

Tempo F, Tempo L, Tempo V  
Serial No.  
TPF0003318–, TPL0002039–,  
TPV0003133–





*Thank you for choosing Väderstad as your supplier!*  
*We hope that our products will increase your profitability*  
*and contribute to you having successful crops on your farm.*

*Warm regards,*  
*The Stark Family*

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# 1 General safety regulations

## 1.1 Obligations and responsibilities

These instructions are to be regarded as for guidance only and entail no responsibility whatsoever on the part of Väderstad AB and/or its representatives. Full responsibility for the use, transportation, maintenance and servicing of the machine lies with the owner/driver. These instructions cover a large number of machine configurations.

Local conditions affecting crop rotation, soil type, climate, etc. may require procedures different to those mentioned in these instructions.

It is the full responsibility of the owner/driver to ensure that the machine is used correctly in all respects. The owner is also responsible for ensuring that all individuals who use the machine have read and understood this instruction manual and that they work in accordance with all valid provisions and regulations.

If an individual working with the machine detects any safety defects, these must be addressed immediately.

All Väderstad machines have passed quality assurance inspections and operational tests prior to delivery. However, the user/owner shall bear full responsibility for the machine functioning correctly when in use in the field. In the event of a complaint, please refer to the "General delivery provisions for the Väderstad Group".

Design modifications form a part of the continual improvement of our machines. Descriptions of the machine therefore refer to the form and design of the machine at the time of writing. The user manual may contain images that show a machine that does not look exactly like the one you have received, depending on which optional additions have been fitted, the model, or whether any updates have been carried out. Some descriptions in these instructions may not be relevant to your machine.

The operating instructions are designed according to the guidelines of the ISO 3600 standard.

## 1.2 Before using the machine

- A. Carefully read through these instructions and ensure that you have understood their content.
- B. Learn to use the machine correctly and carefully! In the wrong hands or if carelessly operated, the machine can become a dangerous implement.
- C. The machine will form a part of your workplace and the workplace of your colleagues. It is therefore important to ensure that everyone is protected and that functioning safeguards are in place.

## 1.3 How to read these instructions

Letters within brackets refer to corresponding letters in the image and are used as a reference in a text.

A. Reference (A)

B. Reference (B)

Information for which the order is important is indicated using numbered action instructions.

When referring to images, figures are also used in the same way as the alphabetical list if the references outnumber the letters in the alphabet.

1. Start by...
2. Then ...

## 1.4 Description of Safety Symbols



Always pay extra attention to texts or figures indicated by this symbol. The symbol indicates dangers that **may result in** death, serious bodily harm or considerable material damage if actions are not taken to avoid them



Always pay extra attention to texts or figures indicated by this symbol. The symbol indicates dangers that **may result in** death, serious bodily harm or considerable material damage if actions are not taken to avoid them



A signal word used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. However, such distinctions can be too subtle to affect behaviour (or to be translated). In certain circumstances, signal phrases such as "DANGER OF DEATH", "RISK OF BLINDING", or "BEWARE OF FUMES" can be more effective at drawing greater attention to some instructions or safety information than signal words.



This indicates a special situation or an activity required for proper machine handling. Failure to follow these instructions may cause disruption to the machine or to its surroundings.



Information marked with this symbol may be worth noting as it relates to a useful tip or a particularly useful piece of information that will help you handle the machine properly.



Used to clarify information.

## General safety regulations

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- Used to present information in the form of bullet points. The order in which the information is set out is not indicative of any particular order of precedence which must be followed.

## 2 Overview

### 2.1 General



Assembly on delivery may only be carried out by personnel with basic technical know-how.

The machines that are delivered directly from our factory should be assembled in accordance with the separate assembly instructions that are delivered with the machine. The following instructions assume that this assembly has already been completed. All optional additions can be retrofitted to the basic machines.

### 2.2 Control system

All machine functions are controlled and monitored from the tractor cab using a control unit. Väderstad offers options for controlling and monitoring the machine using an iPad. Read more in the separate manuals for E-Services.

