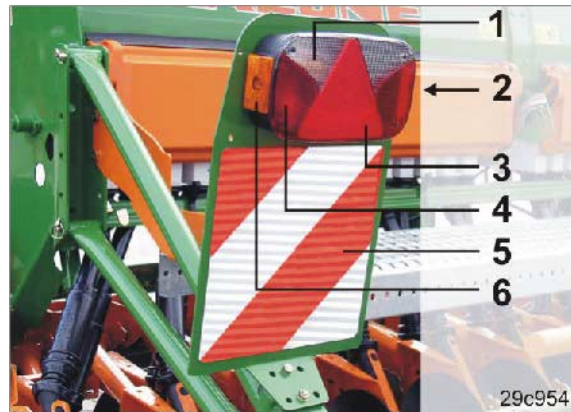


Fig. 28

Fig. 29/...

- (1) 1 road safety bar

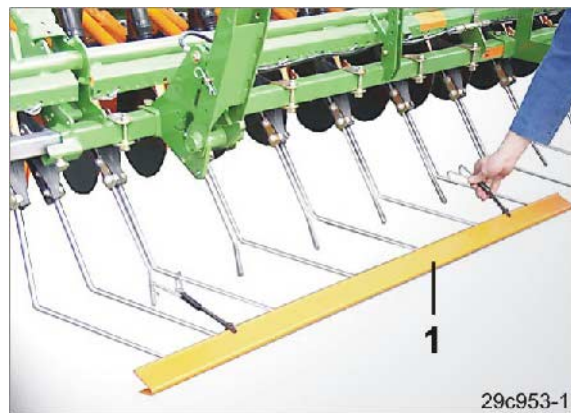


Fig. 29

Fig. 30/...

- (1) 2 side lights pointing forwards
- (2) 2 forwards-facing turn signals
- (3) 2 forwards-facing warning boards



Fig. 30

4.5 Intended use

The machine

- is designed for metering and placing certain customary seeds.
- is coupled to the tractor using the tractor three-point hitch and is operated by an additional person.

Slopes can be travelled

- Along the contours
 - Direction of travel to left 10 %
 - Direction of travel to right 10 %
- Along the gradient
 - Up the slope 10 %
 - Down the slope 10 %

Intended use also comprises:

- compliance with all the instructions in this operating manual
- compliance with inspection and maintenance specifications.
- exclusive use of original **AMAZONE** spare parts.

Other uses to those specified above are forbidden and shall be considered as improper.

For any damage resulting from improper use:

- the operator bears the sole responsibility
- AMAZONEN-WERKE assumes no liability whatsoever.

4.6 Danger area and danger points

The danger area is the area around the machine in which people can be caught:

- By work movements made by the machine and its tools
- By materials or foreign bodies thrown out of the machine
- By tools rising or falling unintentionally
- By unintentional rolling of the tractor and the machine.

Within the machine danger area, there are danger points with permanent or unexpected risks. Warning pictograms indicate these danger points and warn against residual dangers, which cannot be eliminated for construction reasons. Here, the special safety regulations of the appropriate section shall be valid.

No-one may stand in the machine danger area:

- as long as the tractor engine is running with a connected cardan shaft / hydraulic system.
- as long as the tractor and machine are not protected against unintentional start-up and running.

The operating person may only move the machine or switch or drive the tools from the transport position to the working position or vice-versa when there is no-one in the machine danger area.

Danger points exist:

- in the area of the swivelling bout markers.

4.7 Nameplate and CE labelling

The following illustrations show the arrangement of the type plate (Fig. 31/1) and of the CE marking (Fig. 32/1).

The nameplate shows:

- Mach. ident. no.
- Type
- Year of manufacture
- Factory
- Basic weight, kg
- Maximum load, kg



Fig. 31

The CE marking (Fig. 32/1) may be found on the front of the seed box.



Fig. 32

The CE marking (Fig. 33) on the machine signals compliance with the stipulations of the valid EU directives.



Fig. 33

4.8 Technical data

			D9-25 Special	D9-30 Special	D9-30 Super	D9-40 Super
Working width		[m]	2.50	3.00	3.00	4.00
Transport width		[m]	2.53	3.005	3.005	4.25
Fill level without loading board	without extension	[m]	1.25	1.25	1.33	1.34
	with extension	[m]	—	1.47 ²⁾ /1.56 ³⁾	1.55 ²⁾ /1.64 ³⁾	1.65
Empty weight ¹⁾ (with WS coulters)		[kg]	540	580	700	970
Empty weight ¹⁾ (with RoTeC coulters)		[kg]	610	660	780	1080
Overall height (bout markers in the transport position)		[mm]	1.95	2.40	2.40	2.30
Seed box capacity	without extension	[l]	360	450	600	830
	with extension	[l]	—	710 / 850	860 / 1000	1380
WS coulters	Number of rows		21	21/23/25/29	21/23/25/29	29/33
	Row spacing	[cm]	12.0	14.3/13.1/ 12.0/10.3	14.3/13.1/ 12.0/10.3	13.8/12.0
RoTeC coulters	Number of rows		21	21/25	21/25	29/33
	Row spacing	[cm]	12.0	14.3/12.0	14.3/12.0	13.8/12.0
Working speed		[km/h]	6 to 10			
Power requirement (from)		[kW/bhp]	44/60	44/60	55/75	55/75
Minimum fluid flow rate		[l/min]	10			
Maximum working pressure (hydraulics)		[bar]	200			
Electrical system		[V]	12 (7-pin)			
Transmission/hydraulic fluid			Transmission/hydraulic fluid Utto SAE 80W API GL4			
Coupling point category		Cate- gory	II			
Tyres			180/90 - 16 (old designation: 6.00-16)			10.0/75-15
Track width		[m]	2.34	2.84	2.84	4.10
Tyre pressure		[bar]	1.2	1.2	1.2	0.8

¹⁾ Seed drill (row spacing 12.0 cm) with mechanical coulter pressure adjustment, harroweeder, loading board, bout markers and tramline selection.

²⁾ with 260-3 seed box extension

³⁾ with 400-3 seed box extension

4.8.1 Technical data for the calculation of tractor weights and tractor axle loads

Seed drill attached to the tractor	Total weight G_H (see on page 82)	Distance d (see on page 82)
D9-25 Special ¹⁾		
with full seed box	810 kg	565 mm
D9-30 Special ¹⁾		
with full seed box (without seed box extension)	930 kg	565 mm
with full seed box (with 260-3 seed box extension)	1090 kg	565 mm
with full seed box (with 400-3 seed box extension)	1170 kg	565 mm
D9-30 Super ¹⁾		
with full seed box (without seed box extension)	1140 kg	565 mm
with full seed box (with 260-3 seed box extension)	1300 kg	565 mm
with full seed box (with 400-3 seed box extension)	1380 kg	565 mm
D9-40 Super ¹⁾		
with full seed box (without seed box extension)	1580 kg	565 mm
with full seed box (with 550-4 seed box extension)	1910 kg	565 mm

¹⁾ Seed drill with RoTeC coulters, (row spacing 12.0 cm) with mechanical coulter pressure adjustment, harrowweeder, loading board, bout markers and tramline selection.



4.9 Conformity

	Directives / standards
The machine fulfils the	• Machines directive 06/42/EG • EMC directive 04/108/EG

4.10 Necessary tractor equipment

For operation of the machine in compliance with the intended use the tractor must fulfil the following requirements.

Tractor engine power

D9-25/30 Special	from 44 kW (60 bhp)
D9-30/40 Super	from 55 kW (75 bhp)

Electrical system

Battery voltage:	12 V (volts)
Lighting socket:	7-pin

Hydraulic system

Maximum operating pressure:	200 bar
Tractor pump power:	At least 80 l/min at 150 bar
Machine hydraulic fluid:	Transmission/hydraulic fluid Utto SAE 80W API GL4 The machine hydraulic/transmission fluid is suitable for the combined hydraulic/transmission fluid circuits of all standard makes of tractor.
Control unit 1:	simple control unit
Control unit 2:	simple control unit

5 Structure and function

The following section provides information on the machine structure and the functions of the individual components.

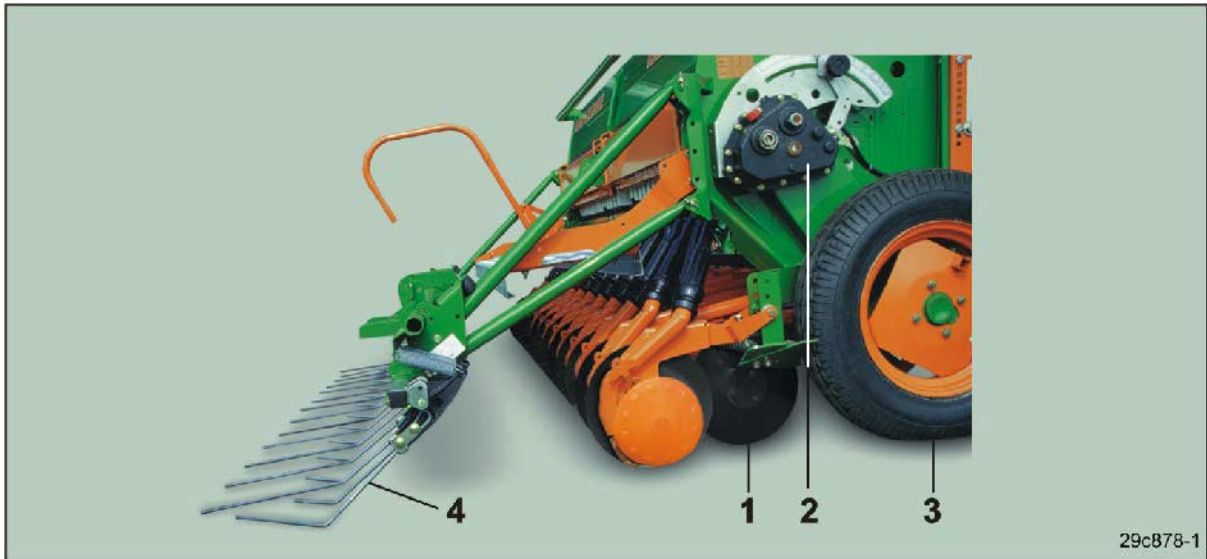


Fig. 34

D9 seed drills allow precise seed placement, uniform planting depth and uniform seed coverage with a track-free, well structured field after drilling.

The seed drill is used solo or in combination with a cultivator for conventional drilling or mulch drilling.

The seed is carried in the seed box.

The seed, dosed in the seed wheel housings by the seed wheels, falls into the sowing furrow created by the coulters (Fig. 34/1). The seed wheels are driven by the seed drill wheel (Fig. 34/3) through the stepless gearbox (Fig. 34/2).

The seed is covered with loose soil by the harrowweeder (Fig. 34/4) or drag tine harrow.

The field connection run is marked in the centre of the tractor by the bout markers.

The RoTeC coulters make mulch drilling possible, even in fields with a lot of stubble and plant trash. The seed furrow is formed and the coulter is guided through the soil by the sowing disc on the one side and the robust cast seed shoe on the other side. The elastic plastic disc prevents the soil sticking to the sowing disc and helps to form the sowing furrow. The high coulter pressure and the support provided by the plastic disc cover ensure a steady coulter ride and hence a precise seed planting depth.

The AMAZONE D9 seed drill can be used

- as a solo machine or
- as part of a cultivation combination with a cultivator, e.g.
 - o AMAZONE rotary cultivator or
 - o AMAZONE rotary harrowand a tooth packer roller or a cage roller.

This cultivation combination optimises loosening of the soil, recompact and precise drilling in a single operation.

The AMAZONE D9 seed drill (Fig. 35) is mounted on the cultivator.



Fig. 35

If the lifting power of the tractor is not sufficient to raise the combination of cultivator, roller and attached seed drill with the adjustable couplings, the lifting power required can be substantially reduced by using the "Liftpack System" (Fig. 36).



Fig. 36



When crossing slopes in the contour line and line of the slope (see "Intended use", on page 43), note that the seed in the seed box could slip so much that the seed wheels are completely or partially starved of seed.

5.1 Hydraulic hose lines



WARNING

Danger of infection from escaping hydraulic fluid at high pressure!

When coupling and uncoupling the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the machine and tractor sides.

If you are injured by hydraulic fluid, contact a doctor immediately.

5.1.1 Coupling the hydraulic hose lines



WARNING

Risk of contusions, cutting, catching, drawing in and knocks from faulty hydraulic functions when the hydraulic hose lines are connected incorrectly!

When coupling the hydraulic hose lines, observe the coloured markings on the hydraulic plugs.



- Check the compatibility of the hydraulic fluids before connecting the machine to the hydraulic system of the tractor.
Do not mix any mineral oils with biological oils.
- Observe the maximum approved hydraulic fluid pressure of 200 bar.
- Only couple clean hydraulic connectors.
- Push the hydraulic push-fit connector(s) into the hydraulic sockets until the hydraulic connector(s) perceivably lock(s).
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Swivel the actuation lever on the control valve on the tractor to float position (neutral position).
2. Clean the hydraulic connectors of the hydraulic hose lines before you couple the hydraulic hose lines to the tractor.
3. Connect the hydraulic hose line(s) to the tractor control unit(s).



Fig. 37

5.1.2 Uncoupling the hydraulic hose lines

1. Swivel the actuation lever on the control valve on the tractor to float position (neutral position).
2. Unlock the hydraulic connectors from the hydraulic sockets.
3. Safeguard the hydraulic connectors and hydraulic connector sockets against soiling with the dust protection caps.



Fig. 38

5.2 Seed box and loading board (option)

The seed box is equipped with a single-piece lid (Fig. 39/1), sealed against dust and water. The seed drill is filled from the rear.

The seed drill can be filled comfortably from the loading board (Fig. 39/2).



Fig. 39

5.2.1 Fill level indicator (option)

The fill level indicator (Fig. 40/1) shows the fill level in the seed box, even when the seed box lid is closed.

Top up the seed in good time, before the fill level indicator reaches the "0" mark.



Never run the seed box down to empty, to prevent differing seeding rates as a consequence of uneven distribution of seed in the seed box.



Fig. 40

5.2.2 Digital fill level monitoring (option)

The on-board computers **AMALOG+** and **AMATRON+** sound an alarm when the level falls below the minimum level specified for the seed box.

A fill level sensor (Fig. 41/1) monitors the level of seed in the seed box.

When the level of seed falls to the level of the sensor, the on-board computer display shows a warning message. An alarm is sounded at the same time. This alarm signal is intended to remind the tractor driver to fill up the seeds again.

The height of the fill level sensor in the seed box is adjustable. The residual seed volume can be set, at which the warning message and the alarm signal is to be emitted.



Fig. 41

5.2.3 Rapeseed insert (option)

The rapeseed insert (Fig. 42/1) reduces the capacity of the seed box.

The rapeseed insert is used when sowing light-weight seeds such as rapeseed and turnips which are sowed at low seed densities.

The agitator shaft must not rotate when the rapeseed insert is fitted in the seed box.



Reconnect the agitator shaft to the drive once the rapeseed insert has been removed.

Seed blockages may arise in the seed box, with the consequence of a faulty sowing pattern, especially when sowing seeds with chaff and with the agitator shaft not rotating.



Fig. 42

5.3 Adjusting the sowing rate

The sowing rate required is set using the lever (Fig. 43/1) of the stepless gearbox.

Adjusting the lever changes the sowing rate. The higher the number the gearbox lever points to on the scale (Fig. 43/2), the greater the sowing rate.

Carry out a calibration test to determine whether the lever is correctly set and whether the sowing rate is correct in later sowing.

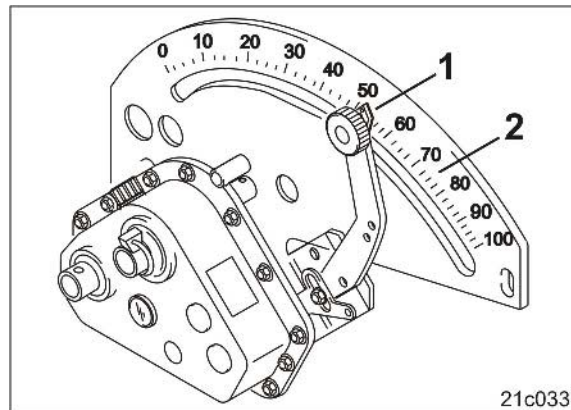


Fig. 43

Hydraulically activated remote sowing rate adjustment (option)

The sowing rate is set using a hydraulic cylinder which is connected to control unit 2, together with the hydraulic coulter pressure adjustment (option) and the hydraulic harrowweeder pressure adjustment (option).

The coulter and harrowweeder pressures are automatically increased when the sowing rate is increased.

The sowing rate can be adapted to the soil during drilling in the event of a change from normal soil to heavy soil and vice versa.

The increased sowing rate is to be set on the sowing rate remote adjustment control lever (Fig. 44/1).

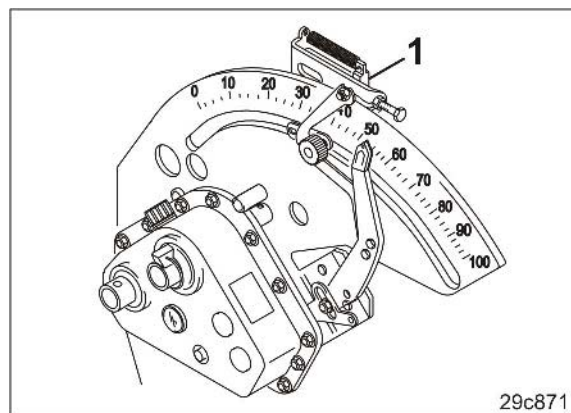


Fig. 44

Electronic sowing rate adjustment (option)

An electric setting motor (Fig. 45/1), controlled by the **AMATRON⁺**, sets the gearbox lever to the desired sowing quantity.

The **AMATRON⁺** regulates the gearbox setting on the basis of the calibration test.

The **AMATRON⁺** display shows the scale setting of the lever (Fig. 45/2).

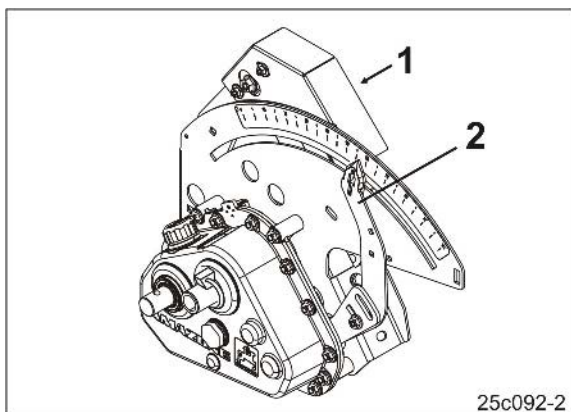


Fig. 45

5.3.1 Seed wheel drive

The drive wheel drives the seed wheels in the seed wheel housings through the stepless gearbox.

The rotational drive speed of the seed wheels

- determines the sowing rate
- can be adjusted on the stepless gearbox.

The distance covered is measured via the drive wheel. AMACO; **AMALOG⁺** and **AMATRON⁺** need this data to calculate the area covered (acreage counter) and the travel speed.



Fig. 46

5.3.2 Seed dosing

The seed is dosed in the seed wheel housings (Fig. 47/1) by the seed wheels (Fig. 47/2) or bean seed wheels.

The seed wheels transport the seed for sowing to the edge of the base flaps (Fig. 47/3).

The metered seed passes through the seed tubes to the sowing coulters.

Depending on the seed to be sowed, the following must be adjusted

- the seed wheels (normal, fine, or bean seed wheel)
- the shutoff gates
- the base flaps
- the agitator shaft.

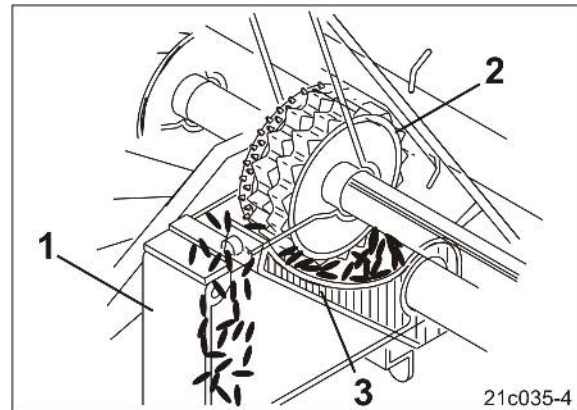


Fig. 47



Refer to the table (Fig. 48, on page 56) for the setting values.

If your seed is not listed in the table, please use the values for another seed of a similar grain size and grain shape.

5.3.3 Setting values table

Seed	Seed wheel	Shut-off gate position	Base flap position		Agitator shaft
			1000 grain weight below above		
			6g (rapeseed) 50g (wheat)		
Rye	Normal seed wheel	open	1	2	driven
Triticale	Normal seed wheel	open	1	2	driven
Barley	Normal seed wheel	open	1	2	driven
Wheat	Normal seed wheel	open	1	2	driven
Spelt wheat	Normal seed wheel	open	2		driven
Oats	Normal seed wheel	open	2		driven
Rapeseed	Fine seed wheel	¾ open	1	2	stopped
Caraway	Fine seed wheel	¾ open	1		stopped
Mustard/radish	Fine seed wheel	¾ open	1		stopped
Phacelia	Normal seed wheel	¾ open	1		driven
Phacelia	Fine seed wheel	¾ open	1		driven
Turnips	Fine seed wheel	¾ open	1		stopped
Grass	Normal seed wheel	open	2		driven
Beans, small (1000 grain weight below 400g)	Normal seed wheel	¾ open	4		driven
Beans, large (1000 grain weight up to 600g)	Bean seed wheel	¾ open	3		driven
Beans, large (1000 grain weight over 600g)	Bean seed wheel	¾ open	4		driven
Peas Peas (1000 grain weight below 400g)	Normal seed wheel	¾ open	4		driven
Peas (1000 grain weight over 400g)	Bean seed wheel	¾ open	4		driven
Flax (dressed)	Normal seed wheel	¾ open	1		driven
Millet	Normal seed wheel	¾ open	1		driven
Lupins	Normal seed wheel	¾ open	4		driven
Alfalfa	Normal seed wheel	¾ open	1		driven
Alfalfa	Fine seed wheel	¾ open	1		driven
Linseed (wet dressed)	Normal seed wheel	¾ open	1		stopped
Linseed (wet dressed)	Fine seed wheel	¾ open	1		stopped
Red clover	Fine seed wheel	¾ open	1		stopped
Soy	Normal seed wheel	¾ open	4		driven
Sunflowers	Normal seed wheel	¾ open	2		driven
Vetches	Normal seed wheel	¾ open	2		driven
Rice	Normal seed wheel	open	3		driven

Fig. 48

5.3.4 Seed wheel (normal and fine seed wheel)

The seed wheels comprise

- a normal seed wheel (Fig. 49/1) and
- a fine seed wheel (Fig. 49/2).

For sowing

- with the normal sowing wheel, the normal and the fine seed wheel are coupled and the two turn together
- with the fine seed wheel, the connection between the normal sowing wheel and the fine seed wheel is broken

Make the same settings on all seed wheels.

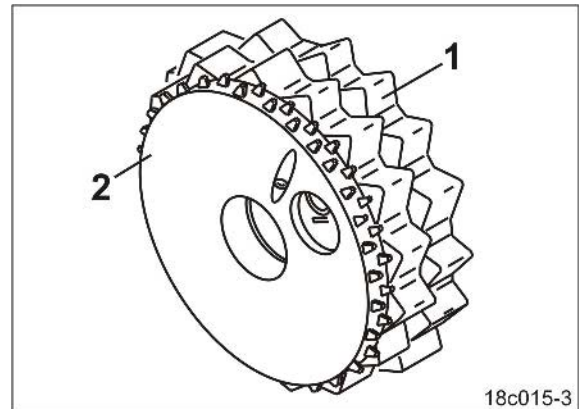


Fig. 49

5.3.5 Bean seed wheel (option)

Large beans are sown with bean seed wheels (Fig. 50) (see "Sowing beans", on page 60).

So as not to harm the beans, they are transported by bean seed wheels with elastic cams made from high quality plastic. The elastic cams on the bean seed wheel are sufficiently long that they reach as far as the base flaps to provide a uniform feed of seed.

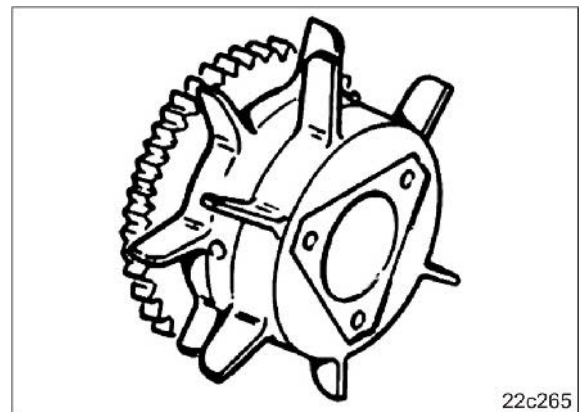


Fig. 50

5.3.6 Base flaps

The clearance between the seed wheel and the base flap (Fig. 51/1) is determined by the size of the seed and is set with the base flap lever (Fig. 51/2).

The base flap adjuster lever can lock into place in one of 8 positions in a group of holes.

The base flap is mounted on springs and can move out of the way of foreign bodies in the seed.

The base flaps open to allow the seed wheel housings to be emptied. This is done by swinging the base flap setting lever downwards past the group of holes.

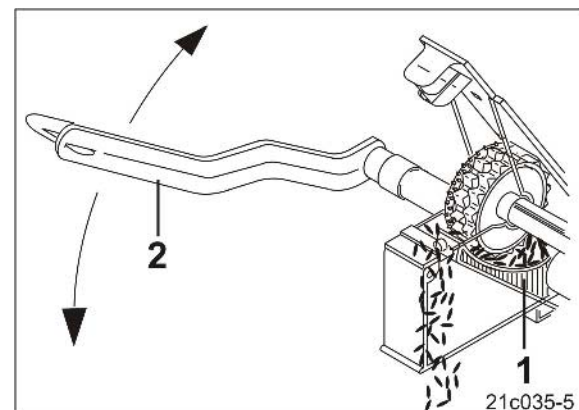


Fig. 51

5.3.7 Agitator shaft

The agitator shaft (Fig. 52/1) in the seed box prevents the build up of seed blockages and hence faulty sowing.

The agitator shaft must be disabled when sowing certain seeds, e.g. rapeseed, so that the intensive agitation action of the agitator shaft does not cause the rapeseed to stick together.

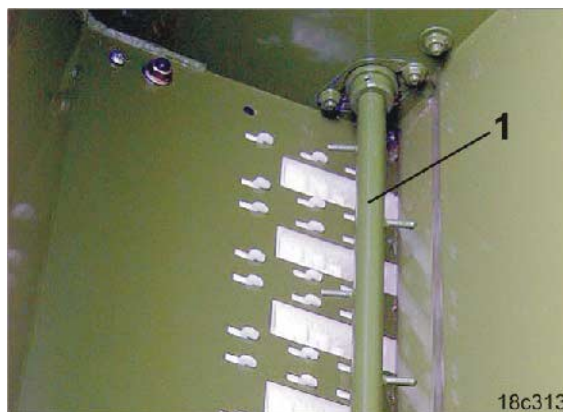


Fig. 52



Reconnect the agitator shaft to the drive after sowing.

Seed blockages may arise in the seed box, with the consequence of a faulty sowing pattern, when sowing seeds with chaff and with the agitator shaft not rotating.

5.3.8 Sowing peas

Sowing with normal seed metering wheels:

Sow peas with a 1000 grain weight below 440 with the normal seed metering wheels. Do not exceed the max. working speed of 6 km/h.

Sowing with bean seed wheels:

Sow peas with a 1000 grain weight above 440 only with the bean seed wheels.

Peas with the shape and size as shown in the figure (Fig. 53) have a good flow rate. The agitator shaft may come to a stop during sowing

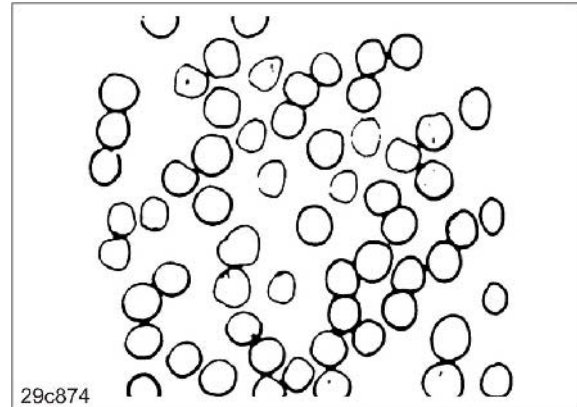


Fig. 53

When sowing square-shaped peas with the shape and size as shown in the figure (Fig. 54), the agitator shaft must keep turning.

Otherwise, the peas have a poor flow and tend towards bridging in the seed box.



Fig. 54



In exceptional cases, peas that have been treated with certain grades of dressing and have an unfavourable shape are not ejected from the seed wheel but return to the seed box.

One remedy is to fit fine seed wheel brushes (Fig. 55/1) on all seed wheel housings.



Fig. 55

5.3.9 Sowing beans

Sowing beans up to a 1000 grain weight of approximately 400 g

Beans up to a 1000 grain weight of approximately 400 g, of the shape and size illustrated in (Fig. 56) can be sown with normal seed wheels without problem.

The agitator shaft must be running during sowing.



Fig. 56

Sowing beans with a 1000 grain weight over 400 g

The seed drill must be fitted with the bean seed wheel for placing large beans (1000 grain weight over 400 g), of the shape and size illustrated in (Fig. 57).

The agitator shaft must be running during sowing.

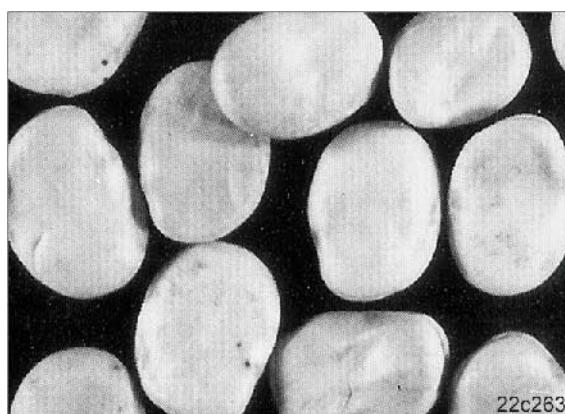


Fig. 57

5.3.10 Calibration cups

The seed drops into the calibration cups (Fig. 58/1) in the calibration test.

The calibration cups protect the seed elements against water and dust during sowing.



Fig. 58

5.3.11 Ready reckoner disc

The desired sowing rate is set on the stepless gearbox.

A number of calibration tests are often necessary to determine the correct gearbox setting.

The gearbox setting can be calculated from the values of the first calibration test using the ready reckoner disc. Always check the value determined on the ready reckoner disc with a further calibration test.

The ready reckoner disc has three scales

- an outer white scale (Fig. 59/1) for all sowing rates over 30 kg/ha
- an inner white scale (Fig. 59/2) for all sowing rates below 30 kg/ha
- a coloured scale (Fig. 59/3) with all gearbox settings from 1 to 100.

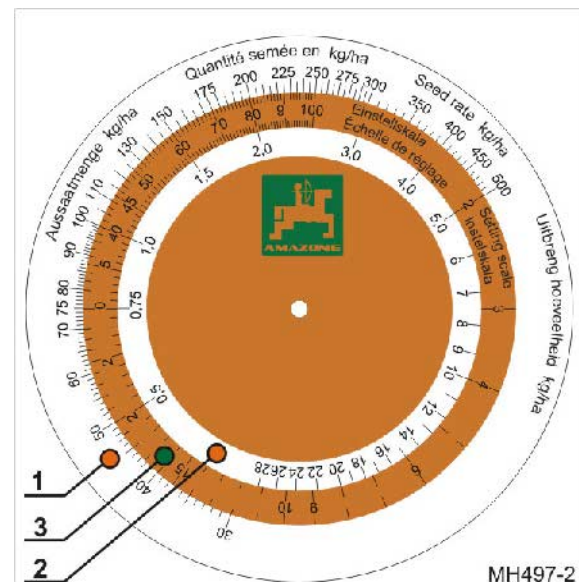


Fig. 59

5.4 Operator terminal **AMALOG⁺** (option)

The on board computer **AMALOG⁺** shows

- as an acreage counter
 - the total area covered (ha)
 - the subarea covered (ha)
- the rhythm and counter of the tramline selection
- the active bout marker.

The on board computer **AMALOG⁺** issues an alarm

- if the seed level in the seed box falls below the set minimum level ¹⁾
- if tramlines ²⁾
 - have been incorrectly created
 - have been sown.
- if the tramline marker ²⁾
 - is marking sown rows
 - is not marking tramlines.

¹⁾ Fill level sensor required.

²⁾ Monitoring of tramline selection required.

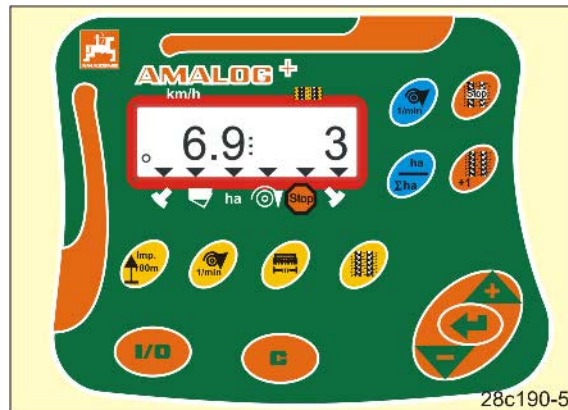


Fig. 60

5.5 Operator terminal **AMATRON⁺** (option)

The **AMATRON⁺** consists of the operator control terminal (Fig. 61), the basic equipment (cable and fastening material) and the job computer on the machine.

The **AMATRON⁺** includes the functions of the **AMALOG⁺** and additionally contains

- input of the machine-specific data
- input of the job-related data
- control of the stepless gearbox for varying the sowing rate during sowing operations ¹⁾
- monitoring of the seed drill during sowing operation.

¹⁾ Stepless gearbox with electronic sowing rate adjustment required.



Fig. 61

The **AMATRON⁺** determines

- the instantaneous travel speed [km/h]
- the instantaneous sowing rate [kg/ha]
- the distance [m] remaining until the seed box is emptied of seed
- the actual seed box content [kg].

Once a job has been started, the **AMATRON⁺** stores

- the day and total seed volume output [kg]
- the day and total area cultivated [ha]
- the day and total sowing time [h]
- the average performance [ha/h].

5.6 WS coulters

Use your seed drill with WS coulters (Fig. 62)

- for conventional drilling.

A guide hopper (Fig. 62/1) delivers the seed immediately behind the coulter tip (Fig. 62/2). A precise and uniform planting depth is achieved.

The hinged coulter support (Fig. 62/3) prevents the coulter outlet clogging when the seed drill is set down.



Fig. 62

5.6.1 Band sowing shoe (option)

The WS coulters can be equipped with band sowing shoes. Band sowing improves the competition conditions for the growing wheat plants. The precondition is a well-tilled seed bed.

The harroweeder is required to cover the seed.

Band sowing shoe I (Fig. 63) is particularly well-suited to heavy soil.

The wedge-shaped shoe opens the band furrow.

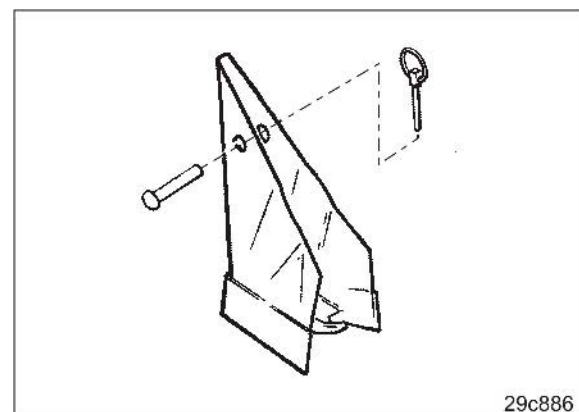


Fig. 63

Structure and function

Band sowing shoe II (Fig. 64) is particularly well-suited to light to medium soils.

The inclined sole compresses the planting area and reduces the planting depth.

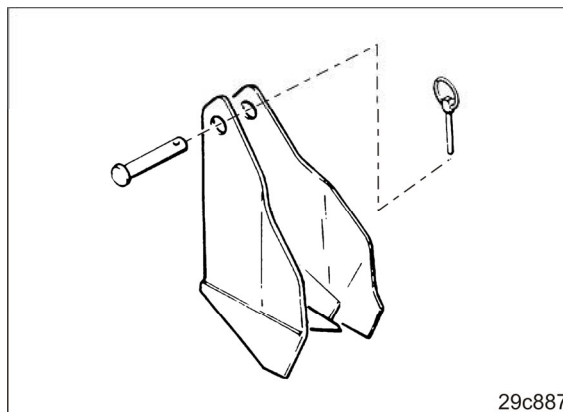


Fig. 64

5.7 RoTeC coulter

Use your seed drill with RoTeC coulters

- for conventional drilling or
- mulch drilling.

The RoTeC coulters are suited for mulch drilling, even in fields with a lot of stubble and trash.

The flexible plastic disc (Fig. 65/1)

- limits the seed planting depth
- cleans the reverse side of the steel disc
- improves the drive of the steel disc by gripping the soil.

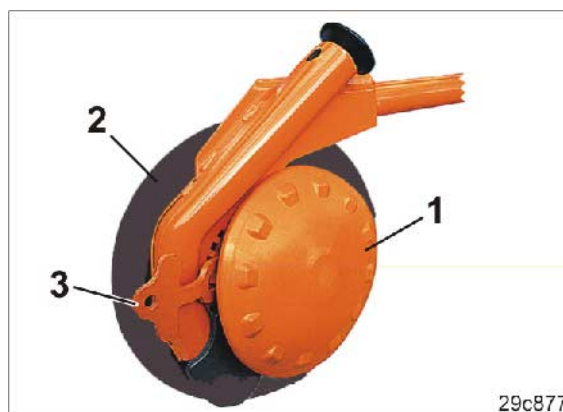


Fig. 65

At high travel speeds, the steel disc (Fig. 65/2), which is inclined at only 7° to the direction of travel, shifts little soil.

The steady coulter ride and the precise seed placement result from the high coulter pressure (up to 30 kg) and the support of the coulter on the plastic disc.

The flat sowing disc (Fig. 66) allows very shallow sowing, e.g. in particularly light sandy soils.



Fig. 66

The plastic disc can be fitted in three positions or it can be removed to limit the seed placement depth (Fig. 67/1 - 4).

The plastic disc can be adjusted or removed without the need for tools by using the handle (Fig. 65/3).

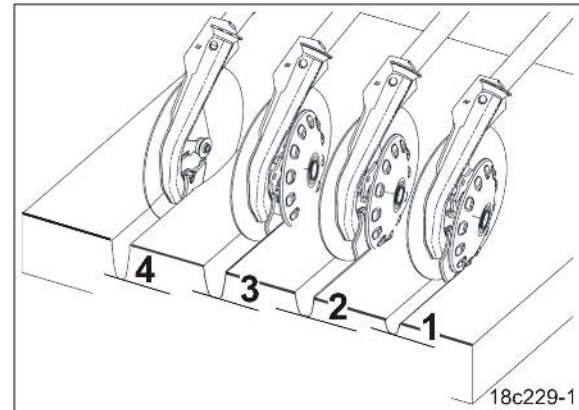


Fig. 67

5.8 Coulter pressure

The seed planting depth is dependent on

- the condition of the soil
- the coulter pressure
- the travel speed.

The coulter pressure is set centrally and the depth of the outside coulters is fixed.

Central coulter pressure adjustment

The coulter pressure is set centrally with an adjuster spindle (Fig. 68) set.



Fig. 68

Hydraulic coulters pressure adjustment (option)

The coulters pressure is set centrally using a hydraulic cylinder (Fig. 69/1) which is connected to control unit 2, together with the hydraulic sowing rate remote adjustment (option) and the hydraulic harrowweeder pressure adjustment (option).

The coulters and harrowweeder pressures are automatically increased when the sowing rate is increased.

The coulters pressure can be adapted to the soil during drilling in the event of a change from normal soil to heavy soil and vice versa.

Two bolts on an adjuster segment act as the stop for the hydraulic cylinder. If pressure is applied at control unit 2, the coulters pressure increases and the stop is in contact with the upper bolt. In the floating position the stop is in contact with the lower bolt.

The numbers on the scale (Fig. 69/2) are provided for guidance. The higher the number, the greater the coulters pressure.



Fig. 69

5.9 Harrowweeder (option)

The harrowweeder (Fig. 70/1) covers the seeds placed in the sowing furrows with loose soil and smoothes the ground.

The following are adjustable

- the position of the spring tines
- the harrowweeder pressure.

The harrowweeder pressure determines the working intensity of the harrowweeder and is independent of the soil type.

Adjust the exact harrow pressure so that all seed rows are evenly covered with earth.



Fig. 70

Central harrowweeder pressure adjustment

The harrowweeder pressure is generated by tension springs that are tensioned using a lever (Fig. 71/1).

The lever is in contact with a bolt (Fig. 71/2) in the adjuster segment. The higher the bolt is inserted in the group of holes, the greater the harrowweeder pressure.

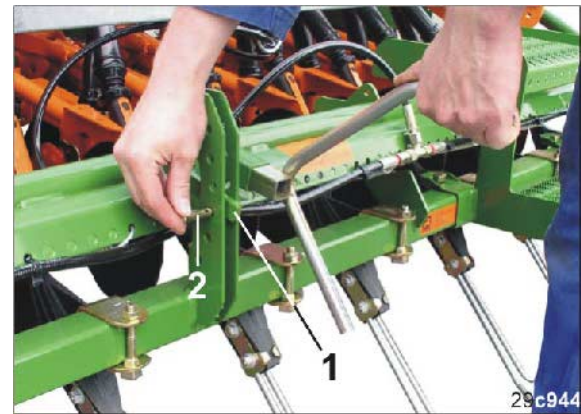


Fig. 71

Hydraulic harrowweeder pressure adjustment (option)

The harrowweeder pressure is set centrally using a hydraulic cylinder which is connected to control unit 2, together with the hydraulic sowing rate adjustment (option) and the hydraulic coulter pressure adjustment (option).

The coulter and harrowweeder pressures are automatically increased when the sowing rate is increased.

The harrowweeder pressure can be adapted to the soil during drilling in the event of a change from normal soil to heavy soil and vice versa.

Two bolts (Fig. 72/1) in an adjuster segment act as the stop for the lever (Fig. 72/2). If pressure is applied at control unit 2, the harrowweeder pressure increases and the lever is in contact with the upper bolt. In the floating position the lever is in contact with the lower bolt.

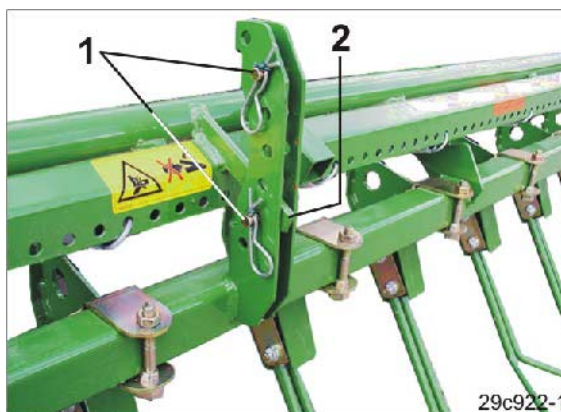


Fig. 72

5.10 Drag tine harrow (option)

The drag tine harrow (Fig. 73/1) covers the seed placed in the sowing furrow with loose soil.

The drag tine harrow is used on ploughed soils.

The drag tine harrow is mounted on the seed drill by means of a parallelogram frame.



Fig. 73

5.11 Seed drill wheel mark eradicator (option)

The wheel mark eradicator (Fig. 74/1) loosens the soil behind the seed drill's wheels.

The coulter tip

- moves aside when it meets stones
- folds upwards automatically when the seed drill is switched off.

The working depth and working intensity of the wheel mark eradicator are adjustable.

The wheel mark eradicator is simply removed on fields with a significant amount of organic trash.



Fig. 74

5.12 Tractor drill wheel mark eradicator (option)

The tractor wheel mark eradicator loosens the compacted tractor track or covers it with loose soil.

There are two versions that are used depending on machine type and field of application,

- the swivelling mounted tractor wheel mark eradicator (Fig. 75). for reaching inaccessible positions
- the reinforced tractor wheel mark eradicator (Fig. 76).

Raise the wheel mark eradicators after working on the field to avoid damaging the wheel mark eradicators.

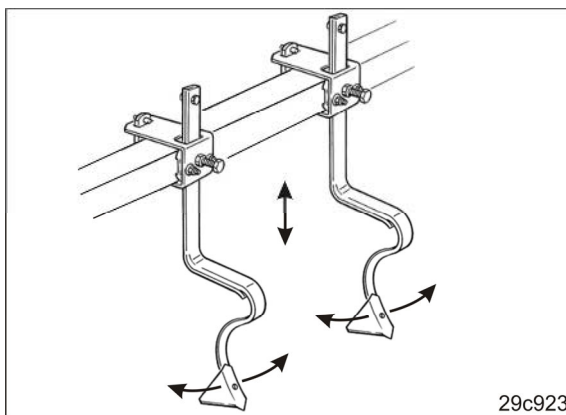


Fig. 75

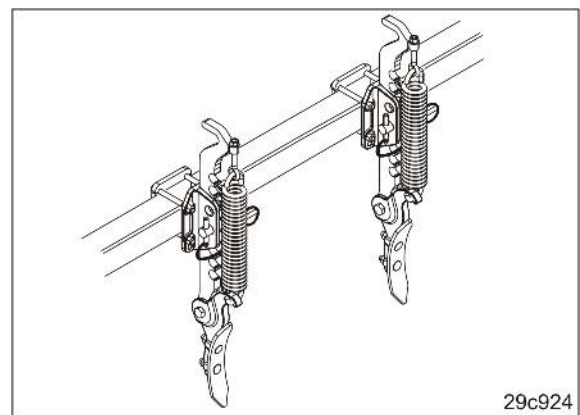


Fig. 76

5.13 Markers

The hydraulically-actuated markers dig into the ground alternately on the left and the right of the machine.

In so doing, the active marker creates a mark. This mark serves as an orientation aid for the next run after turning.

After turning, the tractor driver drives over the centre of the mark.

It is possible to set:

- The length of the marker
- The working intensity of the marker, depending on the type of soil.



Fig. 77

The bout markers are operated on operation of control unit 1 on

- D9 Special seed drills with the hydraulic automatic switching system (Fig. 78/1)
- D9 Super seed drills with two hydraulic cylinders (Fig. 79/1)

The active bout marker is

- shifted to the working position at the start of work
- raised at the end of the field
- automatically lowered after turning.



Fig. 78



Fig. 79

Raise the active bout marker in the field before passing obstacles.
(Then correct the setting of the seed wheel tramline selection).

The bout markers on the D9 Super seed drills are fitted with shear bolts. If the bout marker strikes against a solid obstacle, a bolt shears and the bout marker deviates around the obstacle. It is recommended that you keep a shear bolt in the tractor



Correct the setting for the seed wheel tramline selection after operating control unit 1 a number of times.

5.14 Hectare counter **AMACO** (optional)

Briefly pressing the ha key causes the **AMACO** electronic acreage counter to show the area covered in the display.

The machine-specific data is entered using the ha key and the F key.

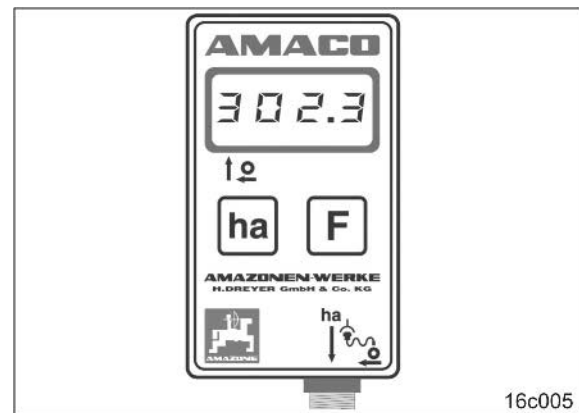


Fig. 80

5.15 Tramline selection (option)

The tramline selection allows the creation of tramlines at preselected intervals on the field.

Tramlines are seed-free tracks (Fig. 81/A) for fertilising and plant care machines used later.

The tramline spacing (Fig. 81/b) corresponds to the working width of the care machines (Fig. 81/B), e.g. fertiliser spread and/or sprayer, which are used on sown fields.

To create different tramline spacings (Fig. 81/b)

- the appropriate tramline rhythm must be selected on the **AMALOG⁺** or **AMATRON⁺**
- the control box must be equipped with the corresponding pitch wheel (see "Setting the tramline rhythm", on page 120).

The required tramline rhythm (see table Fig. 82) is derived from the required tramline spacing and the working width of the seed drill.

Further tramline rhythms may be found in the **AMALOG⁺** or **AMATRON⁺** operating instructions.

The track (Fig. 81/a) of the tramline corresponds to that of the cultivating tractor and is adjustable (see "Setting the tramline spacing and track/track width (specialist workshop)", on page 152).

The track width (Fig. 81/c) of the tramline increases with an increasing number of tramline coulters fitted next to each other.

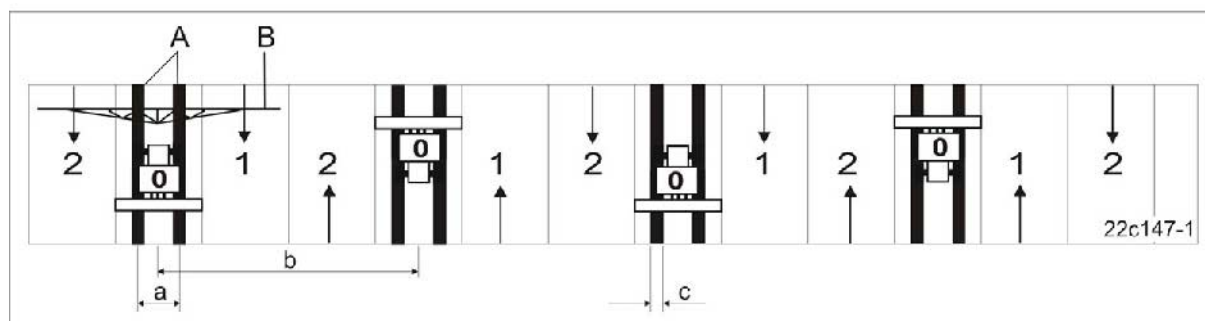


Fig. 81

When a tramline is created, the tramline counter indicates the number "0"

- in the control box
- on the **AMALOG⁺**
- on the **AMATRON⁺**.