### 2.3 Optional additions

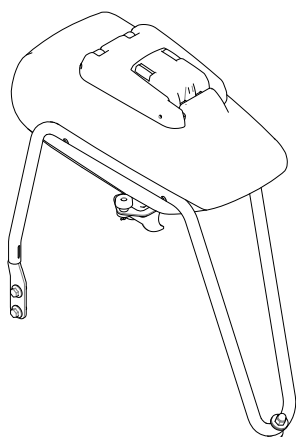


Figure 2.1 Grain hopper, Central Fill

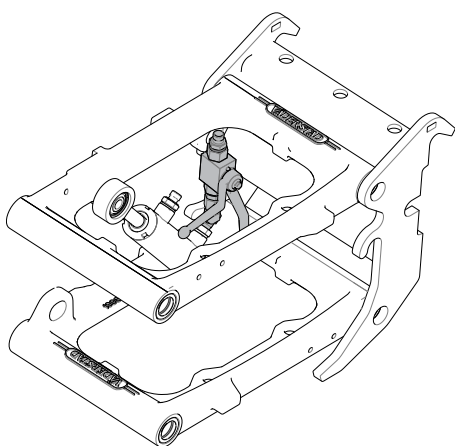


Figure 2.2 Ball valve for locking the row unit in the raised position, TPL 32

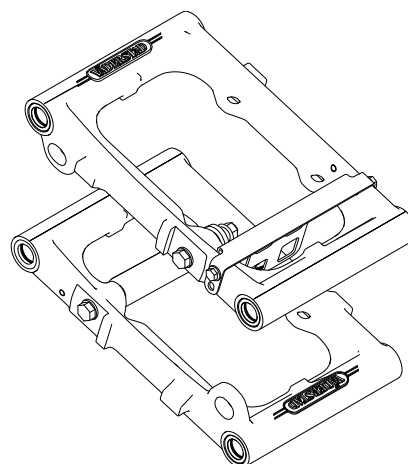


Figure 2.3 Linkage spring

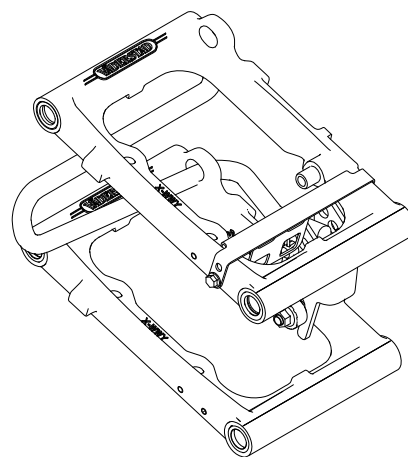


Figure 2.4 Linkage hydraulic

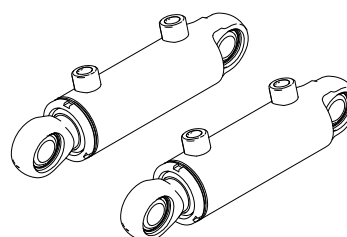


Figure 2.5 Wheel track boost cylinders

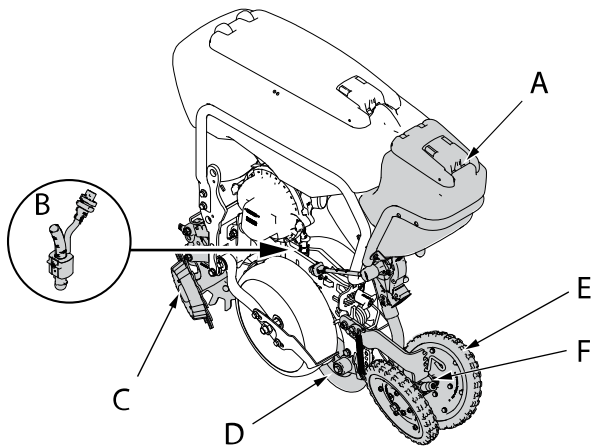


Figure 2.6

The row unit can be retrofitted with the following optional additions:

- A. Micro-granulate unit
- B. Seed sensor 16 or 22 mm
- C. Row cleaners
- D. Press wheel, on fixed arm 60 or 70 shore.
- Press wheel, on spring-suspended arm.
- E. Closing wheels 25, 50, spike, pattern 50
- F. Closing wheel arm. Fixed short or adjustable long.
- G. Small seed grille and air duct grille (not shown in image)

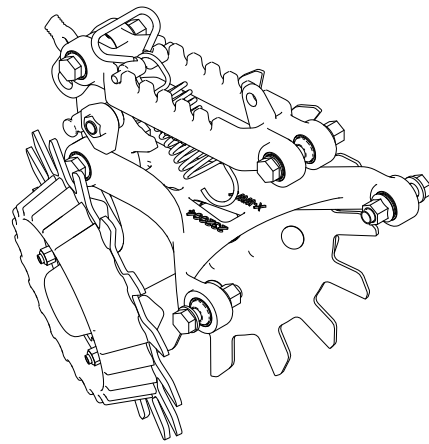


Figure 2.8 Row cleaner, TPL 32

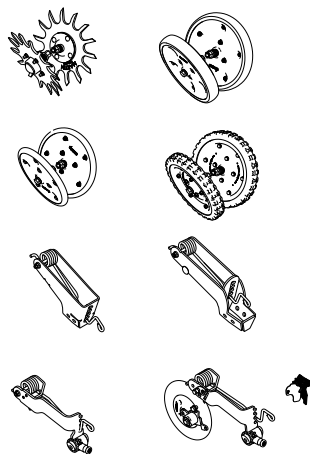


Figure 2.7 Closing wheels, 25, 50, spike, pattern 50.  
Closing wheel arm, fixed short or adjustable long. TPL 32

### 3 Description of Row Unit

#### 3.1 Overview of row unit components

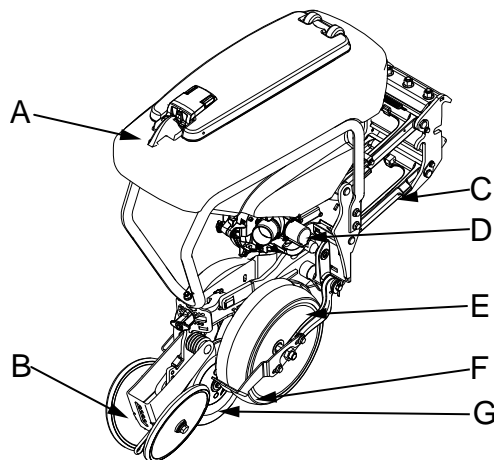


Figure 3.1

- A. Seed hopper
- B. Closing wheel
- C. Parallel linkage
- D. Seed meters
- E. Gauge wheel
- F. Seed disc (not shown in picture)
- G. Press wheel

##### 3.1.1 Seed hopper



It is important to close the seed hoppers properly so that the overpressure in the seed meter remains constant.

There is one seed hopper on each row unit. The volume of the hopper is 90/25 l. The seed hopper cover is opened by pinching the locking lugs together and lifting. A spring then locks the cover into the open position. Close the cover by releasing the lock. Pull down the handle on the seed hopper's cover to make sure that the cover is fully closed.

##### 3.1.2 Closing wheel

The purpose of the closing wheel is to seal the seed furrow. The pressing force of the closing wheel can be adjusted, and there is also the option of mounting the wheel in two positions. Depending on the conditions in each case, it may be necessary to use a different type of closing wheel.