The **AMALOG⁺** or the **AMATRON⁺** sound an alarm if the countershaft that drives the tramline seed wheels is not working properly. Seed shaft monitoring (option) is required

Tramline rhythm	Seed drill working width		
	D9-25	D9-30	D9-40
	Tramline spacing (working width of the fertiliser spreader and field sprayer)		
1	—	—	—
3	—	9 m	12 m
4	10 m	12 m	16 m
5	—	15 m	20 m
6	15 m	18 m	24 m
7	—	21 m	28 m
8	20 m	24 m	32 m
9	—	27 m	36 m
2 plus	10 m	12 m	16 m
6 plus	15 m	18 m	24 m

Fig. 82

5.15.1 Examples for creating tramlines

The creation of tramlines is shown in Figure (Fig. 83) using various examples:

- A = Working width of the seed drill
- B = Tramline spacing (= working width of fertiliser spreader / field sprayer)
- C = Tramline rhythm
- D = Tramline counter (the field runs are numbered consecutively and displayed during the work).

Example:

Working width of seed drill: 3 m

Working width, fertiliser spreader/field spray: 18m = 18m tramline spacing

1. Look in the table (Fig. 83) for the following:
in column A the seed drill's working width (3 m) and
in column B the tramline spacing (18 m).
2. On the same line in column "C" take the reading for the tramline rhythm (tramline rhythm 3).
3. On the same line in column "D" under the "START" heading take the reading of the tramline counter for the first field run (tramline counter 2).
Do not set this value until immediately before commencing the first field run.
 - o on the **AMALOG⁺**
 - o on the **AMATRON⁺**
 - o in the control box.

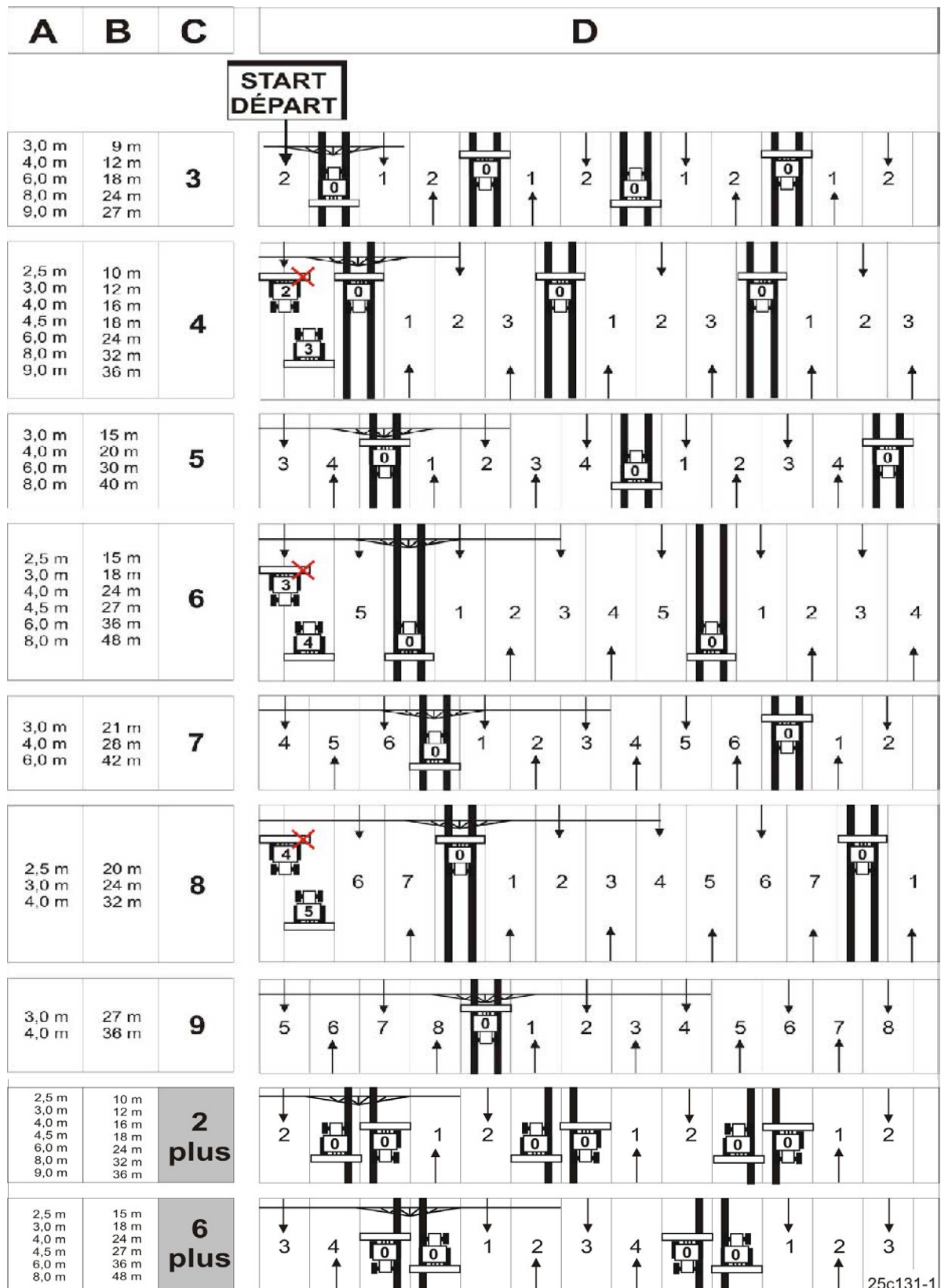


Fig. 83

5.15.2 Tramline rhythm 4, 6 and 8

Figure (Fig. 83) shows examples for creating tramlines with the tramline rhythm 4, 6 and 8.

It shows work with the seed drill at half width (partial width) during the first field run.

Another option for creating tramlines with the tramline rhythm 4, 6 and 8 is to begin with the full working width and the creation of a tramline (see Fig. 84).

In this case, the care machine works at half working width during the first field run.

After the first field run, reset the full machine working width!

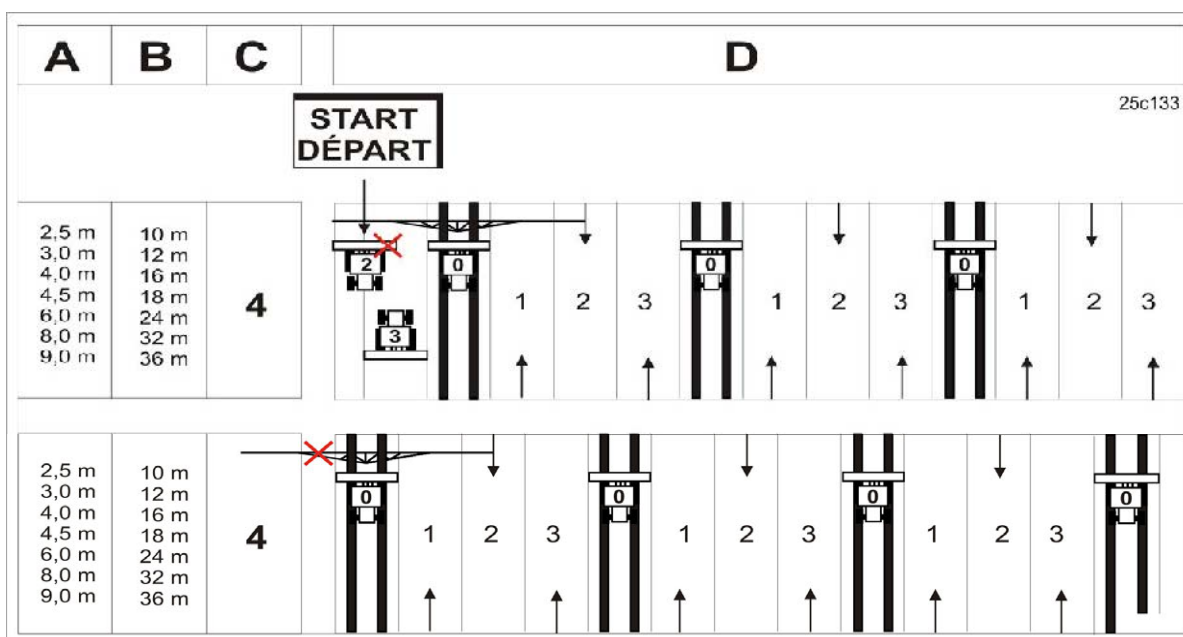


Fig. 84

5.15.3 Tramline rhythms 2 plus and 6 plus

Figure (Fig. 83) shows examples of tramlines created with tramline rhythms 2 plus and 6 plus.

Tramlines are created with the tramline rhythms 2 plus and 6 plus (Fig. 85) during the forward and backward trips over the field.

On machines with

- tramline rhythm 2 plus, the seed feed to the tramline coulters may only be interrupted on the right side.
- tramline rhythm 6 plus, the seed feed to the tramline coulters may only be interrupted on the left side.

the seed feed to the tramline coulters is interrupted.

Work always starts on the right hand edge of the field.

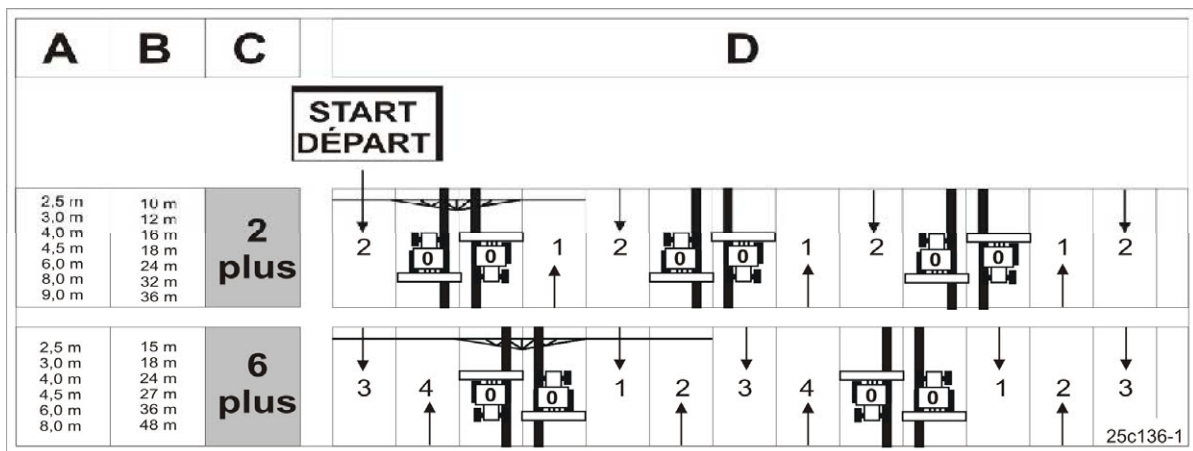


Fig. 85

5.15.4 Tramline control

Drive to the tramline seed wheels is controlled

- electronically through the **AMALOG+** or the **AMATRON+**
- hydraulically through the control box.

In any event, the drive to the countershaft is engaged or disengaged through the wrap spring clutch.

The tramline seed wheels driven by the countershaft are halted when tramlines are being created. The tramline coulters do not place any seeds in the soil.

Electronic operation

The wrap spring clutch (Fig. 86/1) is operated by a solenoid switch (Fig. 86/2) that is electronically controlled by the **AMALOG⁺** or **AMATRON⁺**.

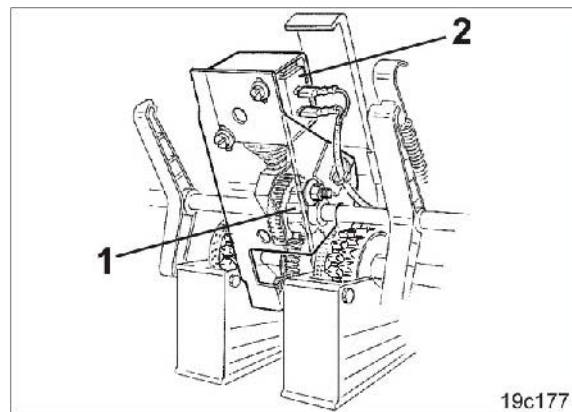


Fig. 86

Hydraulic operation

The wrap spring clutch (Fig. 87/1) is operated by a lever (Fig. 87/2) connected to the control box (Fig. 87/3).

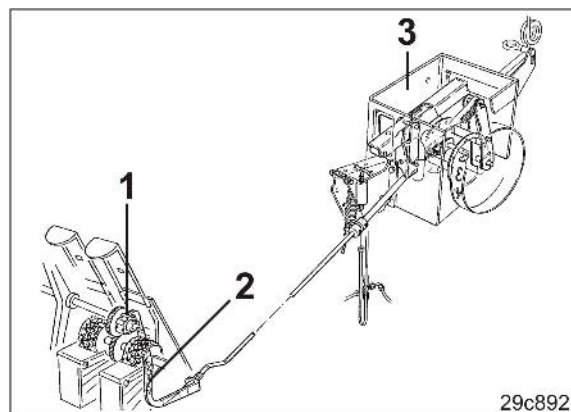


Fig. 87

Track and track width

Spur gears (Fig. 88/1) on the countershaft (Fig. 88/2) drive the tramline seed wheels (Fig. 88/3).

Track

The wheelmark spacing (Fig. 81/a) is adjusted by moving the spur gears on the lay shaft (see "Setting the tramline spacing and track/track width (specialist workshop)", on page 152).

Track width

The track width (Fig. 81/c) increases with an increasing number of tramline coulters fitted next to each other (see "Setting the tramline spacing and track/track width (specialist workshop)", on page 152).

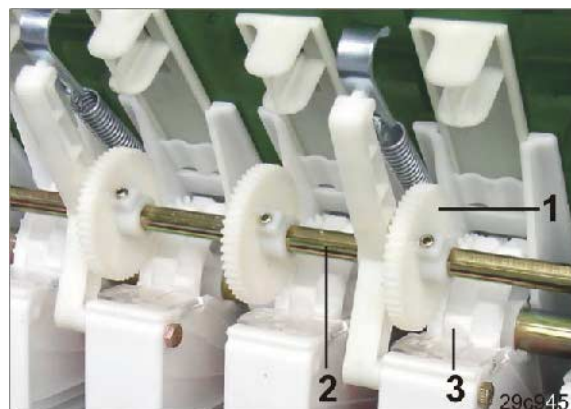


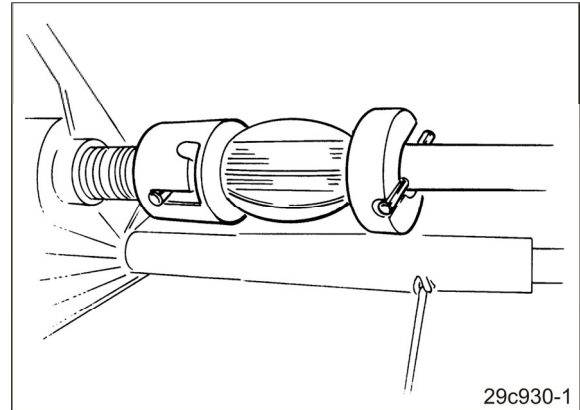
Fig. 88

5.15.5 Switching off the seed shaft on one half

The seed shaft disengage clutch (Fig. 89) can be used to disengage the left-hand half of the seed shaft and to interrupt the supply of seed to the coulters.



If the tramline seed wheels are also not intended to sow the seeds, the shutoff gates to the tramline seed wheels must be closed.



29c930-1

Fig. 89

5.15.6 Tramline marker (option)

When tramlines are being created, the track discs (Fig. 90) for tramline marking lower automatically and mark the tramline that has just been created. The tramlines are hence visible before the seed has emerged.

The following are adjustable

- the track of the tramline
- the working intensity of the track discs.



29c940-1

Fig. 90

The track discs (Fig. 91) are raised, if no tramline is created.



29c946

Fig. 91

6 Commissioning

This section contains information

- on initial operation of your machine
- on checking how you may connect the machine to your tractor.



- Before operating the machine for the first time the operator must have read and understood the operating manual.
- Take heed of section "Safety information for users", from on page 25 onwards on
 - Connecting and disconnecting the machine
 - Transporting the machine
 - Using the machine
- Only couple and transport the machine to/with a tractor which is suitable for the task.
- The tractor and machine must meet the national road traffic regulations.
- The operator and the user shall be responsible for compliance with the statutory road traffic regulations.



WARNING

Risk of contusions, cutting, catching, drawing in and knocks in the area of hydraulically or electrically actuated components.

Do not block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:

- are continuous or
- are automatically locked or
- due to their function require a float position or pressure position.

6.1 Checking the suitability of the tractor



WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

- Check the suitability of your tractor before you attach or hitch the machine to the tractor.
You may only connect the machine to tractors suitable for the purpose.
- Carry out a brake test to check whether the tractor still achieves the required braking deceleration with the machine attached.

Requirements for the suitability of a tractor are, in particular:

- The approved total weight
- The approved axle loads
- The approved drawbar load at the tractor coupling point
- The load capacity of the installed tyres
- The approved trailer load must be sufficient

You can find this data on the identification plate or in the vehicle documentation and in the tractor operating manual.

The front axle of the tractor must always be subjected to at least 20% of the empty weight of the tractor.

The tractor must achieve the brake delay specified by the tractor manufacturer, even with the machine connected.

6.1.1 Calculating the actual values for the total tractor weight, tractor axle loads and load capacities, as well as the minimum ballast



The approved total tractor weight, specified in the vehicle documentation, must be greater than the sum of the

- tractor's empty weight
- ballast weight and
- total weight of the attached machine or noseweight of the hitched machine.



This notice applies only to Germany.

If, having tried all possible alternatives, it is not possible to comply with the axle loads and / or the approved total weight, then a survey by an officially-recognised motor traffic expert can, with the approval of the tractor manufacturer, be used as a basis for the responsible authority to issue an exceptional approval according to § 70 of the German Regulations Authorising the Use of Vehicles for Road Traffic and the required approval according to § 29, paragraph 3 of the German Road Traffic Regulations.

6.1.1.1 Data required for the calculation (attached machine)

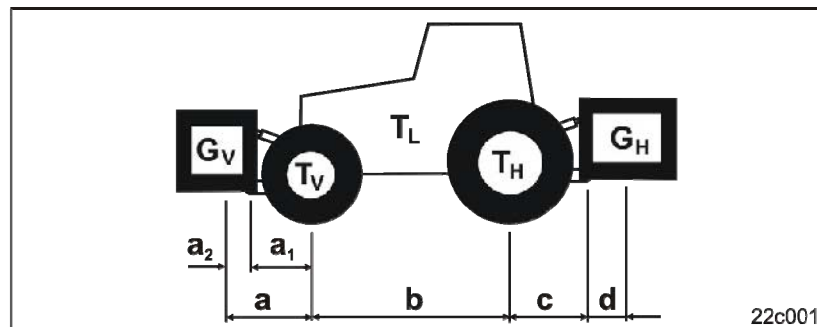


Fig. 92

T_L	[kg]	Tractor empty weight	See tractor operating manual or vehicle documentation
T_V	[kg]	Front axle load of the unladen tractor	
T_H	[kg]	Rear axle load of the unladen tractor	
G_H	[kg]	Total weight of rear-mounted machine or rear ballast	See the section "Technical data for the calculation of tractor weights and tractor axle loads", on page 47 or rear weight
G_V	[kg]	Total weight of front-mounted machine or front ballast	See technical data for front-mounted machine or front ballast
a	[m]	Distance between the centre of gravity of the front machine mounting or the front weight and the centre of the front axle (total $a_1 + a_2$)	See technical data of tractor and front machine mounting or front weight or measurement
a_1	[m]	Distance from the centre of the front axle to the centre of the lower link connection	See tractor operating manual or measurement
a_2	[m]	Distance between the centre of the lower link connection point and the centre of gravity of the front-mounted machine or front ballast (centre of gravity distance)	See technical data of front machine mounting or front weight or measurement
b	[m]	Tractor wheel base	See tractor operating manual or vehicle documents or measurement
c	[m]	Distance between the centre of the rear axle and the centre of the lower link connection	See tractor operating manual or vehicle documents or measurement
d	[m]	Distance between the centre of the lower link connection point and the centre of gravity of the rear-mounted machine or rear ballast (centre of gravity distance)	See the section "Technical data for the calculation of tractor weights and tractor axle loads", on page 47

6.1.1.2 Calculation of the required minimum ballasting at the front $G_{V \min}$ of the tractor to ensure steering capability

$$G_{V \min} = \frac{G_H \cdot (c + d) - T_V \cdot b + 0,2 \cdot T_L \cdot b}{a + b}$$

Enter the numeric value for the calculated minimum ballast $G_{V \min}$, required on the front side of the tractor, in the table (Section 6.1.1.7).

6.1.1.3 Calculation of the actual front axle load of the tractor $T_{V \text{ tat}}$

$$T_{V \text{ tat}} = \frac{G_V \cdot (a + b) + T_V \cdot b - G_H \cdot (c + d)}{b}$$

Enter the numeric value for the calculated actual front axle load and the approved tractor front axle load specified in the tractor operating manual in the table (Section 6.1.1.7).

6.1.1.4 Calculation of the actual total weight of the combined tractor and machine

$$G_{\text{tat}} = G_V + T_L + G_H$$

Enter the numeric value for the calculated actual total weight and the approved total tractor weight specified in the tractor operating manual in the table (Section 6.1.1.7).

6.1.1.5 Calculation of the actual rear axle load of the tractor $T_{H \text{ tat}}$

$$T_{H \text{ tat}} = G_{\text{tat}} - T_{V \text{ tat}}$$

Enter the numeric value for the calculated actual rear axle load and the approved tractor rear axle load specified in the tractor operating manual in the table (Section 6.1.1.7).

6.1.1.6 Tractor tyre loadbearing capacity

Enter the double value (two tyres) of the approved load capacity (see, for example, tyre manufacturer's documentation) in the table (Section 6.1.1.7).

6.1.1.7 Table

	Actual value according to calculation	Approved value according to tractor instruction manual	Double approved load capacity (two tyres)
Minimum ballast front / rear	/ kg	--	--
Total weight	kg	kg	--
Front axle load	kg	kg	kg
Rear axle load	kg	kg	kg



- You can find the approved values for the total tractor weight, axle loads and load capacities in the tractor registration papers.
- The actually calculated values must be less than or equal to ($\leq$) the permissible values!



WARNING

Risk of crushing, cutting, entrapment, drawing in and impact through insufficient stability of the tractor and insufficient tractor steering capability and braking power.

It is forbidden to couple the machine to the tractor used as the basis for calculation, if

- One of the actual, calculated values is greater than the approved value.
- There is no front weight (if required) attached to the tractor for the minimum front ballast ($G_{V \min}$).



- Ballast your tractor with weights at the front or rear if the tractor axle load is exceeded on only one axle.
- Special cases:
 - If you do not achieve the minimum ballast at the front ($G_{V \min}$) from the weight of the front-mounted machine (G_V), you must use ballast weights in addition to the front-mounted machine.
 - If you do not achieve the minimum ballast at the rear ($G_{H \min}$) from the weight of the rear-mounted machine (G_H), you must use ballast weights in addition to the rear-mounted machine.

6.2 Securing the tractor / machine against unintentional start-up and rolling



WARNING

Risk of contusions, cutting, catching, drawing in and knocks when making interventions in the machine through

- **Unintentional lowering of the unsecured machine when it is raised via the three-point hydraulic system of the tractor**
- **Unintentional lowering of raised, unsecured parts of the machine**
- **Unintentional start-up and rolling of the tractor-machine combination.**
- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- It is forbidden to make any intervention in the machine, such as installation, adjustment, troubleshooting, cleaning, maintenance and repairs
 - while the machine is being driven
 - as long as the tractor engine is running with a connected hydraulic system.
 - if the ignition key is inserted in the tractor and the tractor engine can be started unintentionally with the hydraulic system connected
 - if the tractor is not secured against unintentional rolling away by the applied parking brake
 - if moving parts are not blocked against unintentional movement.

When carrying out such work, there is a high risk of contact with unsecured components.

1. Lower the raised, unsecured machine / raised, unsecured parts of the machine.
- This is how to prevent unintentional falling:
2. Shut down the tractor engine.
 3. Remove the ignition key.
 4. Apply the tractor's parking brake.

6.3 Initial fitting of the operating terminal

Fit the AMACO; **AMALOG⁺**, **AMATRON⁺** operating terminal in the tractor cab following the instructions in the relevant operating manual.

6.4 Initial fitting of the harroweeder (specialist workshop)

1. Couple the machine up to the tractor (see "Coupling and uncoupling the machine", on page 88).
2. Attach holder tubes (Fig. 93/1) to the brackets using bolts (Fig. 93/2) and secure with lynch pins (Fig. 93/3).

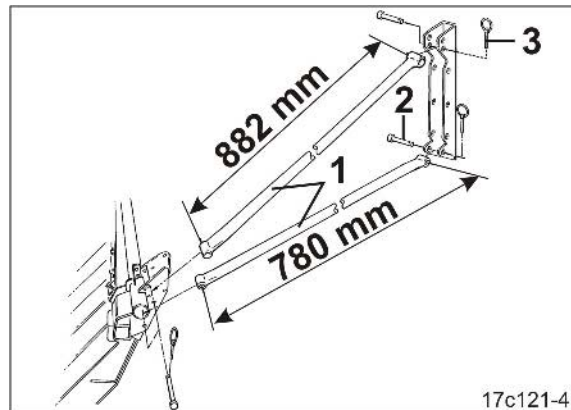


Fig. 93

3. Shift control valve 2 to the float position.
4. Connect the pre-assembled hydraulic hose (Fig. 94/1) to the hydraulic cylinder (Fig. 94/2).
5. Repeat the procedure for the second hydraulic cylinder (if fitted).



Route the hydraulic hose (Fig. 94/1) with a sufficiently large bend at the hinge points of the holder tubes on the exact harrow so that the hose is not torn away by the movement of the exact harrow.

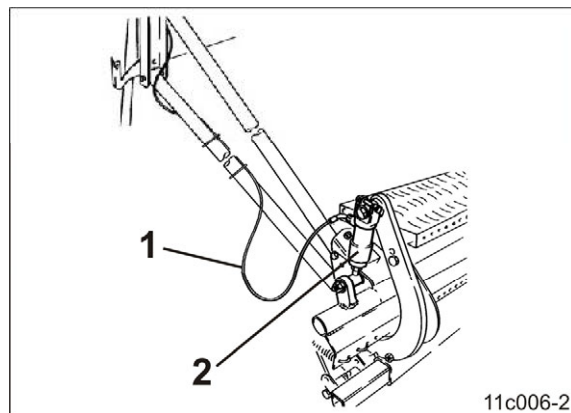


Fig. 94

6. Apply pressure to control valve 2 and check all unions for fluid leaks.

6.5 Initial fitting of the loading board (specialist workshop)

1. Bolt the safety grating (Fig. 95/1) onto the machine using the brackets.
2. Fasten the handrail (Fig. 95/2).
3. Fasten the step (Fig. 95/3) onto the harrow next to the handrail.

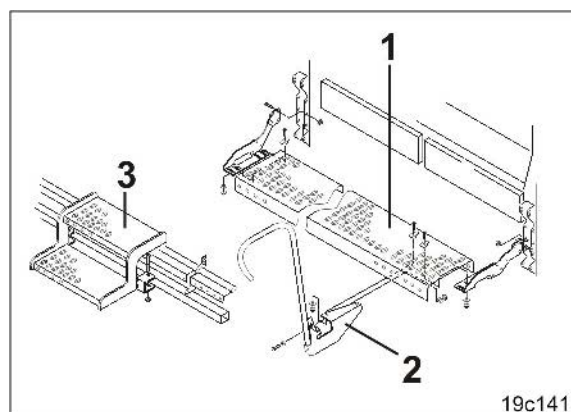


Fig. 95

6.6 Initial installation of mounts for the road safety bar

Screw two mounts (Fig. 96/1) to the exact harrow (Fig. 96/2).



During work, secure the road safety bars (Fig. 97/2) to the mounts (Fig. 97/1).

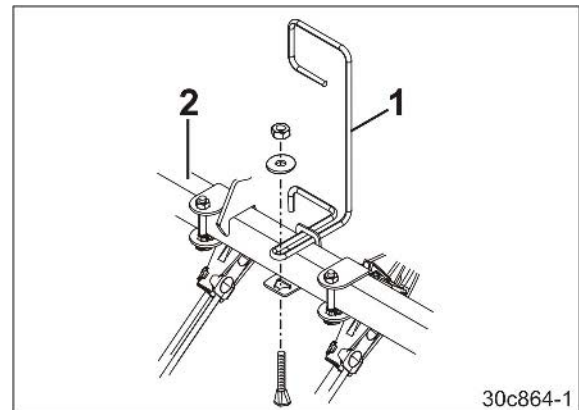


Fig. 96

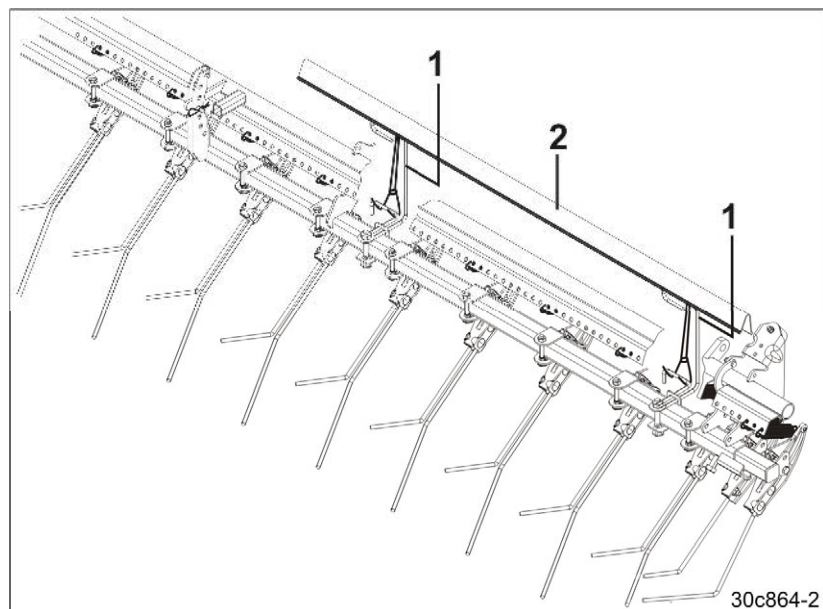


Fig. 97

7 Coupling and uncoupling the machine



When coupling and uncoupling the machine take heed of the section "Safety information for users", on page 25.



WARNING

Risk of contusions from unintentional starting and rolling of the tractor and machine when coupling or uncoupling the machine!

Secure the tractor and machine against unintentional start-up and rolling away before entering the danger area between the tractor and machine to couple or uncouple the machine. See on page 85 in this regard.



WARNING

Risk of contusions between the rear of the tractor and the machine when coupling and uncoupling the machine!

Only actuate the operator controls for the tractor's three-point hydraulic system

- from the workplace provided
- if you are outside of the danger area between the tractor and the machine.

7.1 Coupling the machine



WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

You may only connect the machine to tractors suitable for the purpose. On this subject see the section "Checking the suitability of the tractor", on page 81.



WARNING

Risk of contusions when coupling the machine and standing between the tractor and the machine!

Instruct people to leave the danger area between the tractor and the machine before you approach the machine.

Any helpers may only act as guides standing next to the tractor and the machine, and may only move between the vehicles when both are at a standstill.

**WARNING**

Risk of contusions, cutting, catching, drawing in and knocks when the machine unexpectedly releases from the tractor!

- Use the intended equipment to connect the tractor and the machine in the proper way.
- When coupling the machine to the tractor's three-point hydraulic system, ensure that the attachment categories of the tractor and the machine are the same.
Upgrade the category II upper link and lower link pins on the machine to category III using reducing sleeves if your tractor is equipped with category III three-point hydraulics.
- Only use the upper and lower link pins provided to couple up the machine.
- Check the upper and lower link pins for visible defects whenever the machine is coupled. Replace the upper and lower link pins in the event of clearly visible wear.
- Secure the upper link pin and lower link pin in the connecting points of the three-point attachment frame against unintentional detachment using a linch pin.

**WARNING**

Risk of energy supply failure between the tractor and the machine through damaged power lines!

During coupling, check the course of the power lines. The power lines

- must give slightly without tension, bending or rubbing on all movements of the connected machine.
- may not scour other parts.

Coupling and uncoupling the machine

1. Fasten the ball sleeves (Fig. 98) over the upper and lower link pins of the seed drill three-point attachment.
The balls of the lower linkage are dependent on the tractor type (see tractor operating manual).

Upgrade the category II upper and lower link pins on the machine to category III using reducing sleeves if your tractor is equipped with category III three-point hydraulics.

2. Secure the upper link pin and the lower link pin against unintentional release with a linch pin each.



Fig. 98



Detach the top link pin from the upper attachment point of the three-point attachment frame so that the coupled upper link runs approximately horizontally. The power required to raise the machine is the least if the upper link is horizontal.

3. Direct people out of the danger zone between the tractor and machine before you approach the machine with the tractor.
4. First join the supply lines (see 7.1.1, on page 92 and 7.1.2, on page 93), before you couple the machine up to the tractor.
 - 4.1 Drive the tractor up to the machine to leave a clearance of approximately 25 cm between tractor and machine.
 - 4.2 Secure the tractor against unintentional starting and unintentional rolling away.
 - 4.3 Check whether the PTO shaft of the tractor is switched off.
 - 4.4 Connect the supply lines to the tractor.
 - 4.5 Align the lower link hooks so that they are flush with the lower attachment points of the machine.

5. Open the tractor lower link securing device, i.e. it must be ready for coupling.
 6. Reverse the tractor further up to the machine so that the lower link hooks of the tractor automatically pick up the ball of the lower attachment points of the machine.
- The lower link hooks lock automatically.
7. From the tractor seat, couple the upper link to the top attachment point using the upper link hooks.
- The upper link hooks lock automatically.



Fig. 99

8. Perform a visual inspection to ensure that the upper and lower link hooks are correctly locked.
9. Raise the machine and drive off.

**WARNING**

Risk of contusions, catching, and knocks when the machine unexpectedly releases from the tractor!

Check the upper and lower link pins for visible defects whenever the machine is coupled. Replace the pins in the event of clearly visible wear.

7.1.1 Connecting the hydraulic connections



Clean the hydraulic couplings before connecting them to the tractor. Minor oil impurities from particles can cause a failure of the hydraulic system.

Tractor control unit		Connection	Marking	Function
1	single action	Delivery/ return flow	1 cable tie, yellow	- Bout marker left - Bout marker right - Control box - Tramline marking

Tractor control unit		Connection	Marking	Function
2	single action	Delivery/ return flow	1 cable tie, blue	- Coulter pressure adjustment - Harroweeder pressure adjustment - Seed rate remote adjustment



During work, the control unit 1 is actuated more frequently than any other control units. Assign the connections of control unit 1 to an easily reachable control unit in the tractor cab.

7.1.2 Make the further connections

Connection/function	Installation information
Plug (7-pin) for the road traffic lighting system	
machine plug • AMACO • AMALOG⁺ • AMATRON⁺	Plug the connectors into the operating terminal in the tractor cab as described in the relevant operating instructions.



Check the function of the lighting system.

Control box only:

Route the cable (Fig. 100/1) for operating the control lever (Fig. 100/2) into the tractor cab.

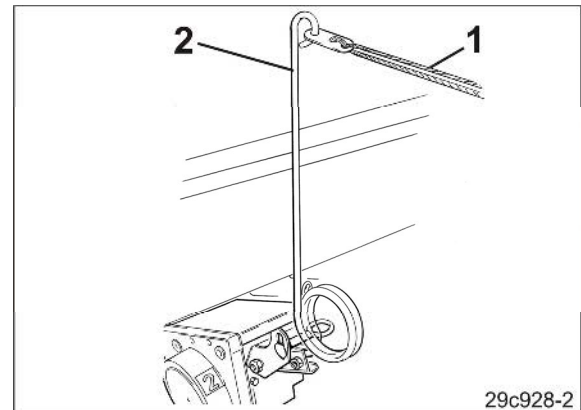


Fig. 100

7.2 Uncoupling the machine



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and possible tilting of the uncoupled machine!

Set the empty machine down on a horizontal parking area with a firm base.



When uncoupling the machine, there must always be enough space in front of the machine, so that you can align the tractor with the machine if necessary.

- 1 Set the empty machine down on a horizontal parking area with a firm base.



Fig. 101

2. Disconnect the machine from the tractor.
 - 2.1 Relieve the load from the upper link.
 - 2.2 Unlock and uncouple the upper link hooks from the tractor seat.
 - 2.3 Relieve the load from the lower link.
 - 2.4 Unlock and uncouple the lower link hooks from the tractor seat.
 - 2.5 Draw the tractor approximately 25 cm forwards.
 - The space created between tractor and machine permits better access for uncoupling the supply lines.
 - 2.6 Secure the tractor and machine against unintentional starting and unintentional rolling away.
 - 2.9 Uncouple the supply lines.
 - 2.10 Close the hydraulic connectors with protective caps.
 - 2.11 Fasten the supply lines in the corresponding parking sockets.

8 Settings



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- Unintentional falling of the machine raised using the tractor's three-point hydraulic system.
- Unintentional falling of raised, unsecured machine parts.
- Unintentional start-up and rolling of the tractor-machine combination.

Secure the tractor with the attached machine against unintentional starting and rolling away before you make any adjustments to the machine. See 6.2, on page 85.

8.1 Setting the normal and fine seed wheel

1. Remove the calibration cups from the rear wall of the seed box (see "8.7", on page 101).
2. Raise the seed drill and tractor until the wheels can turn freely.
3. Apply the handbrake, switch the tractor engine off and remove the ignition key.
4. Fit calibrating crank (Fig. 102/1) in the square tube on the right-hand wheel.
5. Turn the seed drill wheel clockwise until the holes (Fig. 103/1) in the fine seed wheel are visible.
6. Lower the seed drill.
7. Apply the handbrake, switch the tractor engine off and remove the ignition key.
8. Adjust the seed wheels according to the table (see Fig. 48, on page 56).

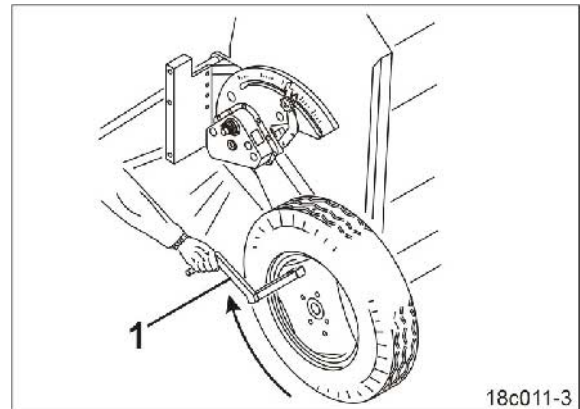


Fig. 102

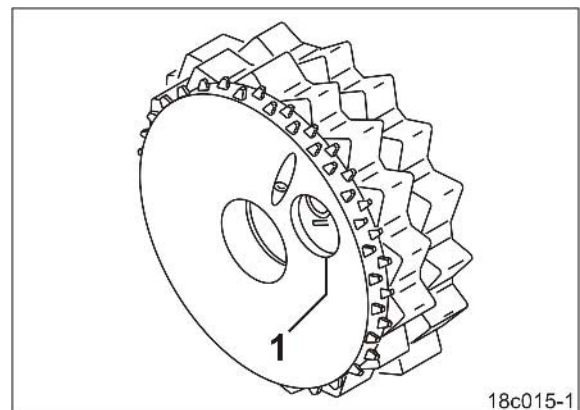


Fig. 103

Sowing with normal seed wheels

1. Turn the normal seed wheel on the seed shaft by hand until the pin (Fig. 104/1) is visible in the hole.

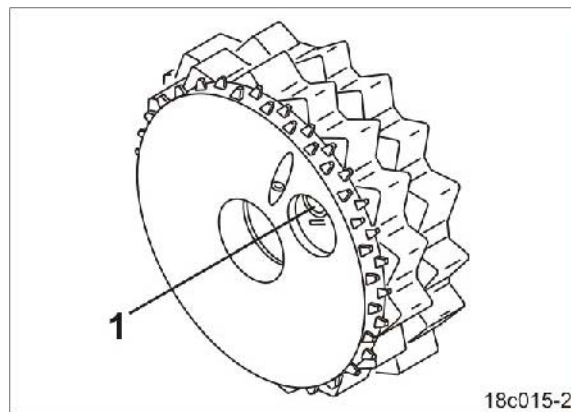


Fig. 104

2. Press the pin against the fine seed wheel with the key (Fig. 105/1) provided.
3. Check the connection.
4. Repeat the operation for all the seed wheels.

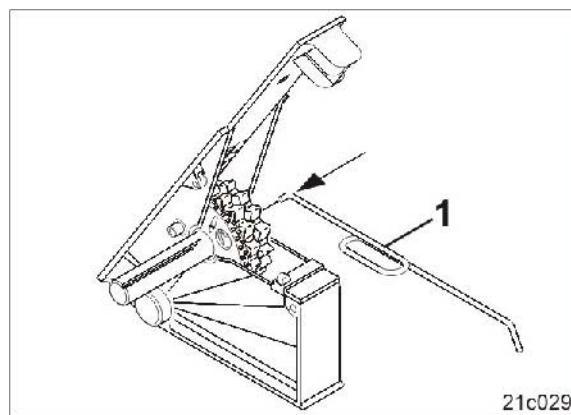


Fig. 105

Sowing with fine seed wheels

1. Using the key (Fig. 106/1) provided, press the pin behind the hole into the normal seed wheel as far as the stop.
2. Check that the normal seed wheel can turn freely on the seed shaft.
3. Repeat the operation for all the seed wheels.

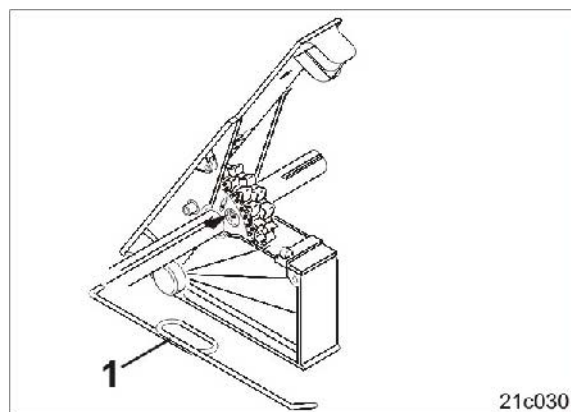


Fig. 106

Sowing with bean seed wheel (option)

The bean seed wheels can be

- swapped with the normal and fine seed wheels after removal of the seed shaft or
- mounted together with a second seed shaft.

The bean seed wheels must always be fitted in a specialist workshop (see "Fitting the bean seed wheels", on page 155).

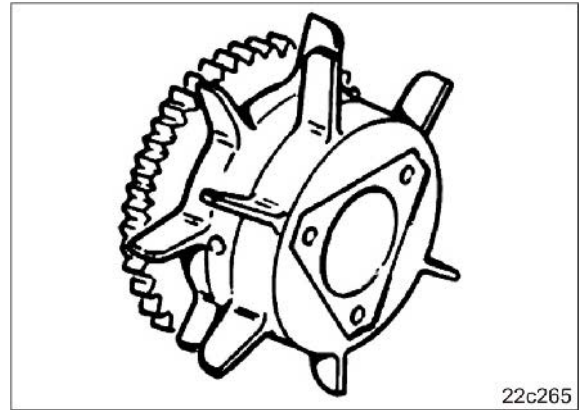


Fig. 107

8.2 Setting the shutoff gates

1. Remove the calibration cups from the rear wall of the seed box.

2. Set the shutoff gates (Fig. 108) to the value in the table (see Fig. 48, on page 56).

The shutoff gates (Fig. 108) latch into one of the three positions:

- | | | |
|----------|----------|-----------------|
| A | = | closed |
| B | = | 3/4 open |
| C | = | open |

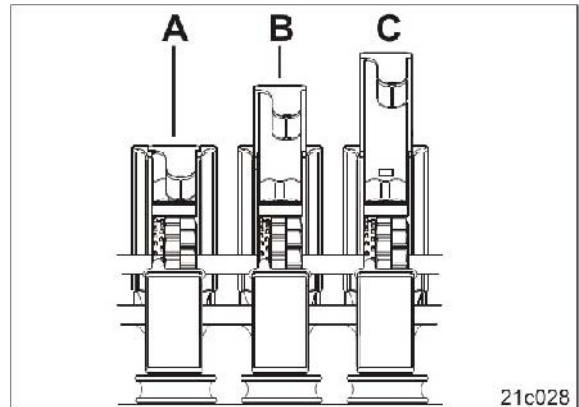


Fig. 108

3. Close the shutoff gates to the seed wheel housings that are not required.



This setting has an effect on the sowing rate.
Check the setting using a calibration test.

8.3 Setting the base flap position

1. Set the base flap lever (Fig. 109/1) to the value in the table (see Fig. 48, on page 56).

The base flap lever can lock into place in one of 8 holes.

Open the base flaps by swinging the base flap setting lever downwards past the group of holes.

2. Secure the base flap adjuster lever with a linch pin (Fig. 109/2).

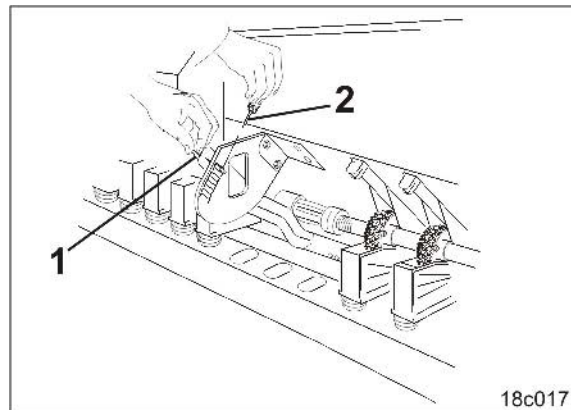


Fig. 109



This setting has an effect on the sowing rate.
Check the setting using a calibration test.



The basic setting for the base flaps is made as described in "Base flap basic setting", on page 145.

8.4 Setting the level sensor

You can only adjust the height of the level sensor when the seed box is empty.

1. Undo the butterfly nut (Fig. 110/1).
2. Adjust the height of the level sensor (Fig. 110/2) to the required seed volume.

AMALOG⁺ and **AMATRON⁺** issue an alarm when the level sensor is no longer covered with seed.

3. Tighten the butterfly nut (Fig. 110/1).

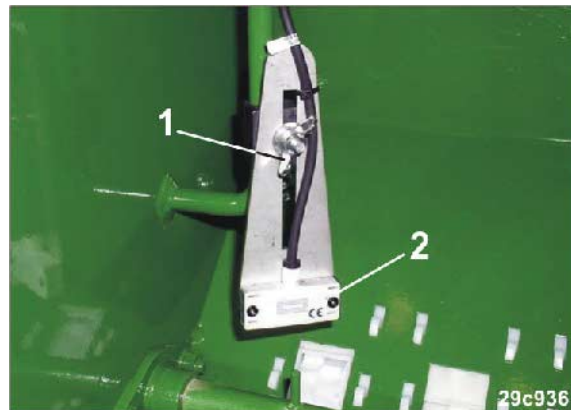


Fig. 110



Increase the residual seed volume which triggers the alarm:

- the coarser the seeds
- the greater the sowing rate.

8.5 Agitator shaft drive

The agitator shaft is driven when the lynch pin (Fig. 111/1) is inserted in the bore in the gearbox hollow shaft.

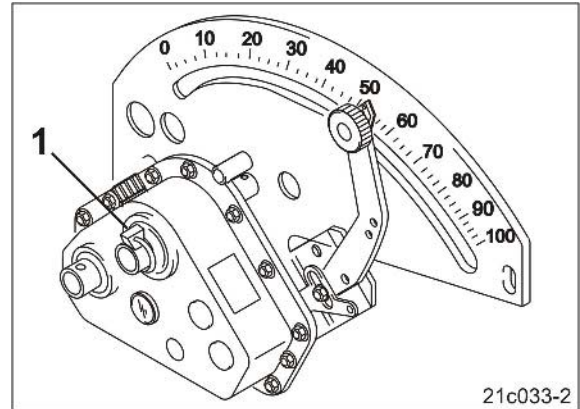


Fig. 111

The agitator shaft is halted when the lynch pin (Fig. 112/1) is inserted in the bore in the takeoff shaft.



This setting has an effect on the sowing rate.

Check the setting using a calibration test.

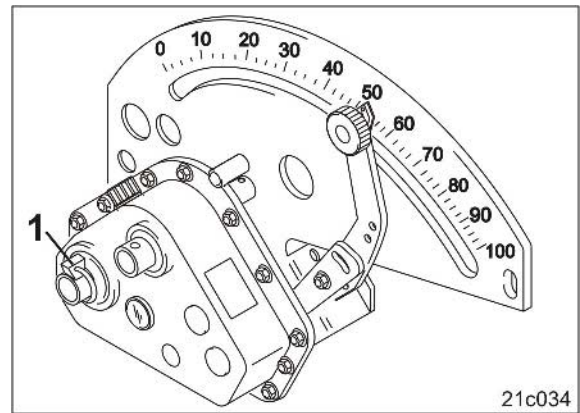


Fig. 112

8.6 Filling the seed box



DANGER

Connect the seed drill to the tractor or to the cultivator before filling the seed box.

Observe the permissible fill levels and total weights.

Empty the seed box before decoupling the seed drill.

1. Open the seed box lid by the handle (Fig. 113/1).
2. Fill the seed box from the rear side of the seed drill.



The seed drill can be filled comfortably from the loading board (Fig. 113/2, option).



Fig. 113



Do not place any heavy objects on the float (Fig. 114) for the fill level indicator when filling the seed box.

Make sure that the float is lying on the seed before closing the seed box lid.



Fig. 114

8.7 Setting the sowing rate with a calibration test

It is tested by means of the calibration test whether the preset and actual sowing rates are equivalent.

Always carry out a calibration test

- when the seed type is changed
- if the seed type is identical, but size grain, grain shape, specific weight and dressing are different
- after changing from the normal seed wheel to the fine seed wheel or bean seed wheel and vice versa
- after any adjustment of the
 - base flaps
 - shutoff gates
- after engaging or disengaging the agitator shaft.



Repeat the calibration test after approximately 2 ha.



CAUTION

Switch off the tractor engine, apply the handbrake and remove the ignition key.

1. Fill the seed box to at least 1/3 of capacity (correspondingly less for fine seeds) (see "Filling the seed box", on page 100).
2. Withdraw the spring-loaded lever (Fig. 115/1) sideways from the latch.