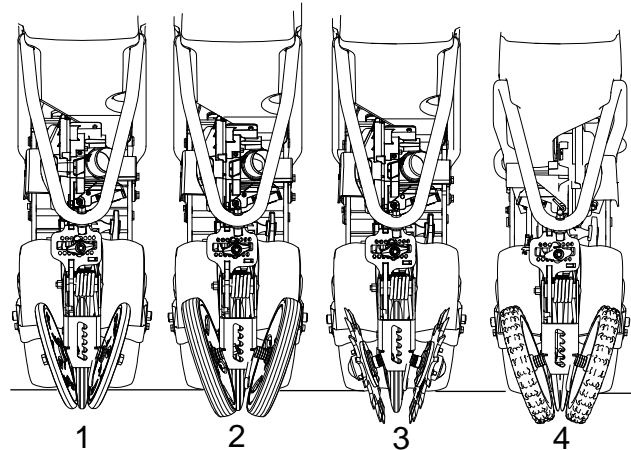


Figure 3.2

The following types of wheel are available:

1. Standard wheels are used for drilling medium to large-seed crops.
2. Wide wheels are used for small seed crops, such as sugar beets and rapeseed.
3. Spike wheels are used for heavy soils and wet conditions where it can prove difficult to close the seed furrow. Spike wheels provide extra help in closing the seed furrow.



When mounting the 'spike wheel,' ensure that the wheel marked with an L is mounted on the right-hand side with the text facing inwards. The wheel marked with an R will be mounted on the left-hand side with the text facing inwards.

4. Treaded closing wheels. Suitable to use when there is a risk of crusting after sowing.

##### 3.1.3 Parallel linkage

The row unit is linked to the main frame by a parallel linkage and a clamp joint. There is a torsion spring or a hydraulic cylinder in the parallel linkage which can transfer an extra weight of 150 kg to the row unit.

In the case of a torsion spring, the weight transfer (coultter pressure) can be easily adjusted to five different settings.

In the case of a hydraulic cylinder, the weight transfer (coultter pressure) can be adjusted freely.

##### 3.1.4 Seed meters

There is one seed meter, driven by an electric motor, located on each row unit. The electric motor rotates the seed disc and controls the speed of the feed. Electrical operation makes it easy to calibrate the output; set either the required spacing between the seeds or the number of seeds/ha. The output rate can be adjusted while driving.

## Description of Row Unit

All the units have the same output rate, although there is the option to switch off each motor individually.

A seed counter is fitted to each row unit. This is used to monitor the quantity and quality of the output. If the required quality is not achieved, the system issues an alert.

### 3.1.5 Gauge wheel

There are two gauge wheels on each row unit. Suspending the gauge wheels reduces the impact caused by any unevenness at ground level, which allows for good handling and thus a more even drilling depth. The drilling depth is the ratio between the gauge wheel and the seed coulters.

The gauge wheels are attached just in front of the wheels, which results in reduced vibrations up to the seed meters and a lower power requirement.

### 3.1.6 Seed disc

The seed discs are mounted in a V form on each side of the seed coulters where the seed is released. To prevent soil from getting stuck between the seed discs and the gauge wheel, there is a scraper on the outside of each seed disc. The scraper is used primarily in wet conditions. If you are driving mostly in gritty and dry conditions, the scraper can easily be removed.

### 3.1.7 Press wheel

The press wheel captures the seed when it comes out from the seed coulters and ensures good contact with the soil. This facilitates quick and even germination.

Different kinds of soil require different kinds of press wheels. Standard press wheels work in most conditions, but for hard and stony conditions there is a tougher press wheel available as an accessory. A spring-suspended press wheel is also available as an accessory for shallow drilling.

## 3.2 Seed meters



Before opening the seed meter, switch off the iPad (E-Control) and the fan.

There is one seed meter, driven by an electric motor, located on each row unit. The electric motor rotates the seed disc and controls the speed of the feed. Electrical operation makes it easy to calibrate the output; set either the required spacing between the seeds or the number of seeds/ha. The output rate can be adjusted while driving. All the units have the same output rate, although there is an option to switch off each motor individually.

A seed counter is fitted to each row unit. This is used to monitor the quantity and quality of the output. If the required quality is not achieved, the system issues an alert.