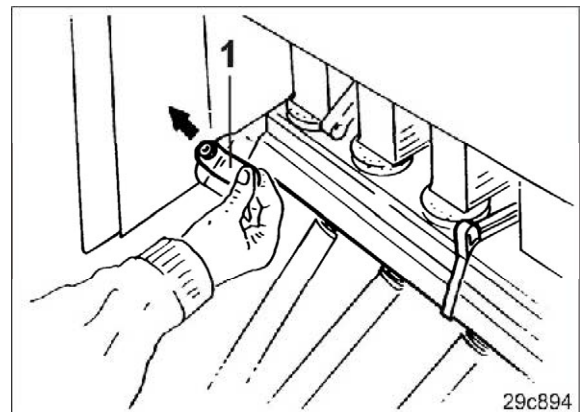


Fig. 115

Settings

3. Lower the hopper bar (Fig. 116/1).

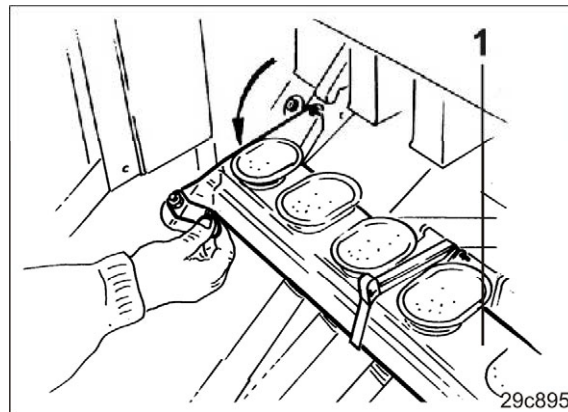


Fig. 116

4. Pull the calibration cups (Fig. 117) upwards out of their holders.



Fig. 117

5. Place the calibration cups (Fig. 118) on the hopper bar.



Fig. 118



The tramline counter may not show the number 0 during the calibration test

- in the **AMALOG⁺** display
- in the **AMATRON⁺** display
- in the control box window.

When 0 is shown, no seed is delivered by the tramline seed wheels.

Only seed drills with the control box:

6. Pull control lever (Fig. 119/1) once if the control box is showing "0" (Fig. 119/2).

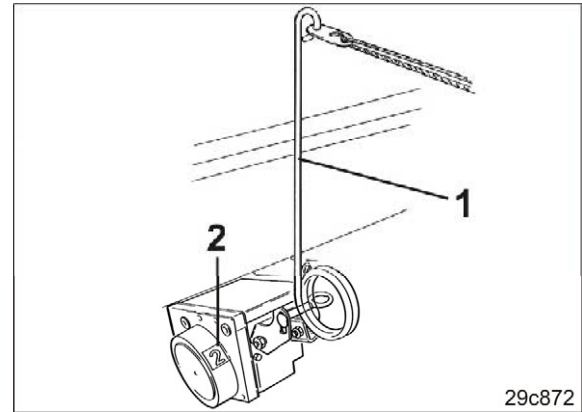


Fig. 119

7. Undo the locking button (Fig. 120/1).
8. Consult the table (Fig. 121, below) for the gearbox setting value for the first calibration test.
9. Set the pointer (Fig. 120/2) of the gearbox lever **from below** to the gearbox setting value.
10. Tighten the locking button.

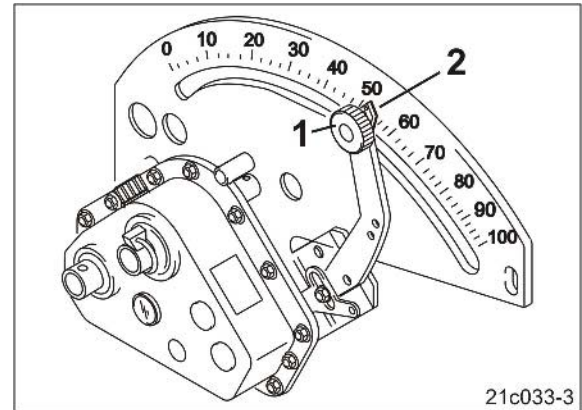


Fig. 120

Gearbox setting values for the first calibration test	
Sowing with normal seed wheels:	gearbox setting "50"
Sowing with fine seed wheels:	gearbox setting "15"
Sowing with bean seed wheels:	gearbox setting "50"

Fig. 121



Setting the gearbox lever

- on seed drills with hydraulic remote sowing rate adjustment (see 8.7.1, on page 107)
- on seed drills with **AMATRON+** and electronic sowing rate adjustment (see **AMATRON+** operating instructions)

11. Take the calibrating crank (Fig. 122/1) from its holder beneath the seed box.



Fig. 122

12. Raise the seed drill and tractor until the wheels can turn freely.
13. Apply the handbrake, switch the tractor engine off and remove the ignition key.
14. Fit calibrating crank (Fig. 123/1) in the square tube on the right-hand wheel.

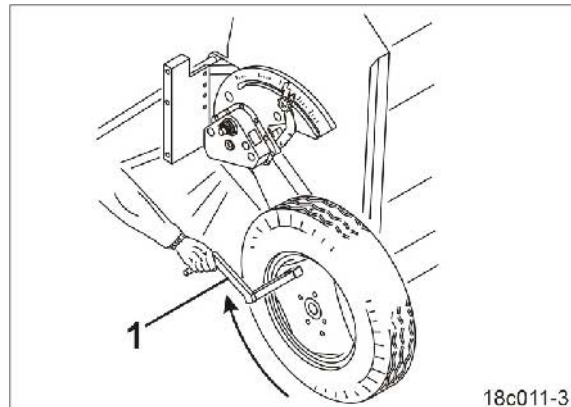


Fig. 123

15. Turn the seed drill wheel until the seed falls from all the seed wheel housings into the calibration cups (Fig. 124/1).
16. Fill the calibration cups twice by turning calibrating crank (about 200 rotations of the crank are sufficient for fine seeds).



The calibration test sets up the same conditions as will be found in the later operations in the field.

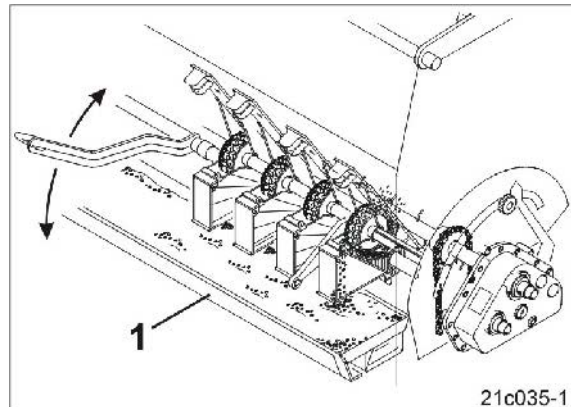


Fig. 124

17. Empty the calibration cups into the seed box and place on the hopper bar again.

18. Turn the right-hand seed drill wheel (Fig. 125) clockwise for the number of crank revolutions given in the table (Fig. 126)¹⁾.

¹⁾ see **AMATRON⁺** operating instructions for seed drills with **AMATRON⁺** and electronic sowing rate setting

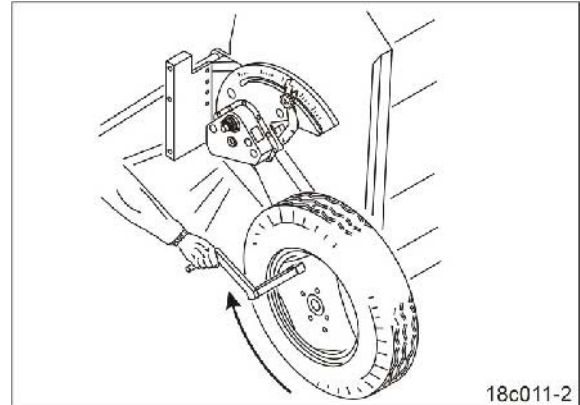


Fig. 125

The number of crank revolutions on the wheel depends on

- the seed drill tyre size (Fig. 126/1)
- the seed drill working width (Fig. 126/2)

The number of wheel revolutions (Fig. 126/3) relates to an area of

- 1/40 ha (250 m²) or
- 1/10 ha (1000 m²).

A calibration test for 1/40 ha is usual. In the case of very small sowing rates, e.g. when sowing rapeseed, it is recommended that the calibration test for 1/10 ha be performed.

ME708			
			
		1/40 ha	1/10 ha
5.00 - 16	2,5 m	49,5	197,0
	3,0 m	41,0	164,0
6.00 - 16	2,5 m	46,0	185,0
	3,0 m	38,5	154,0
180/90 - 16	3,0 m	37,0	149,0
	4,0 m	28,0	112,0
10.0/75-15	6,0 m	18,5	74,5
	3,0 m	37,0	149,0
31x15.50-15 - MITAS -	4,0 m	28,0	112,0
	6,0 m	18,5	74,5

Fig. 126

Settings

19. Weigh the volume of seed caught in the calibration tray (taking the container weight into consideration) and multiply
- o by a factor of 40 (for 1/40 ha) or
 - o by a factor of 10 (for 1/10 ha).



Check the accuracy of the scale display.

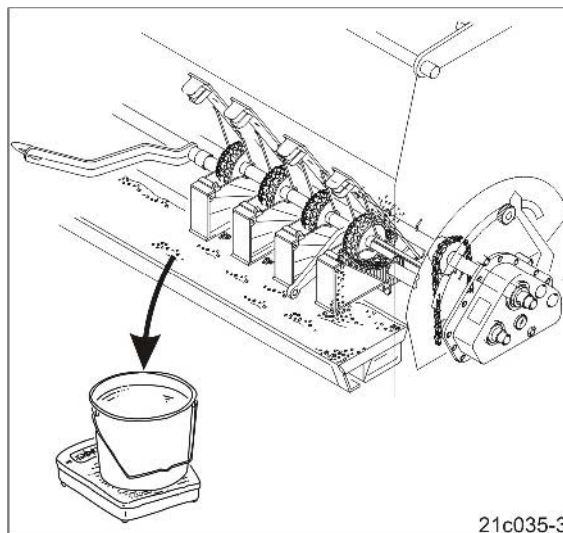


Fig. 127

Calibrating on 1/40 ha:

$$\text{Sowing rate [kg/ha]} = \text{volume of seed in test [kg/ha]} \times 40$$

Calibrating on 1/10 ha:

$$\text{Sowing rate [kg/ha]} = \text{volume of seed in test [kg/ha]} \times 10$$

Example:

Volume of seed in test: 3.2 kg on 1/40 ha

$$\text{Sowing rate [kg/ha]} = 3.2 \text{ [kg/ha]} \times 40 = 128 \text{ [kg/ha]}$$



The desired sowing rate is not generally achieved in the first calibration test. The correct gearbox setting can be determined using the ready reckoner disc with the values from the first calibration test and the sowing rate calculated from that (see "Determining the gearbox setting using the ready reckoner disc", on page 109).

20. Repeat the calibration test until the desired sowing rate is achieved.
21. Fasten the calibration cups to the seed box (see Fig. 128).
22. Push the hopper bar upwards and latch.
23. Clip the calibrating crank into its transport bracket.



Fig. 128

8.7.1 Setting the hydraulic sowing rate adjustment



WARNING

Direct persons away from the area of the stepless gearbox, coulter pressure and harrowweeder pressure adjustment.

Setting the normal sowing rate

1. Shift control valve 2 to the float position.
2. Apply the handbrake, switch the tractor engine off and remove the ignition key.
3. Undo the locking button (Fig. 129/1).
4. Consult the table (Fig. 121, on page 103) for the gearbox setting value.
5. Set the pointer (Fig. 129/2) of the gearbox lever **from below** to the gearbox setting value.
6. Tighten the locking button.
7. Determine the gearbox setting required for the desired sowing rate (see "Setting the sowing rate with a calibration test", on page 101).

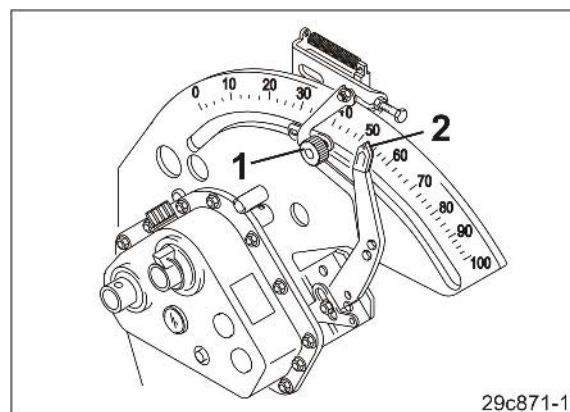


Fig. 129

Settings

Setting the elevated sowing rate

1. Operate control valve 2.
- Apply pressure to the hydraulic cylinder.
2. Apply the handbrake, switch the tractor engine off and remove the ignition key.
3. Use the adjusting screw (Fig. 130/1) to set the pointer (Fig. 130/2) of the gearbox lever to the desired gearbox setting for the elevated sowing rate.

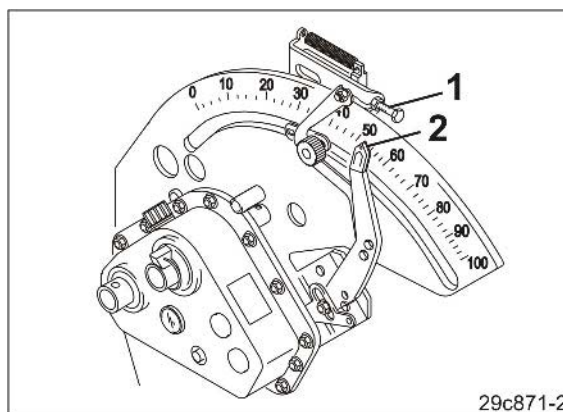


Fig. 130

Unscrew adjusting screw (Fig. 130/1):
increase sowing rate.

Screw in adjusting screw (Fig. 130/1):
reduce sowing rate.

4. Determine the elevated sowing rate with a calibration test (see "Setting the sowing rate with a calibration test", on page 101).
5. Shift control valve 2 to the float position.

Deselecting the elevated sowing rate

Operation of control valve 2 is intended to raise the coulter pressure and the harrowweeder pressure, but not the sowing rate.

To do this, screw the adjusting screw (Fig. 131/1) in completely (see "Setting the hydraulic sowing rate adjustment", above).

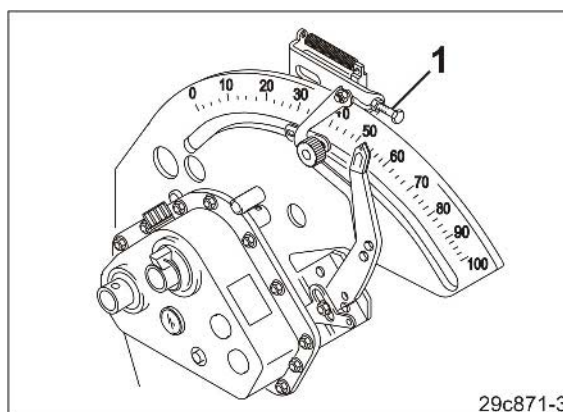


Fig. 131

8.7.2 Determining the gearbox setting using the ready reckoner disc

Example:

Values from the calibration test

computed sowing rate: 175 kg/ha
Gearbox setting: 70

desired sowing rate: 125 kg/ha.

1. Line up the values from the calibration test
 - o computed sowing rate 175 kg/ha (Fig. 132/A)
 - o gearbox setting 70 (Fig. 132/B)
 opposite one another on the ready reckoner disc.
2. Read the gearbox setting for the desired sowing rate of 125 kg/ha (Fig. 132/C) from the ready reckoner disc.

→ Gearbox setting 50 (Fig. 132/D).
3. Set the gearbox lever to the value read from the disc.
4. Check the gearbox setting with a calibration test (see "Setting the sowing rate with a calibration test", on page 101).

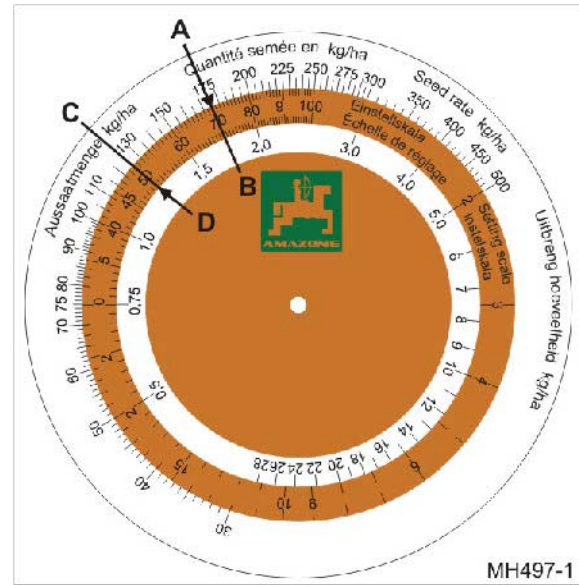


Fig. 132

8.8 Adjusting the marker



DANGER

It is forbidden to stand in the swivelling area of the bout marker!

Only adjust the bout marker settings when the parking brake is applied, the engine switched off and the ignition key removed.

1. Position the machine on the field.
2. Set the bout markers on the D9-40 Super to the vertical (see "Transporting", on page 129).
3. Release both bout markers (see "Securing the bout markers for transport", on page 133).
4. Direct people out of the danger area of the machine.
5. Operate control unit 1.

→ Lower one bout marker.
6. Apply the handbrake, switch the tractor engine off and remove the ignition key.

Settings

7. Loosen both screws (Fig. 133/1).
8. Set the bout marker length to a distance "A" (see table "Fig. 135", on page 111).
9. Turn the bout marker disc to adjust the working intensity of the bout markers so that they run roughly parallel to the direction of travel on light soil and are more attuned to grip on heavier soil.
10. Tighten bolts (Fig. 133/1).
11. Repeat the operation on the second bout marker.

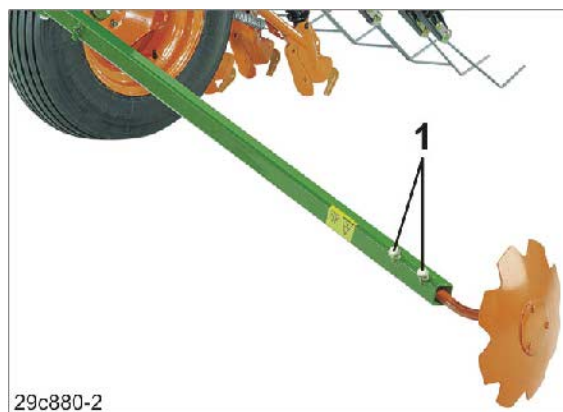


Fig. 133

Only seed drills with the control box:

12. Limit the working depth of the bout marker discs to a depth of approximately 5 cm by swapping around the chain (Fig. 134).
13. Secure the chain with a linch pin (Fig. 134/1).
14. Repeat the operation on the second bout marker.

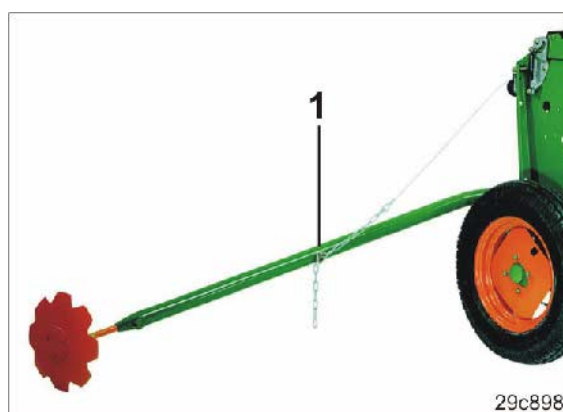


Fig. 134

Working width	Distance A ¹⁾
2.50 m	2.50 m
3.0 m	3.0 m
4.0 m	4.0 m

¹⁾ Distance from the centre of the machine to the contact area of the bout marker disc

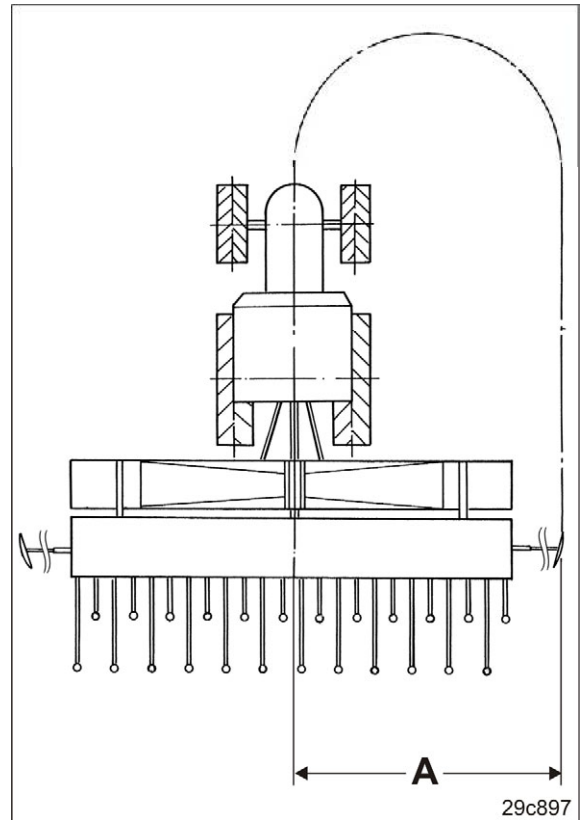


Fig. 135

8.9 Fastening the band sowing shoe to the WS coulter

Fix the band sowing shoe (Fig. 136/1) to the WS coulter with a bolt and secure with a linch pin.

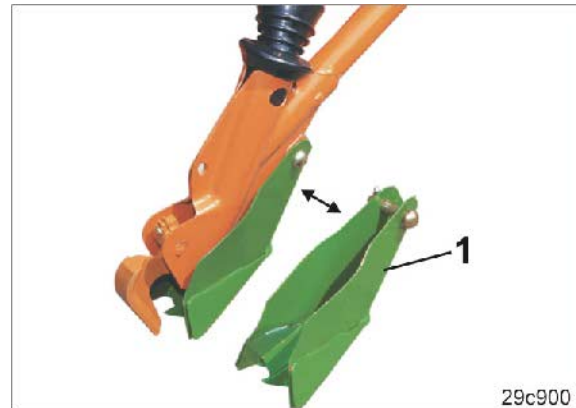


Fig. 136

8.10 Setting the coulter pressure



Check the planting depth of the seed after every adjustment (see "Checking the seed planting depth", on page 115).

8.10.1 Central coulter pressure adjustment

1. Place the calibrating crank (Fig. 137) on the adjusting spindle and set the coulter pressure.

Turning the calibrating crank

- anticlockwise causes shallower seed placement
- clockwise causes deeper seed placement.

2. Clip the calibrating crank into its transport bracket.



Fig. 137

8.10.2 Hydraulic coulter pressure adjustment



WARNING

Direct persons away from the area of the stepless gearbox, coulters and harroweeder.

Setting normal coulter pressure

1. Operate control valve 2.
- Apply pressure to the hydraulic cylinder.
2. Apply the handbrake, switch the tractor engine off and remove the ignition key.
 3. Insert the bolt (Fig. 138/1) beneath the stop (Fig. 138/3) in one hole in the group and secure with a linch pin (Fig. 138/2).

Each of the holes is identified with a number.

The higher the number in which the bolt is inserted, the greater the coulter pressure or the depth at which the seed is planted.

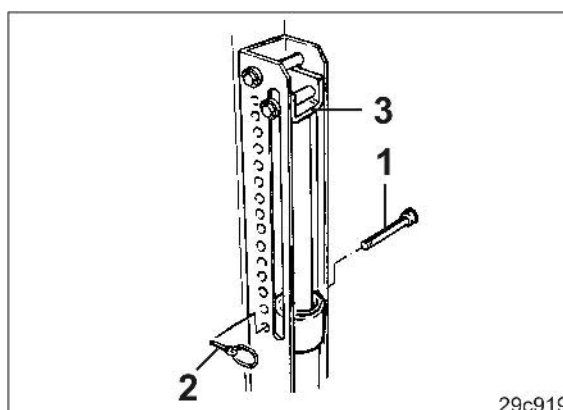


Fig. 138

4. Shift control valve 2 to the float position.

Setting elevated coulters pressure

1. Shift control valve 2 to the float position.
2. Apply the handbrake, switch the tractor engine off and remove the ignition key.
3. Insert the bolt (Fig. 139/1) above the stop (Fig. 139/3) in one hole in the group and secure with a linch pin (Fig. 139/2).

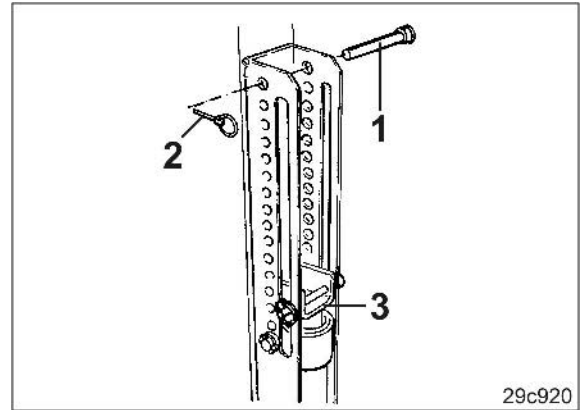


Fig. 139

8.10.3 Setting the outside coulters

1. Shift the seed drill machine to the working position in the field.
2. Undo the nuts (Fig. 140/1).
3. Set the seed planting depth of the outside coulters (Fig. 140/3) by turning the coulters stop (Fig. 140/2).
4. Tighten the nuts.
5. Repeat the operation on the second outer coulter.

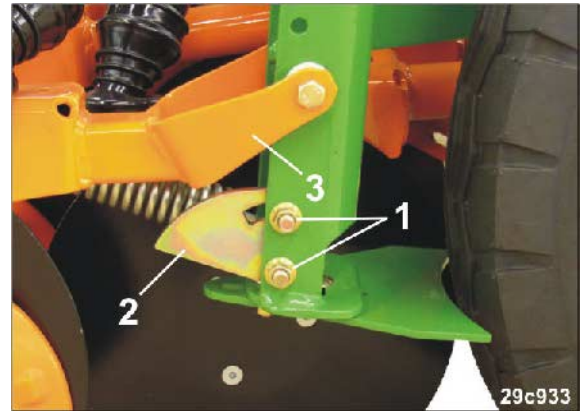


Fig. 140

8.10.4 Setting the RoTeC plastic discs

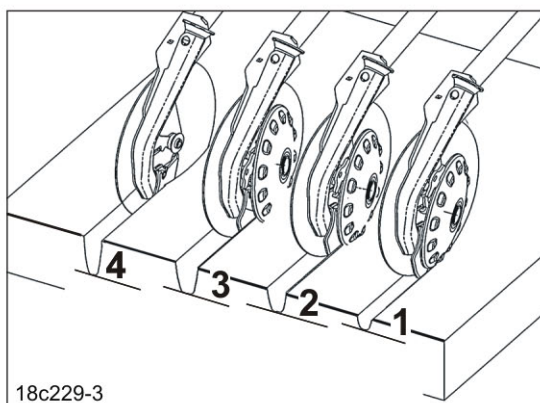
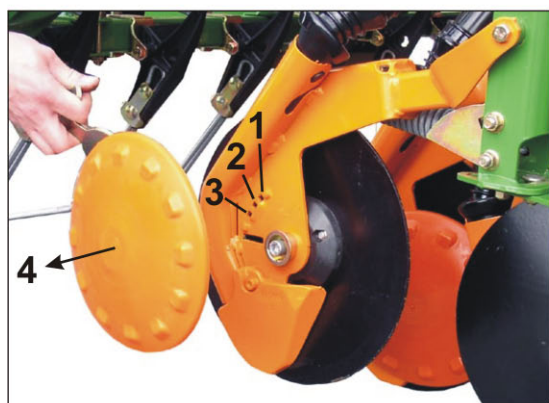
If it is not possible to achieve the desired planting depth as described in Chapter 8.10, on page 112 adjust all RoTeC plastic discs uniformly according to the table (Fig. 141).

Each plastic disc can lock into any of three positions on the RoTeC coulter or be removed from the RoTeC coulter completely.

After making adjustments to the discs, readjust the placement depth as described in Chapter 8.10, on page 112.



This adjustment influences the placement depth of the seed.
Check the placement depth of the seed every time you make new adjustments.



1	Lock position 1	Planting depth	approximately 2 cm
2	Lock position 2	Planting depth	approximately 3 cm
3	Lock position 3	Planting depth	approximately 4 cm
4	Sowing without plastic disc	Planting depth	> 4 cm

Fig. 141

Lock positions 1 to 3

1. Lock the handle (Fig. 142/1) into one of the 3 positions.

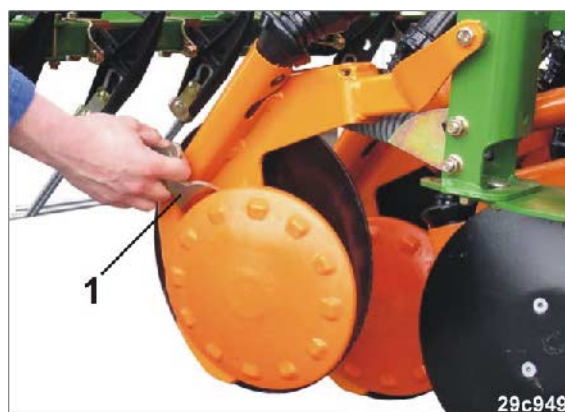


Fig. 142

Sowing without plastic disc

1. Turn the handle beyond the notches (Fig. 143/1) and remove the plastic disc from the RoTeC coulter.



Fig. 143

Installing the RoTeC plastic disc



Fasten the RoTeC plastic discs to the coulter according to their labels:

- "K" to the short coulter.
- "L" to the long coulter.

1. Push the plastic disc from below against the catch on the RoTeC coulter.
The shoulder must grip in the slot.
2. Pull the handle to the rear and upwards beyond the notches.
A light blow on the centre of the disc helps to latch it into position.

8.10.5 Checking the seed planting depth

Check the seed planting depth

- after any adjustment of the outer coulters
- after every coulter pressure adjustment
- after every adjustment of the RoTeC plastic discs
- on a change from light soil to heavy soil and vice versa

Checking the seed planting depth

1. Sow approximately 30 m at working speed.
2. Expose the seed at a number of points, including the area of the outside coulters.
- 3 Check the seed planting depth.

8.11 Setting the seed drill wheel mark eradicators (optional)

1. Release the screw (Fig. 144/1).
2. Set and tighten the seed drill wheel mark eradicator.
3. Secure the screw with the lock nut.



Fig. 144

8.12 Setting the tractor drill wheel mark eradicators (option)



Only bring the tractor wheel mark eradicators into the working position on the field and fix them in their highest position after finishing work.

Otherwise there is the risk of damaging the tractor wheel mark eradicators when shutting down the machine.



DANGER

Before setting the tractor wheel mark eradicator, apply the hand-brake, switch off the tractor's engine and withdraw the ignition key.

Tractor wheel mark eradicators, with swivelling mounting

1. Undo the lock nut and hexagon head bolt (Fig. 145/1).
2. Adjust the tractor wheel mark eradicator horizontally and vertically.
3. Undo two nuts (Fig. 145/2) (necessary to swivel the tractor wheel mark eradicator).
4. Swivel the tractor wheel mark eradicator.
5. Tighten the nuts.
6. Tighten the hexagon head bolt and secure with the lock nut.

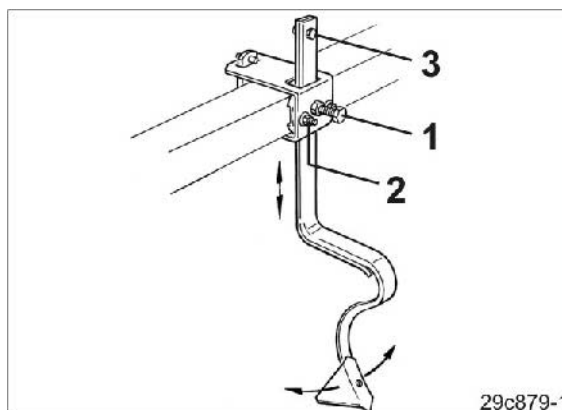


Fig. 145



The safety screw (Fig. 145/3) prevents the wheel mark eradicator being lost if the mounting bolt comes loose.



The best smoothing of the tractor track is achieved when the tractor wheel mark eradicator fills the tractor track with the loose soil lying next to the track.

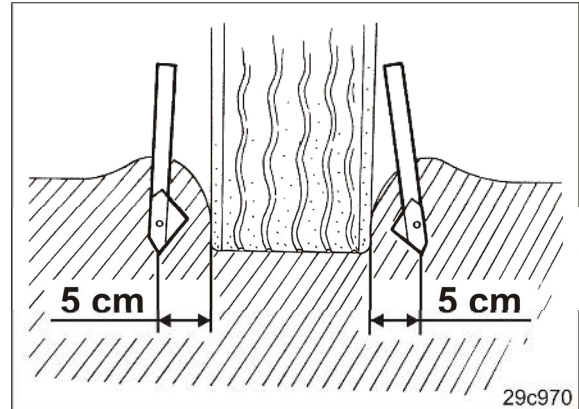


Fig. 146

Tractor wheel mark eradicators, reinforced

Adjusting the tractor drill wheel mark eradicators horizontally

1. Hold the tractor wheel mark eradicator by the handle (Fig. 147/1).
2. Loosen the screws (Fig. 147/2) and adjust the tractor wheel mark eradicator horizontally.
3. Tighten the screws (Fig. 147/2)

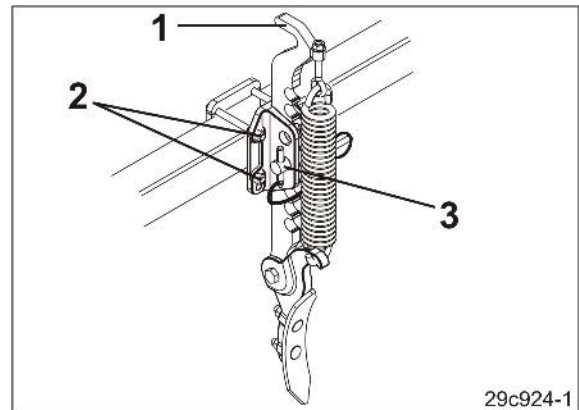


Fig. 147

Adjusting the tractor drill wheel mark eradicators vertically

1. Hold the tractor wheel mark eradicator by the handle (Fig. 147/1).
2. Undo the bolt (Fig. 147/3) and adjust the tractor wheel mark eradicator vertically.
3. Secure the bolt (Fig. 147/3) with a linch pin once the adjustment is complete.

8.13 Adjusting the harrowweeder



Check the results after any adjustment of the harrowweeder.

8.13.1 Adjusting the spring tines

1. Shift the machine to the working position in the field.
2. Apply the handbrake, switch the tractor engine off and remove the ignition key.
3. Loosen the upper link lock nut.
4. Adjust the spring tines by adjusting the upper link (Fig. 148/1) through which the seed drill is fastened to the tractor or cultivator (see Fig. 149).
5. Tighten the lock nut.



Fig. 148



A slight tilt of the seed drill to the front or to the rear has no influence on the sowing rate.

The spring tines on the harrowweeder should

- lie horizontally on the ground and
- have 5 - 8 cm free travel downwards.

The distance between the harrowweeder frame and the ground is between 230 and 280 mm.

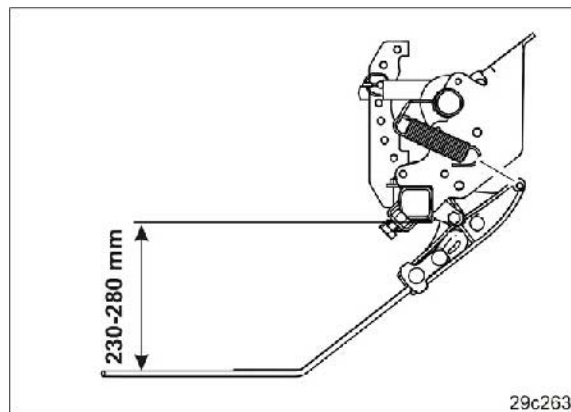


Fig. 149

8.13.2 Adjusting the harrowweeder pressure

1. Apply the handbrake, switch the tractor engine off and remove the ignition key.
2. Tension the lever (Fig. 150/1) with the calibrating handle.
3. Insert the bolt (Fig. 150/2) into a boring under the lever.
4. Relieve the lever.
5. Secure the bolt with a spring pin.
6. Apply the same setting to all adjusting segments.



Fig. 150

8.13.3 Adjusting the harrowweeder pressure hydraulically



WARNING

Direct persons away from the area of the stepless gearbox, coulters and harrowweeder.

Setting normal harrowweeder pressure

1. Operate control valve 2.
- Apply pressure to the hydraulic cylinder.
2. Apply the handbrake, switch the tractor engine off and remove the ignition key.
3. Insert the bolt (Fig. 151/1) in a hole beneath the lever (Fig. 151/2) and secure with a spring pin.
4. Shift control valve 2 to the float position.

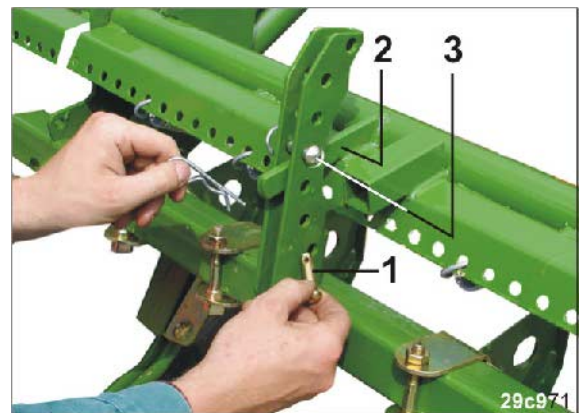


Fig. 151

Setting elevated harrowweeder pressure

1. Shift control valve 2 to the float position.
2. Apply the handbrake, switch the tractor engine off and remove the ignition key.
3. Insert the second bolt (Fig. 151/3) in a hole above the lever (Fig. 151/2) and secure with a spring pin.

8.14 Setting the tramline rhythm

AMALOG⁺ and **AMATRON⁺** only:

Set the tramline rhythm as described in the **AMALOG⁺** or **AMATRON⁺** operating instructions.

Control box only:

To set a different tramline rhythm it is necessary to change over or swap the pitch wheel (Fig. 152/1) and the indicator wheel (Fig. 152/2) in the control box.

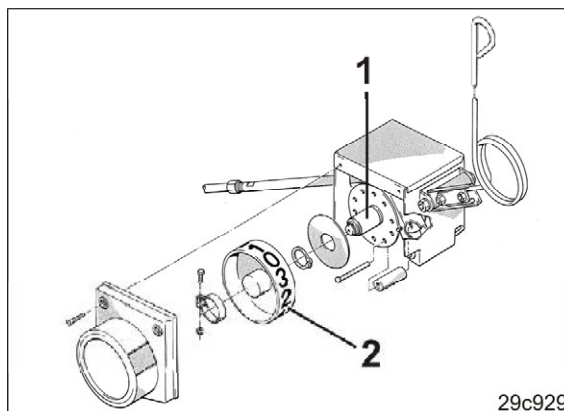


Fig. 152

Switching off seed wheel tramline selection (control box only)

Operation of control valve 1 is intended to execute the functions of the bout markers but not those of the seed wheel tramline selection, nor those of the tramline marker.

1. Shift control valve 1 to the float position.
2. Pull on the control lever (Fig. 153/1) of the control box if the number in the control box window (Fig. 153/2) is "0".
3. Undo clamping screw (Fig. 153/A) and push it down in the slotted hole before tightening it (see Fig. 153/B).

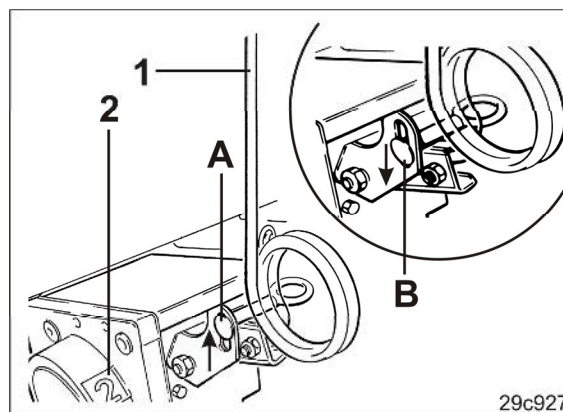


Fig. 153

The control box is locked and should not shift further when the control lever is pulled.



The number in the control box window (Fig. 153/2) must not be "0".
In the "0" position, tramlines are constantly created with seed wheel tramline selection switched off.

8.15 Disengaging the left-hand seed shaft half

1. Push the spring-loaded seed shaft clutch to the left against the spring and turn in the direction of the arrow.

Seed shaft driven	(see Fig. 154)
Left-hand seed shaft half disengaged	(see Fig. 155).

2. Close the shutoff gates in the tramline seed wheels on the left-hand seed shaft half.

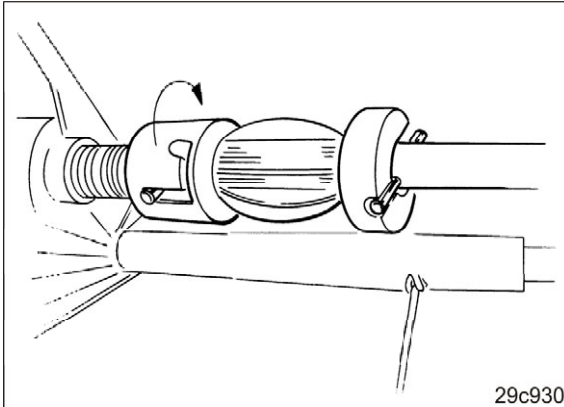


Fig. 154

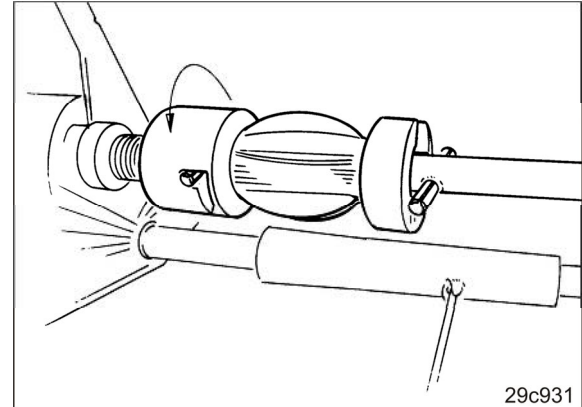


Fig. 155

8.16 Setting the tramline marker

1. Remove the bolt (Fig. 156/1).
The bolt is secured with a spring pin.



Fig. 156

2. Swing both the track disc carriers down.



Fig. 157

3. Direct people out of the danger area.
4. Set the tramline counter to "zero".



DANGER

Direct persons away from the area of the bout markers, control box and tramline marker.

5. Operate control unit 1 and lower the track discs.
6. Apply the handbrake, switch the engine off and remove the ignition key.
7. Undo the bolt (Fig. 158/1).
8. Set the track disc so that it marks the tramline created by the tramline coulters.
9. Adapt the operation to the soil by twisting the discs.
Set the discs roughly parallel with the direction of rotation on light soils and set more grip on heavy soils.
10. Tighten the bolt (Fig. 158/1) securely.
11. Set the second track disc in the same way.
12. Shorten the tubes protruding from the track disc carriers (Fig. 159/1) so that it is safe to stand on the step of the loading board.



Fig. 158

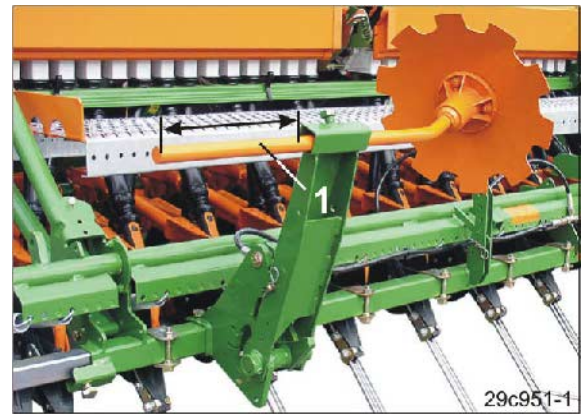


Fig. 159



When working with tramline rhythm 2 and tramline rhythm 6plus (see also section 5.15.3, on page 77) fit only one of the two marker discs.

The track width of the cultivation tractor is then scored on the field on a back and forth run.

9 Transportation

When driving on public roads and ways the tractor and machine must comply with the national road traffic regulations (in Germany the StVZO and the StVO) and the accident prevention regulations (in Germany those of the industrial injury mutual insurance organisation).

The vehicle keeper and driver are responsible for compliance with the statutory stipulations.

Furthermore, the instructions in this section have to be complied with prior to starting and during travel.



- For transport journeys take heed of the section "Safety information for users", on page 27.
- Before moving off, check:
 - The correct connection of the supply lines
 - The lighting system for damage, function and cleanliness



WARNING

Risk of contusions, cuts, dragging, catching or knocks from tipping and insufficient stability.

- Drive in such a way that you always have full control over the tractor with the attached machine.
In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.
- Before transportation, fasten the side locking of the tractor lower link, so that the connected or coupled machine cannot swing back and forth.

**WARNING**

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

These risks pose serious injuries or death.

Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor. If necessary, drive only with a partially-filled hopper.

**WARNING**

Risk of falling from the machine if riding against regulations!

It is forbidden to ride on the machine and/or climb the running machine.

Instruct people to leave the loading site before approaching the machine.

**WARNING**

Risk of stabbing other road users during transportation from uncovered, sharp spring tines of the exact harroweeder on the central part of the machine pointing backwards!

Transportation without a correctly fitted transport guard rail is forbidden.

**WARNING**

Danger of cuts during transport journeys with the outer harroweeder elements extended!

Extended outer harroweeder elements extend laterally into the traffic area during transport journeys and endanger other road users. In addition the permissible transport width of 3 m is exceeded.

Push the outer harroweeder elements into the main tube of the harroweeder before you perform any transport journeys.

9.1 Shifting the seed drill to the road transport position

1. Stop the machine on the field.
2. Operate control valve 1.
- Fold in both bout markers.



DANGER

Apply the handbrake, switch the tractor engine off and remove the ignition key.

3. Secure both track markers.
 - 3.1 Press the track marker against the bracket and secure with the clip pin (Fig. 160/1).



When not in use, insert the linchpin in the hole (Fig. 160/2) (parking position).

- 3.2 Repeat the procedure with the second track marker.

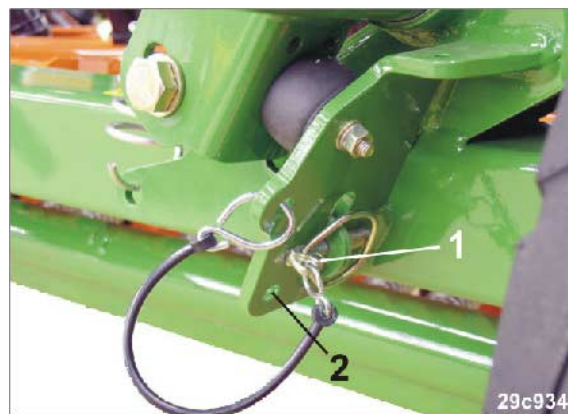


Fig. 160



DANGER

Secure the track markers before leaving the field or when driving on the road.

4. Shift the tramline marker to the transport position.
 - 4.1 Fit both track disc carriers (Fig. 161/1) on the transport brackets (Fig. 161/2).
 - 4.2 Secure the bolt (Fig. 161/3) with spring pins (Fig. 161/4).
 - 4.3 Undo the securing bolts (Fig. 161/6).
 - 4.4 Pull the track discs (Fig. 161/5) out of the track disc carriers (Fig. 161/1) and carry them with you in a suitable stowing space.

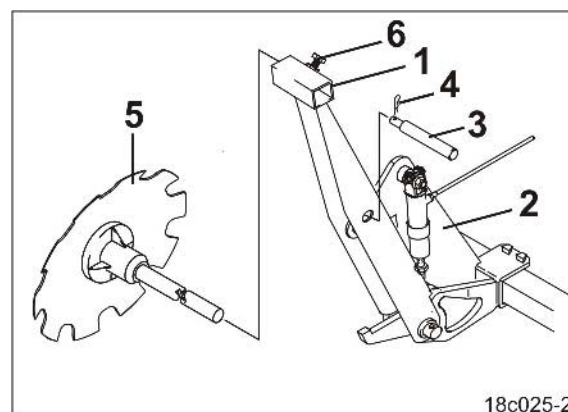


Fig. 161

5. Shift the wheel mark eradicator of the D9-30 to the transport position.

- 5.1 Release two eyelet nuts (Fig. 162/1).
- 5.2 Remove the wheel mark eradicator (Fig. 162/2).

Remove the second wheel mark eradicator as described.

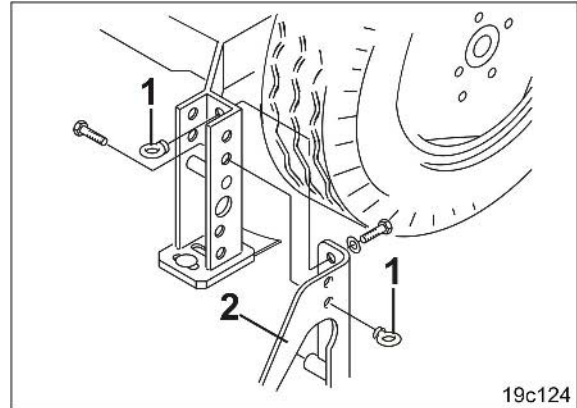


Fig. 162



DANGER

Remove the wheel mark eradicator of the D9-30 before transportation on public roads.
Otherwise the permissible transport width of 3 m is exceeded.

6. Shift the D9-30's harrowweeder to the transport position.
 - 6.1 Undo the fastening bolt and push the outside harrow element (Fig. 163/1) in.
 - 6.2 Tighten the fastening bolt and push the opposite outside harrow element in to transport width (3.0 m).



Fig. 163

7. Push the two-part transport securing bar (Fig. 164/1) over the tine tips of the harrowweeder.
8. Fasten the transport securing bar with spring holders (Fig. 164/2) to the harrowweeder.