### 3.2.1 Construction of the Seed Meter

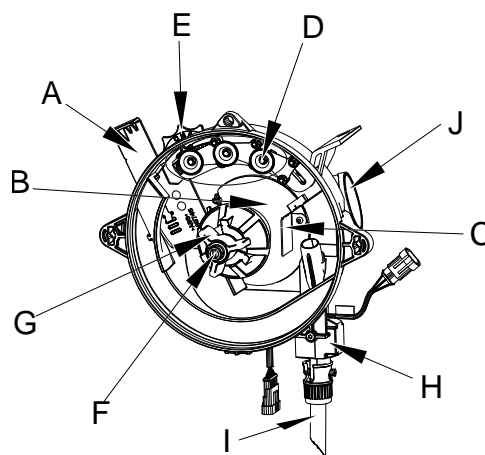


Figure 3.3

- A. Sliding hatch
- B. Air duct grille (accessory)
- C. Seed grille
- D. Singulator
- E. Singulator dial
- F. Hub
- G. Locking knob
- H. Outlet with seed counter
- I. Seed tube
- J. Air connection

### 3.2.2 Description of the Seed Meter

The seed enters the seed meter when the sliding hatch is opened (A).

An overpressure is created in the seed meter which allows one seed at a time to be separated out onto the seed disc. The function of the singulator (D) is to remove excess seed from the seed disc in the seed meter.

The sensitivity of the singulator can be set using the singulator dial (E).

For row units equipped with WSX, the singulation can be automatically adjusted to the optimal setting.

The air from the fan is delivered via the air connection (J), through the air duct grille (accessory) (B), to the seed meter. The air duct grille's function is both to spread the air flow inside the seed meter and to prevent contamination such as plant residue getting into the seed meter.

The pressure in the metering unit should be 3.5 kPa (0.035 bar). The overpressure in the seed meter blows the seed through the seed tube (I) into the seed furrow. Air transport of the seed through the seed tube ensures that planting accuracy is essentially unaffected by vibrations and sloping ground surfaces.

The seed grille (C) ensures that seed, which the singulator removes from the seed disc, does not end up in the outlet (H).

The outlet (H) contains a seed counter which identifies the spacing and number of seeds passing through. The information is used to calculate skips and doubles, amongst other things.

There is an electric motor to the rear of the seed meter. There is a hub (F) on the shaft from the motor, to which the seed disc in the seed meter is attached using a locking knob (G).

### 3.2.3 Construction of the Seed Meter Cover

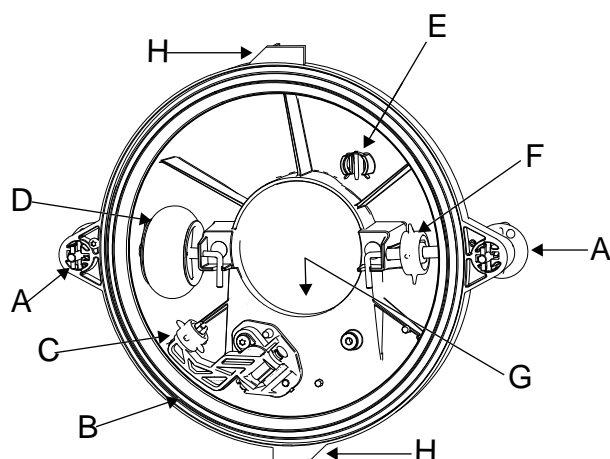


Figure 3.4

- A. Knob
- B. Seal
- C. Knock out wheel
- D. Sealing wheel
- E. Extra pin for motor shaft
- F. Extra knock out wheel
- G. Air opening
- H. Locking

### 3.2.4 Description of the Seed Meter Cover



When fitting the seed meter cover, proceed as follows: Twist the upper and lower locking tabs (H) to the left. Press both knobs (A) in, and turn 90° to lock. Do not forget to lock the cover with the knob (A). Tighten both knobs at the same time.

The seed meter cover is removed using two knobs (A). To open, push the knob inwards and turn 90°. Then twist the entire cover to the right in order to open the upper and lower locking tabs.

The seal (B) is to prevent any air leaks between the seed meter and the cover and between the cover and the seed disc.

The knock out wheel (C) effects continuous cleaning of the seed disc in seed meter holes of seed hulls and seed residue which might otherwise cause skips in the seed furrows. There are different knock out wheels for

different seed discs in seed meters. Additional knock out wheels can be stored in the seed meter cover (F).

The sealing wheel (D) rolls along the outside of the seed disc in seed meter. When the sealing wheel covers a hole, the seed is released and is transported by the air current through the seed tube.

Excess air leaves the seed meter through the opening in the cover (G).

In the cover there is also an extra ring pin (5), which fits the shaft on the motor that drives the seed disc in seed meter.



## 4 Description of Micro-granulate

The row units can be equipped with a micro-granulate units. The micro-granulate unit can be used to apply pesticides or an extra starter dose of fertiliser.

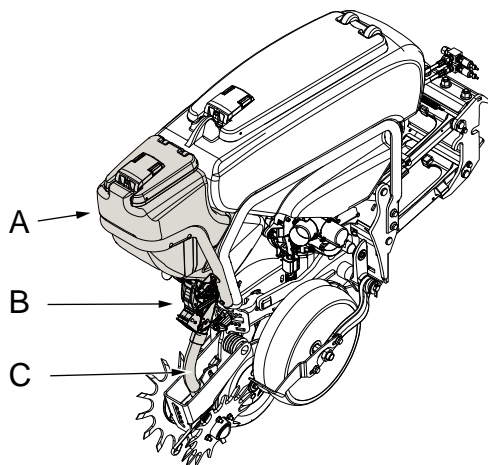


Figure 4.1

- A. Micro-granulate hopper
- B. The output unit
- C. Micro-granulate coulters

### 4.1 The output system

Each micro-granulate unit has an output unit containing a cell wheel output unit or a scratchy roller output unit driven by its own electric motor (A).

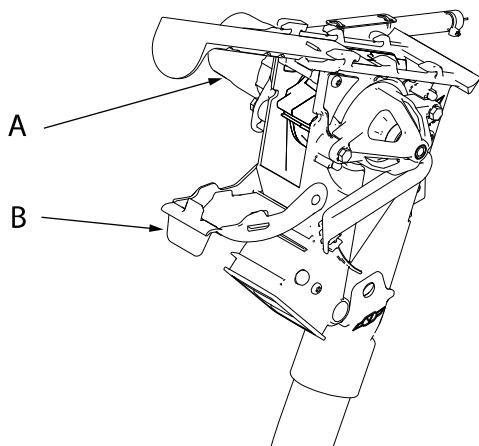


Figure 4.2 Output unit

- The plastic shutters (B) can be folded down for easy cleaning and inspection.
- During sowing, the plastic shutters **should always** be kept closed.

### 4.2 Setting the bottom flaps, sliding hatches and calibration flaps

Bottom flaps, sliding hatches and calibration flaps are attached to each output unit.

The bottom flaps can be set to four positions to be able to adapt the gap (A) to suit different types of preparation. The settings lever for is placed on the right side of each output box.

#### 4.2.1 The bottom flaps

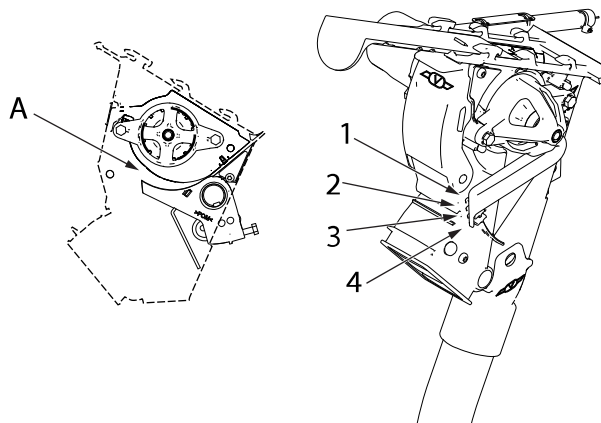


Figure 4.3

By weighing the amount fed out from more than one output box, it is possible to check that the machine is feeding out equal amounts from each unit.