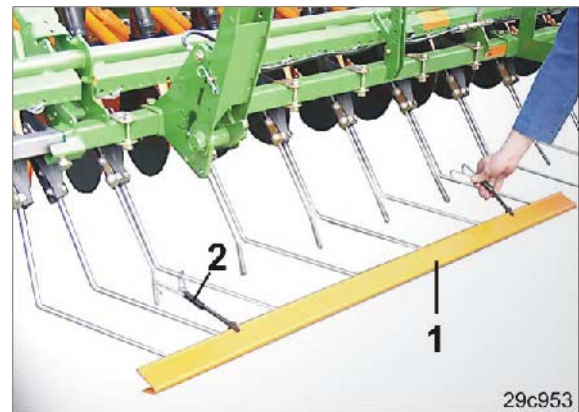


Fig. 164

9. Switch off the **AMALOG⁺** or the **AMATRON⁺** (option).



Fig. 165

10. Close the seed box lid
11. Check the lighting system for operability (see section "Transportation equipment", on page 42).
12. The warning boards must be clean and undamaged.



Lock the tractor's control units during transport!

Switch on the all round lighting (if present), which is subject to authorisation, prior to starting a journey and check for operability.

In bends take into consideration the wide sweep and the centrifugal mass of the machine.

9.2 Transporting the D9-40 Super



DANGER

The D9-40 Super seed drill

- must only be transported on a transportation vehicle
- must only be transported with the bout markers tilted to the side so that the maximum transport height is not exceeded (see below).

To tilt the bout markers on the D9-40 Super to one side:

1. Tilt the bout marker to the side.
2. Pin the bout marker with the bolt (Fig. 166/1) and secure with a linch pin.



In the working position, the bout marker is pinned in the hole (Fig. 166/2) and secured with a linch pin.

3. Swing the second bout marker to the side in the same way.



Fig. 166

10 Use of the machine



- When using the machine, observe the information in the sections
- "Warning pictograms and other signs on the machine", as of on page 17 and
 - "Safety information for users", on page 25.

Observing this information is important for your safety.



WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

Comply with the maximum load of the connected machine and the approved axle and support loads of the tractor. If necessary, drive only with a partially-filled hopper.



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and tipping of the tractor and/or the connected machine.

Drive in such a way that you always have full control over the tractor with the attached machine.

In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the driver and the connected machine.



WARNING

Risk of contusions, drawing in and catching during machine operation without the intended protective equipment!

Only ever start up the machine when the protective equipment is fully installed.

10.1 Preparing the machine for use

Removing the road safety bar

1. Release the spring holders (Fig. 167/2) and remove the road safety bars (Fig. 167/1).

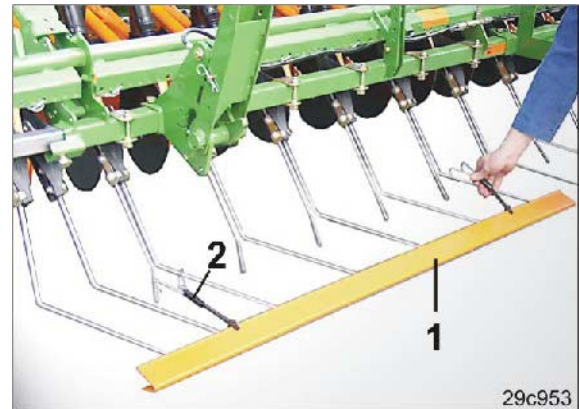


Fig. 167

2. Connect the road safety bars (Fig. 168/1) together and secure to the transport bracket (Fig. 168/2).

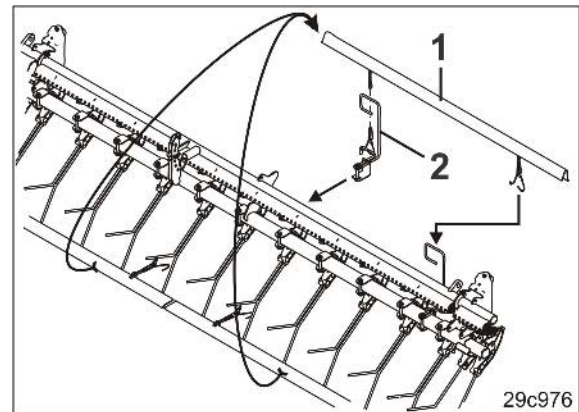


Fig. 168

Use of the machine

3. Secure the wheel mark eradicator (Fig. 169/1) with two eyelet nuts (Fig. 169/2) to the machine.

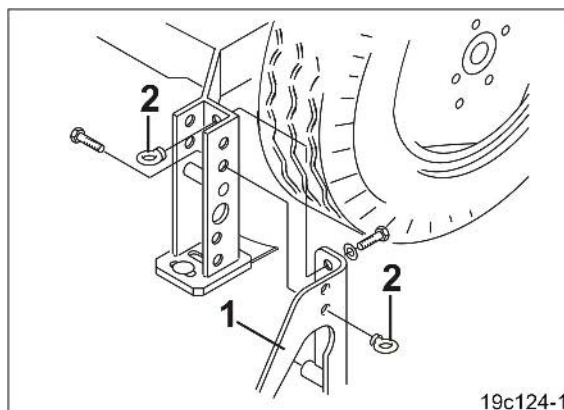


Fig. 169

4. Undo the bolt and push the outside harrow element (Fig. 170/1) outwards.
5. Tighten the bolt.
6. Repeat the operation on the outside harrow element.



Fig. 170



The coulters on the seed drill force the soil outwards to different extents depending on the travel speed and condition of the soil. Push the outside harrow element further outwards at higher travel speeds.

Set the outside harrow elements such that the soil is guided back and a trackless seed bed is created.

Check the settings before starting work.

Securing the bout markers for transport



DANGER

Secure the bout markers before leaving the field or when driving on the road.

Press the bout markers against the bracket and pin with a linch pin (Fig. 171/1).



When not in use, insert the linch pin in the hole (Fig. 171/2) (parking position).

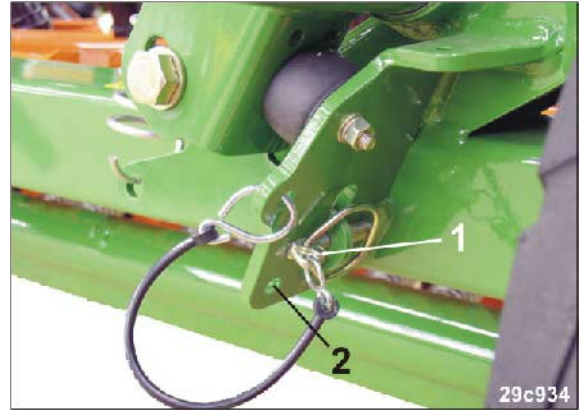


Fig. 171

Setting the tramline counter

1. Refer to the table (Fig. 83, on page 75) for the tramline counter of the first field run.
2. Set the correct tramline counter immediately before the first field run.

AMALOG⁺ and **AMATRON⁺** only:

Set the tramline counter as described in the **AMALOG⁺** or **AMATRON⁺** operating instructions.

Control box only:

3. Pull the cable (Fig. 172/1) repeatedly until the correct number appears in the control box window (Fig. 172/2).



CAUTION

Only operate the control lever by means of the cable in the tractor cab.

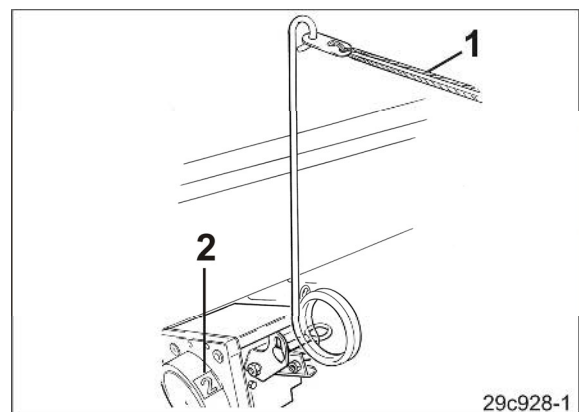


Fig. 172

10.2 Starting work

1. Shift the machine to the working position at the start of the field.
 2. Check the tramline rhythm.
 3. Direct people out of the danger area.
 4. Operate control unit 1.
 - Lower the active bout marker.
 - Advance the seed wheel tramline selection
 - only if tramline display is "0":
 - o creation of tramlines
 - o lower the tramline marker
 5. Check the tramline counter and correct it as necessary.
 6. Start.
7. After 30 m check and correct as necessary the:
- o planting depth of the seed (see "Checking the seed planting depth", on page 115).
 - o the work of the harrowweeder/drag tine harrow.



Fig. 173



WARNING

Only actuate the tractor control units from inside the tractor cab!



Check whether the correct tramline counter is being displayed.

10.3 During the work



Check the tramline counter after every unscheduled folding of the bout markers, e.g. before an obstacle.



Dressed seed is extremely poisonous to birds!

The seed must be worked in fully and covered with earth.
When lifting out the shares, ensure that the seed does not trickle out.

Remove spilt seed immediately.

10.4 Turning at end of the field

1. Operate control unit 1.
 - Raise the active bout marker
 - Advance the tramline counter.
2. Operate the control unit for the tractor lower link.
 - Raise the seed drill.
3. Turn the machine.



Fig. 174



The coulters and harrow must not come into contact with the soil during the turn.

4. Operate the control unit for the tractor lower link.
 - Lower the seed drill.
5. Operate control unit 1 for at least 5 seconds so that all hydraulic functions are fully executed.
 - Lower the active bout marker.
 only in switch position "0":
 - Interruption of the countershaft drive (tramlines)
 - Lower the track discs for the tramline marker.
6. Start the field run.

10.5 Emptying the seed box and seed wheel housing

1. Apply the handbrake, switch the tractor engine off and remove the ignition key.
2. Place calibration cups on the hopper bars (see "Setting the sowing rate with a calibration test", on page 101).



Fig. 175

3. Set the base flap adjuster lever to hole 1 (see "Setting the base flap", on page 98).
 4. Open all shutoff gates (see "Setting the shutoff gates", on page 97).
 5. Open the base flaps.
- The seed flows into the calibration cups.
6. Set the base flap adjuster lever to hole 1 as soon as the calibration cups are full.
 7. Empty the calibration cups.

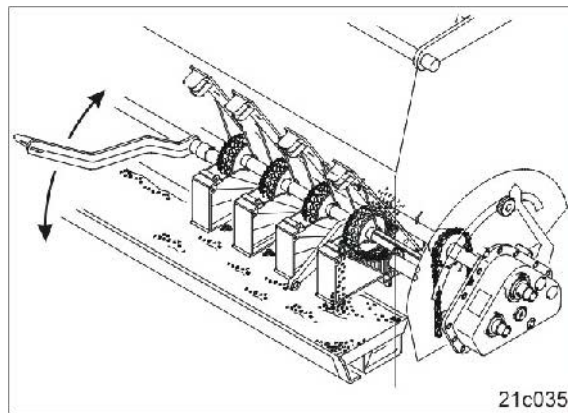


Fig. 176



DANGER

Dressing dust is toxic and must not be inhaled or come into contact with parts of the body.

When emptying seed boxes and seed housings or when removing dressing dust, e.g. with compressed air, wear a protective suit, protective mask, safety glasses and gloves.

8. Repeat the process until the seed box and the seed wheel housing are empty.
9. Turn the seed drill wheel as for the calibration test (see "Setting the sowing rate with a calibration test", on page 101) until the metering wheels have emptied themselves completely.
10. Latch the base flap adjuster lever in hole 8.
11. Fasten the calibration cups to the seed box.
12. Push the hopper bars upwards until you hear them latch.



Open the base flaps if the seed drill is not to be used for a lengthy period.

With the base flaps closed, there is a danger that mice will attempt to get into the seed box as even the empty seed box smells of wheat. If the base flaps are closed the mice may start chewing at the base flaps.

10.6 End of work on the field

Shift the machine to the transport position when the work is completed (see "Transportation", on page 124).

11 Faults



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- Unintentional falling of the machine raised using the tractor's three-point hydraulic system.
- Unintentional falling of raised, unsecured machine parts.
- Unintentional start-up and rolling of the tractor-machine combination.

Secure the tractor and the machine against unintentional start-up and rolling away, before you eliminate any faults on the machine. On this subject see section 6.2 on page 85.

Wait for the machine to stop, before entering the machine danger area.

11.1 Track eradicator boom shearing off

If the bout marker of the D9 Super strikes against a solid obstacle, a bolt (Fig. 177/1) shears and the bout marker folds backwards.

Only use M6 x 90 bolts in property class 8.8 as replacements (see online spare parts list).



Fig. 177

11.2 Deviations between the preset and actual sowing rates

If you determine a discrepancy between the sowing rate set in the calibration test and the sowing rate in the field, note the following points:

- On new machines, the surface of the seed wheel housing, the base flaps and the seed wheel changes as a result of seed dressing deposits. This can influence the flow characteristics of the seed and hence the sowing rate.

After two or three seed box fillings, the seed dressing deposits will have solidified and an equilibrium condition will have been reached. The sowing rate will not then change any more.

- When seeding with moist dressed seeds, differences between the preset and actual sowing rates can come about, if there is a period of less than 1 week (2 weeks recommended) between the dressing and seeding.
- There can be an uncontrolled release of seed (excess volumes) during sowing operations if the base flaps are set incorrectly. The basic setting of the base flaps must therefore be checked every six months or before each sowing season (see "Base flap basic setting", on page 145).
- The slippage of the seed drill wheel can alter during operation, e.g. when changing from light to heavy soils. The number of crank revolutions on the wheel for the determination of the gearbox setting must then be redetermined.

This is done by measuring an area of 250 m² in the field. The correspondence between machine working width and distance is as follows:

2.50 m working width	=	100.0 m distance
3.00 m working width	=	83.3 m distance
4.00 m working width	=	62.5 m distance
4.50 m working width	=	55.5 m distance
6.00 m working width	=	41.7 m distance

Count the number of wheel revolutions when travelling over the measured distance. Carry out a calibration test with the number of wheel revolutions determined (see "Setting the sowing rate with a calibration test", on page 101).

12 Cleaning, maintenance and repairs



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- Unintentional falling of the machine raised using the tractor's three-point hydraulic system.
- Unintentional falling of raised, unsecured machine parts.
- Unintentional start-up and rolling of the tractor-machine combination.

Secure the tractor and machine against unintentional starting and unintentional rolling away before you perform any cleaning, servicing or maintenance work on the machine. On this subject see on page 85.



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through unprotected danger points!

- Mount protective equipment, which you removed when cleaning, maintaining and repairing the machine.
- Replace defective protective equipment with new equipment.
- Never crawl under a raised, unsecured machine.

12.1 Cleaning



- Inspect the hydraulic hose lines with particular care.
- Never treat hydraulic hose lines with petrol, benzole, kerosene or mineral oils.
- After cleaning, grease the machine, in particular after cleaning with a high pressure cleaner / steam jet or liposoluble agents.
- Observe the statutory requirement for the handling and removal of cleaning agents.



DANGER

Dressing dust is toxic and must not be inhaled or come into contact with parts of the body.

When emptying seed boxes and seed housings or when removing dressing dust, e.g. with compressed air, wear a protective suit, protective mask, safety glasses and gloves.

Clean with a pressure cleaner / steam cleaner



Always observe the following points when using a high pressure cleaner / steam jet for cleaning:

- Do not clean any electrical components.
- Do not clean any chromed components.
- Never aim the cleaning jet from the nozzle of the high pressure cleaner / steam jet directly on lubrication and bearing points.
- Always maintain a minimum jet distance of 300 mm between the high pressure cleaning or steam jet cleaning nozzle and the machine.
- Comply with safety regulations when working with high pressure cleaners.

12.1.1 Cleaning the machine

1. Empty the seed box and seed wheel housing (see 10.5, on page 136).
2. Clean the machine with water or with a high pressure cleaner.

12.1.2 Shutdown of the machine over a long period of time

1. Thoroughly clean and dry the RoTeC coulters.
2. To prevent rust conserve the coulters (Fig. 178) with an environmentally friendly anti-corrosion agent.



Fig. 178

12.2 Service plan – overview



- Carry out maintenance work when the first interval is reached.
- The times, continuous services or maintenance intervals of any third party documentation shall have priority.

Before initial operation	Specialist workshop	Check and service the hydraulic hose lines. Recording of the inspection by the operator.	Section 12.8
		Check the tyre pressures	Section 12.3
		Check the oil level in the stepless gearbox	Section 12.4
After the first 10 operating hours	Specialist workshop	Check wheel nut tightening torque	Section 12.4
	Specialist workshop	Check and service the hydraulic hose lines. Recording of the inspection by the operator.	Section 12.8
	Specialist workshop	Roller chain maintenance	Section 12.6
Daily at the end of work		Clean the machine (as required)	Section 12.1
Every week, at the latest every 50 operating hours	Specialist workshop	Check and service the hydraulic hose lines. This inspection has to be re-recorded by the operator.	Section 12.8
Every 2 weeks, at the latest every 100 operating hours		Check the tyre pressures	Section 12.3
		Check the oil level in the stepless gearbox	Section 12.4
Every 6 months before the season	Specialist workshop	Check and service the hydraulic hose lines. This inspection has to be re-recorded by the operator.	Section 12.8
	Specialist workshop	Base flap basic setting	Section 12.7
Every 6 months after the season	Specialist workshop	Roller chain maintenance	Section 12.6

12.3 Tyre pressure

Tyres	Tyre pressure
180/90 - 16 (6.00 - 16)	1.2 bar
10.0/75 - 15	0.8 bar
31x15.50 - 15 - MITAS -	0.8 bar

12.4 Repair work on wheels and tyres (specialist workshop)



WARNING

- Repair work on tyres and wheels may only be carried out by specialists with suitable tools.
- Check the air pressure on a regular basis.
- Observe the specified air pressure. There is a risk of explosion if the air pressure in the tyres is too high.
- Shut down the machine safely and secure the tractor and the machine against unintentional lowering and rolling away before you carry out any work on the tyres.
- Tighten or retighten all fastening bolts and nuts in accordance with the AMAZONEN-WERKE specifications.

Wheel nuts	Tightening torque
M12 x 1.5	90 Nm



Use new lock nuts after every tyre change.

12.5 Checking the oil level in the stepless gearbox

1. Position the machine on a horizontal surface.
2. Check the oil level.

The oil level must be visible in the oil sight glass (Fig. 179/1).

There is no need to change the oil.

The oil filler neck (Fig. 179/2) is used to top up the stepless gearbox.

Refer to the table (Fig. 180) for the grade of transmission oil required.

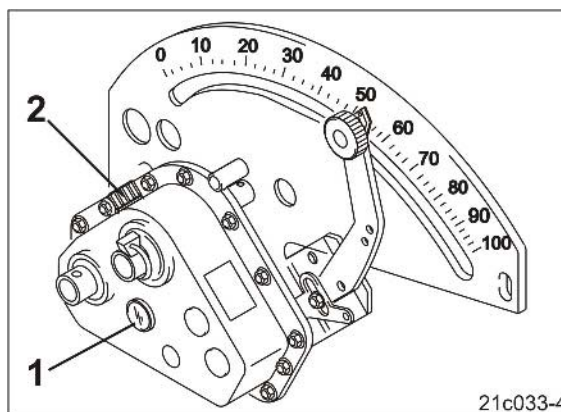


Fig. 179

Hydraulic fluid grades and fill level of the stepless gearbox	
Total filling level	0.9 litres
Transmission fluid (alternatives)	Wintershall Wintal UG22 WTL-HM (ex-works)
	Fuchs Renolin MR5 VG22

Fig. 180

12.6 Roller chains and chain wheels

After the season make sure all roller chains are:

- cleaned (including the chain wheels and chain tensioner)
- checked
- lubricated with low-viscosity mineral oil (SAE30 or SAE40).

12.7 Base flap basic setting

1. Empty the seed box and seed wheel housing (see "Emptying the seed box and seed wheel housing", on page 136).
2. Check the base flaps (Fig. 181/1) for ease of movement.
3. Set the base flap adjuster lever to hole 1 and secure it there (see "Setting the base flap", on page 98).
4. Check that the specified distance "A" is observed in every seed wheel housing. Turn the seed wheel to be checked by hand on the seed shaft as you do this.

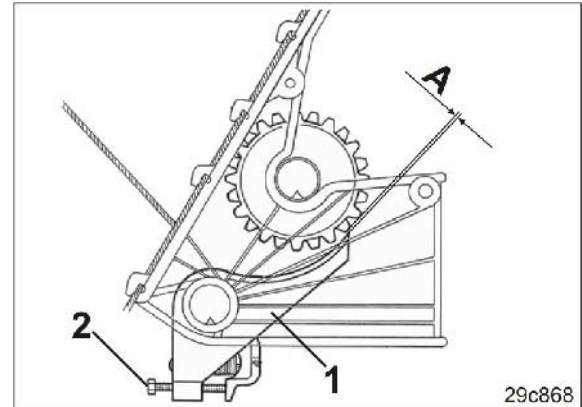


Fig. 181

The distance "A" (Fig. 181) between the base flap and the seed wheel is 0.1 mm to 0.5 mm.

5. Set the specified distance using the setting screw (Fig. 181/2).

12.8 Hydraulic system



WARNING

Risk of infection through the high pressure hydraulic fluid of the hydraulic system entering the body!

- Only a specialist workshop may carry out work on the hydraulic system.
- Depressurize the hydraulic system before carrying out work on the hydraulic system.
- When searching for leak points, always use suitable aids.
- Never try to bung untight hydraulic lines with your hand or with your fingers.

Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!

If you are injured by hydraulic fluid, contact a doctor immediately. Risk of infection!



- When connecting the hydraulic hose lines to the hydraulic system of connected machines, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose line checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose line if it is damaged or worn. Only use original **AMAZONE** hydraulic hose lines.
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural ageing, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose connections made from thermoplastics, other guide values may be decisive.
- Dispose of old oil in the correct way. If you have problems with disposal, contact your oil supplier.
- Keep hydraulic fluid out of the reach of children!
- Ensure that no hydraulic fluid enters the soil or waterways.

12.8.1.1 Labelling hydraulic hose lines

The assembly labelling provides the following information:

Fig. 182/...

- (1) Manufacturer's marking on the hydraulic hose line (A1HF)
- (2) Date of manufacture of the hydraulic hose line (04/02 = Year / Month = February 2004)
- (3) Maximum approved operating pressure (210 BAR).

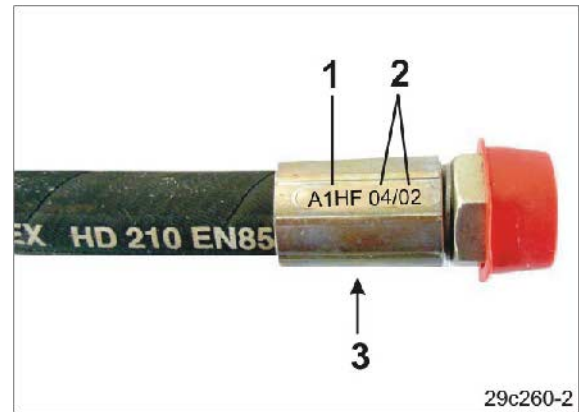


Fig. 182

12.8.1.2 Maintenance intervals

After the first 10 operating hours, and then every 50 operating hours

1. Check all the components of the hydraulic system for tightness.
2. If necessary, tighten screw unions.

Before each start-up

1. Check hydraulic hose lines for visible damage.
2. Eliminate any scouring points on hydraulic hose lines and pipes.
3. Replace any worn or damaged hydraulic hose lines immediately.

12.8.1.3 Inspection criteria for hydraulic hose lines



For your own safety, comply with the following inspection criteria!

Replace hydraulic hose lines, on determining any of the following during the inspection:

- Damage to the outer layer up to the ply (e.g. scouring points, cuts, cracks).
- Brittleness of the outer layer (crack formation of the hose material).
- Deformations which do not match the natural shape of the hose or the hose line. Both in a depressurised and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
- Untight points.
- Damage or deformation of the hose assembly (sealing function restricted); minor surface damage is not a reason for replacement.
- Movement of the hose out of the assembly.

- Corrosion of assembly, reducing the function and tightness.
- Installation requirements not complied with.
- Life span of 6 years has been exceeded.

The date of manufacture of the hydraulic hose line on the assembly is decisive for determining these six years. If the date of manufacture on the assembly is "2004", then the hose should not be used beyond February 2010. See also "Labelling of hydraulic hose lines".

12.8.1.4 Installation and removal of hydraulic hose lines



When installing and removing hydraulic hose lines, always observe the following information:

- Only use original **AMAZONE** hydraulic hose lines.
 - Ensure cleanliness.
 - You must always install the hydraulic lines so that, in all states of operation:
 - There is no tension, apart from the hose's own weight.
 - There is no possibility of jolting on short lengths.
 - Outer mechanical influences on the hydraulic hose lines are avoided.
- Use appropriate arrangements and fixing to prevent any scouring of the hoses on components or on each other. If necessary, secure hydraulic hose lines using protective covers. Cover sharp-edged components.
- The approved bending radii may not be exceeded.
 - When connecting a hydraulic hose line to moving parts, the hose length must be appropriate so that the smallest approved bending radius is not undershot over the whole area of movement and/or the hydraulic hose line is not overtensioned.
 - Fix the hydraulic hose lines to the intended fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
 - It is forbidden to paint over hydraulic hose lines!

12.9 Setting the wheel scrapers

1. Slacken the screws (Fig. 183/2).
2. Adjust the wheel scraper (Fig. 183/1).

Distance between scraper and wheel

- approximately 1 cm in the inner section
- approximately 2 cm in the outer section

3. Tighten the bolts.

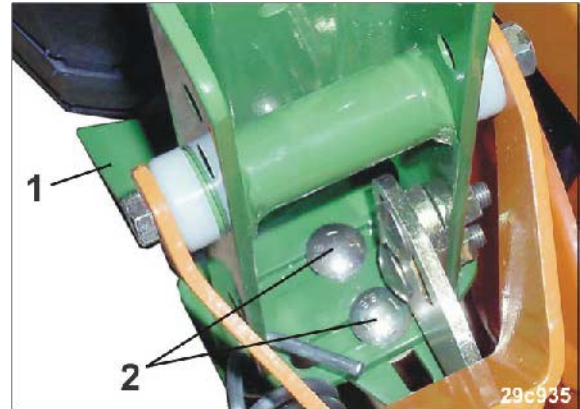


Fig. 183

12.10 Setting the control mechanism (specialist workshop)

1. Operate control valve 1.
- Apply pressure to the hydraulic cylinder in the control mechanism.
2. Undo the lock nut on the bracket bolt.
3. Turn the piston (Fig. 184/1) of the hydraulic cylinder with an open-jawed spanner until the leaf springs (Fig. 184/2) in the control mechanism are heard to engage and a clearance of 1 to 2 mm is set between the leaf spring and the tooth.
4. Tighten the lock nut.
5. Check the operation of the control mechanism.

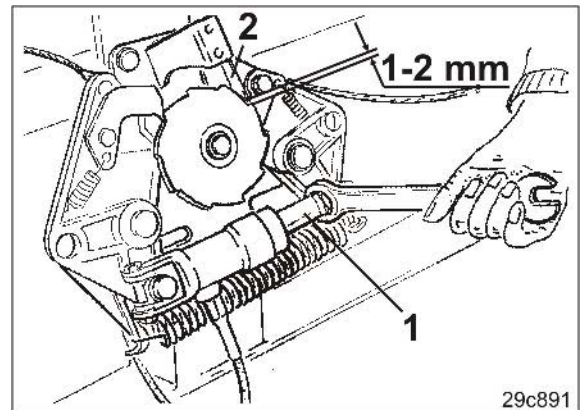


Fig. 184

12.11 Adjusting the tramline marker at the control box (specialist workshop)

1. Operate the control lever repeatedly until the number 1 appears in the control box window.
2. Undo the adjustment ring (Fig. 185/1).
3. Press the control valve lever (Fig. 185/1) backwards.
4. Fasten the adjustment ring.
5. Check the operation of the tramline marker.

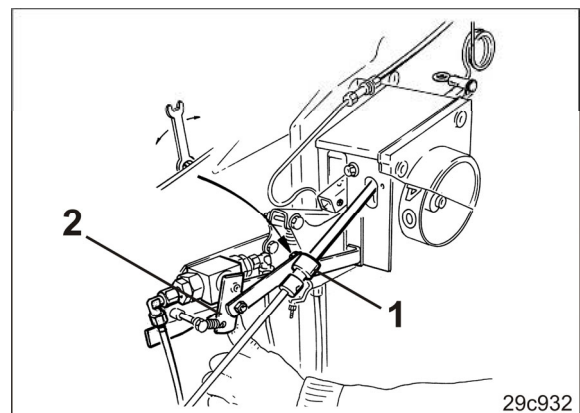


Fig. 185

12.12 Fitting the rapeseed insert



Switch off the agitator shaft before installing the rapeseed insert in the seed box.

1. Disengage the drive for the agitator shaft (see "Agitator shaft drive", on page 99).
2. Set the agitator pins (Fig. 186/2) of the agitator shaft vertically.
3. Fasten the rapeseed insert profiles (Fig. 186/1) in the seed box with clamps (Fig. 186/3) [see assembly drawing (Fig. 187)].

The rapeseed insert profiles are supported on the agitator shaft.

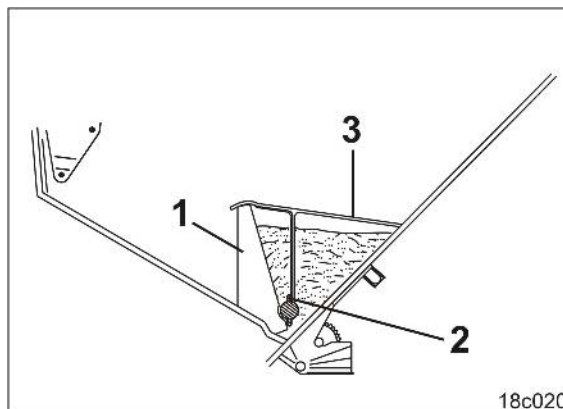
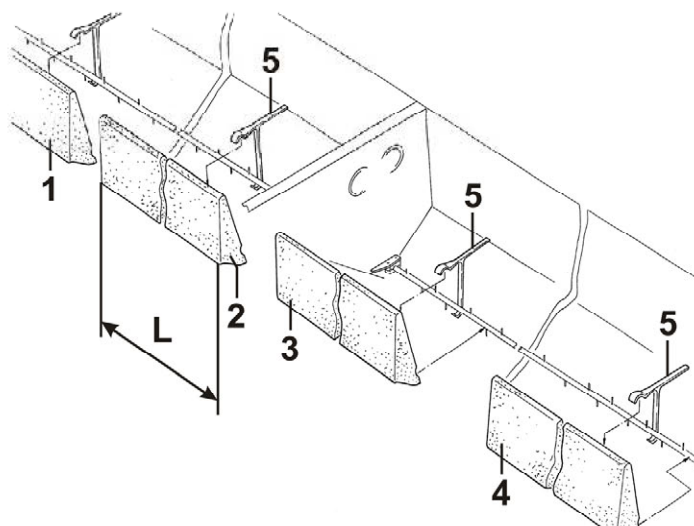


Fig. 186



29c937

			D9-25	D9-30	D9-40
1	Profile length L	[mm]	1025	1025	1025
2		[mm]	—	255	755
3		[mm]	1025	1025	1025
4		[mm]	—	255	755
5	Clamps	[number]	6	8	10

Fig. 187

12.13 Replacing the WS coulter tip

1. Push the naps (Fig. 188/1) on the hopper into the body of the coulter.
2. Pull the hopper out of the body of the coulter.
3. Remove the screw (Fig. 188/2) (screw tightening torque 45 Nm).
4. Lever the coulter tip (Fig. 188/3) out of the anchorage.
5. Fasten the new shear tip in the reverse sequence

During installation, make sure that the naps of the hopper engage in the recesses.

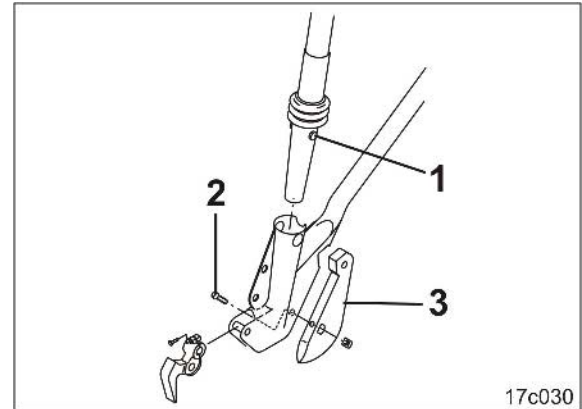


Fig. 188

12.14 Replacing the RoTeC coulter wear tip

1. Remove the plastic disc (Fig. 189/1) (see "Setting the RoTeC plastic discs", on page 114).
2. Unscrew the cylinder screw (Fig. 189/2) (screw tightening torque 30-35 Nm).
3. Replace the wear tip (Fig. 189/3) and install it in the reverse sequence.



The wear tip (Fig. 189/3) may not protrude over the edge of the sowing disc (Fig. 189/4). Replace the sowing disc if necessary.

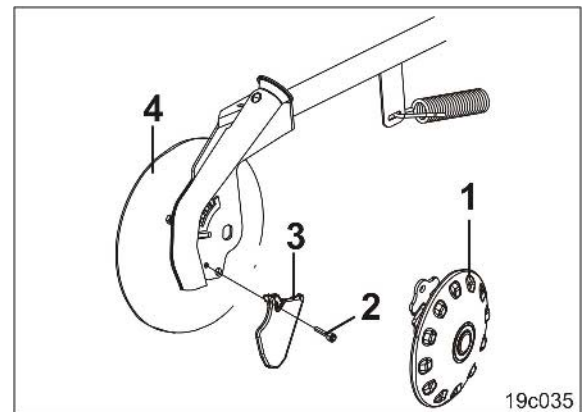


Fig. 189

12.15 Setting the tramline spacing and track/track width (specialist workshop)



WARNING

Apply the handbrake, switch the tractor engine off and remove the ignition key.

1. Pull the calibration cups (Fig. 190) upwards out of their holders.



Fig. 190

2. Remove the tensioning springs (Fig. 191/1) from the countershaft bearings (Fig. 191/2).

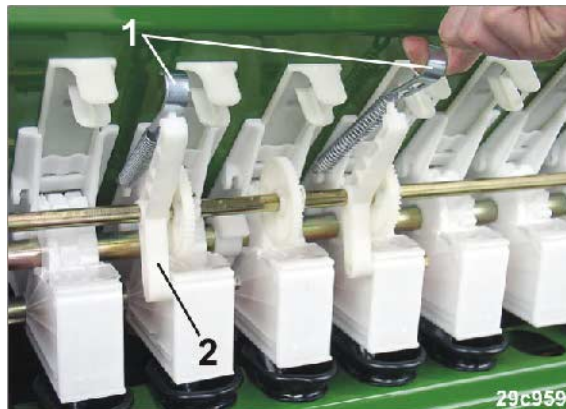


Fig. 191

3. Fold down the countershaft (Fig. 192/1).



Fig. 192

- This pulls a bracket (Fig. 193/1), that secures the countershaft axially, out of the recess in a seed wheel housing.



Fig. 193

The solenoid switch (where fitted) is folded down together with the countershaft.



Fig. 194

4. Mark new tramline seed wheels by fitting the fine seed wheel brushes (Fig. 195/1) on the new tramline seed housing.

Setting the track width

Disengage up to three, in exceptional cases 4 or 5, seed wheels to create a track.

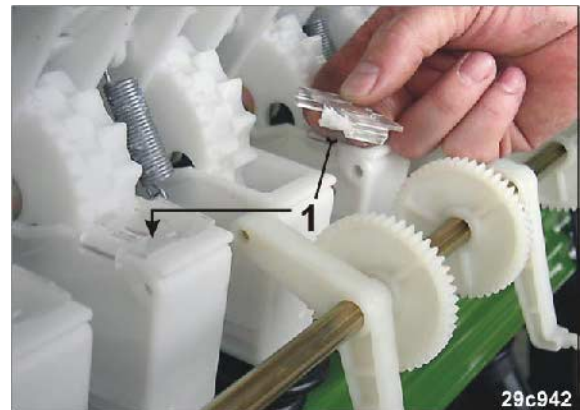


Fig. 195



Only fit seed drills with mechanism 2 with tramline seed wheels on the right-hand side of the seed drill.

The distance to the tramline seed wheels, measured from the extreme right-hand side of the seed drill makes half a cultivating tractor's track.

Only fit seed drills with mechanism 6-plus with tramline seed wheels on the left-hand side of the seed drill.

The distance to the tramline seed wheels, measured from the extreme left-hand side of the seed drill makes half a cultivating tractor's track.

Cleaning, maintenance and repairs

5. Unscrew the setscrews (Fig. 196/1) for the new tramline seed wheels until the new tramline seed wheels can be freely rotated on the seed shaft.

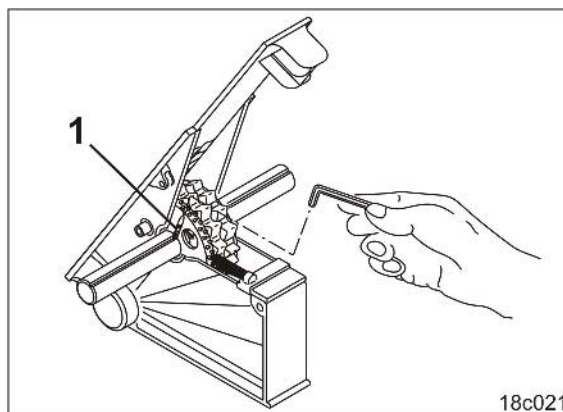


Fig. 196

6. Remove screws (Fig. 197/1).
7. Undo screws (Fig. 197/2).
8. Move the swivel bearing and drive pinion on the countershaft.
9. Screw the swivel bearings to the new tramline seed housings.

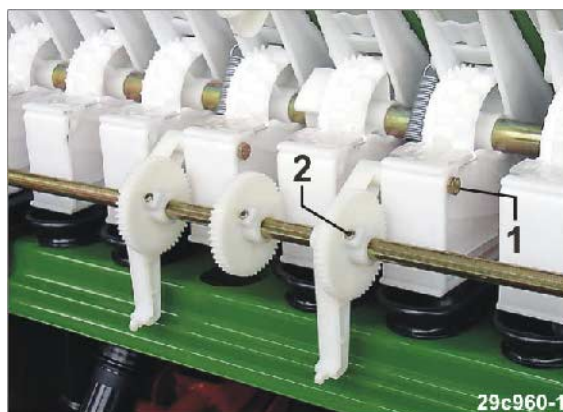


Fig. 197

10. Secure the old tramline seed wheels to the seed shaft.

Screw setscrew (Fig. 198/1) into the fine seed wheel until the seed wheel is driven by the seed shaft with a slight circumferential backlash. Setscrews that have been overtightened distort the seed wheels.

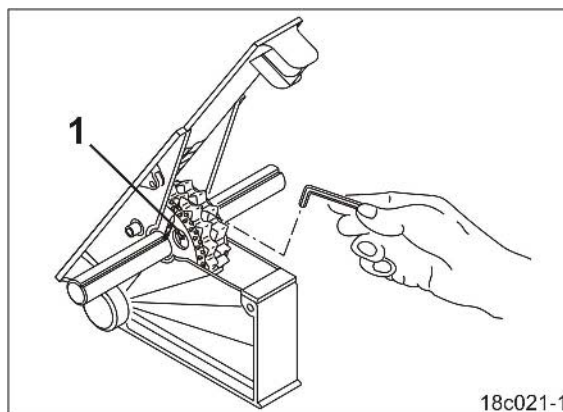


Fig. 198

11. Fold up the countershaft.
 - As you do this, insert the bracket (Fig. 199/1) that secures the countershaft axially into the recess in a seed wheel housing.
12. Secure the bracket axially with two adjustment rings (Fig. 199/2).

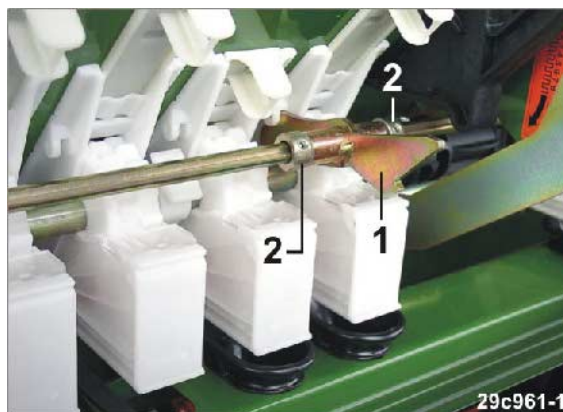


Fig. 199

13. Mesh the teeth (Fig. 200/1) of the drive pinion and the tramline fine seed wheels.
14. Screw the drive pinions onto the counter-shaft.

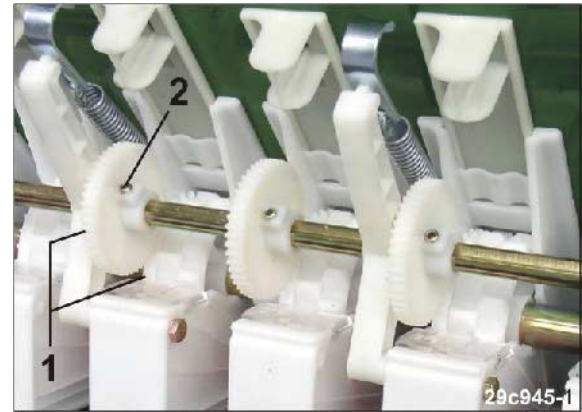


Fig. 200

15. Mesh the teeth (Fig. 201/1) of the wrap spring clutch and the seed shaft spur gear.
16. Hook the tensioning springs (Fig. 201/2) into the swivel bearings (Fig. 201/3).
17. Check the function of the seed wheel tram-line shift.

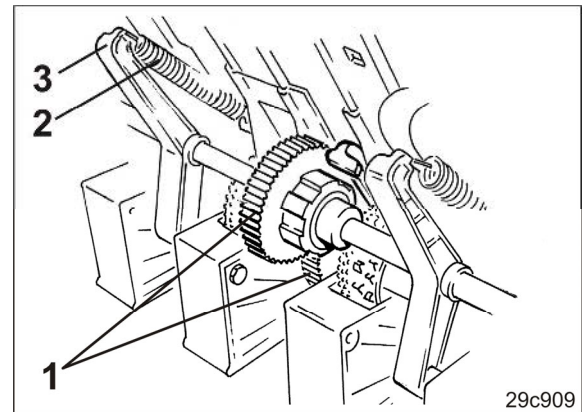


Fig. 201

12.16 Fitting the bean seed wheels (specialist workshop)

The bean seed wheels may be swapped individually for the seed wheels or together with a second seed shaft.

It is easier to fit if the bean seed wheels have been pre-assembled on a second seed shaft. Then it is only necessary to swap over the seed shafts.

1. Pull the calibration cups (Fig. 202) upwards out of their holders.



Fig. 202

2. Fold down the countershaft (Fig. 193/1) for the seed wheel tramline selection (if fitted) (see "Setting the tramline spacing and track/track width (specialist workshop)", on page 152).

3. Open the seed shaft bearings (Fig. 203/1).

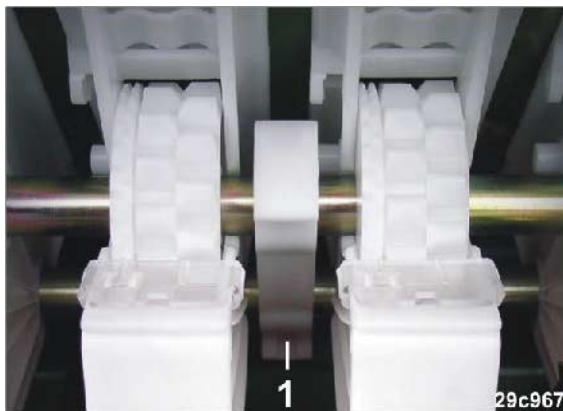


Fig. 203

4. Undo the screws (Fig. 204/1).
5. Move the socket joint on the seed shaft.
6. Lift out the seed shaft.



Do not remove the detent plate for the base flaps.

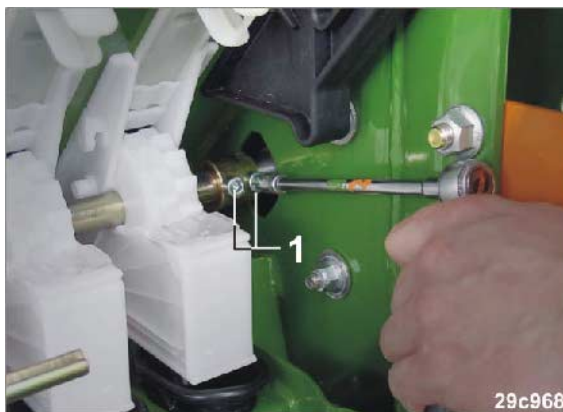


Fig. 204

7. The bean seed shaft is fitted in the reverse sequence.

Notes on installing the countershaft

1. Fit the gear (Fig. 205/1) on the bean seed shaft.
2. Remove the triangular follower on the bean seed wheel on those bean seed wheels that will later be disengaged in order to create the tramlines.

The triangular followers on the other bean seed wheels engage in the recess in the seed shaft.

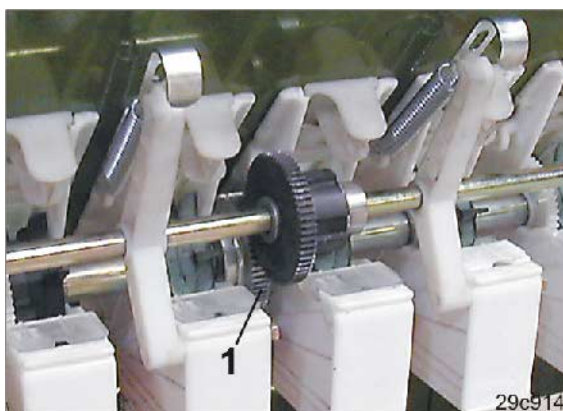


Fig. 205

3. Turn the axial lock (Fig. 206/1) so that the short arm is supported in the recess in the seed wheel housing.
4. Check the function of the seed wheel tram-line shift.



Fig. 206



If the seed drill is to be refitted with normal and fine seed wheels, turn the axial lock (Fig. 206/1) around and fit the long arm in the recess in the seed wheel housing.

12.17 Bolt tightening torques

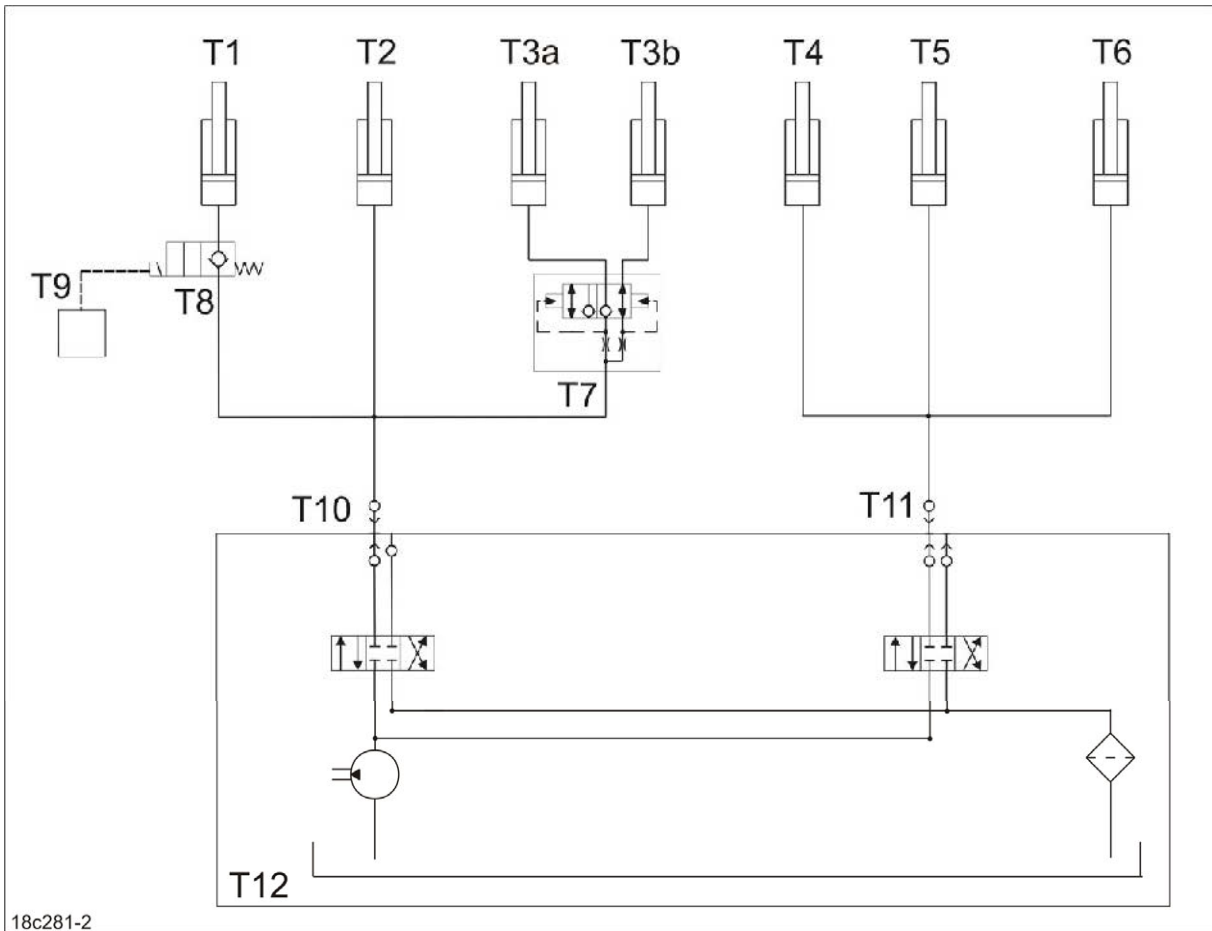
Thread	Width across flats [mm]	Tightening torques [Nm] as a function of the bolt/nut grade		
		8.8	10.9	12.9
M 8	13	25	35	41
M 8x1		27	38	41
M 10	16 (17)	49	69	83
M 10x1		52	73	88
M 12	18 (19)	86	120	145
M 12x1.5		90	125	150
M 14	22	135	190	230
M 14x1.5		150	210	250
M 16	24	210	300	355
M 16x1.5		225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

13 Hydraulic system diagrams

13.1 D9 Super / D9 Special hydraulic system diagram

Fig. 207/...	Designation
T1	Tramline marking
T2	Control box
T3a	Bout marker left
T3b	Bout marker right
T4	Coulter pressure adjustment
T5	Harroweeder pressure adjustment
T6	Seed rate remote adjustment
T7	Track eradicator shuttle valve
T8	Tramline marker valve
T9	Control box
T10	1 x cable tie, yellow
T11	1 x cable tie, blue
T12	Tractor

All position specifications in direction of travel



18c281-2

Fig. 207



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