If output occurs sluggishly, the bottom flaps should be opened up a stage. If you then run with a flap opening that is too small, you can damage the motor!

#### 4.2.2 Sliding hatches

The output rate can be adjusted using the sliding hatches at the bottom of the hopper. Normally, the hatches are set to position 2. Make sure the sliding hatches are firmly locked into each position.

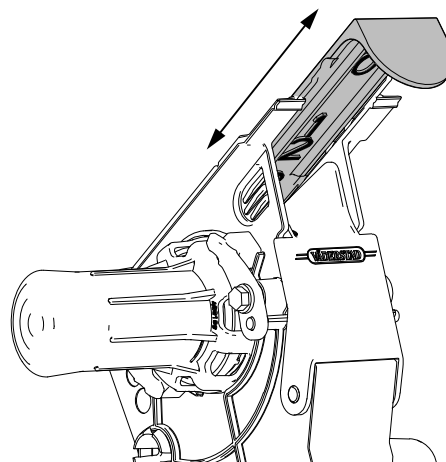


Figure 4.4 Sliding hatches

Depending on the physical properties of the preparation, it may be necessary to adjust the flow to the output boxes by means of the sliding hatches in the bottom of the hopper.



### 4.3 Micro-granulate coulters

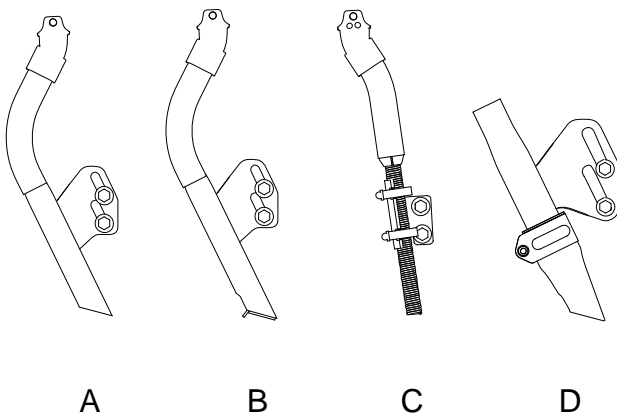


Figure 4.5

The following types of coulters are available:

- A. Rigid micro-granulate coulters.
- B. Rigid micro-granulate coulters (closed base, rear opening).
- C. Spring-like micro-granulate coulters.
- D. Micro-granulate coulters with rubber nozzle.

## 5 Settings for seed drilling

### 5.1 Seed

#### 5.1.1 Seed disc in seed meter

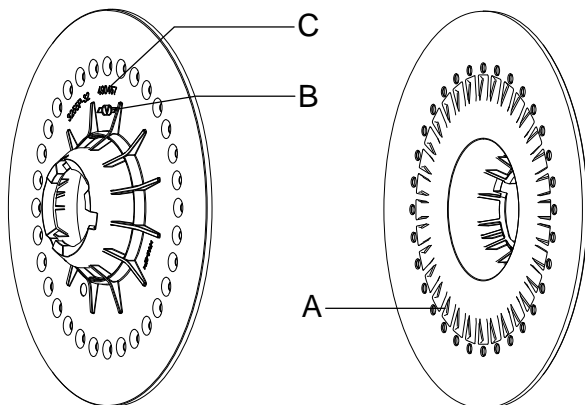


Figure 5.1

The seed discs in seed meters have different numbers of holes and different hole diameters. There are a number of agitators on the inside of the seed disc in seed meter, in the form of wedge-shaped indentations (A).

On the outside of the seed disc in seed meter there is a combination of letters and numbers to identify the seed disc in seed meter (B).

After the identification code there is a six-digit number (C) which is the spare part number of the original seed disc in seed meter from Väderstad AB.

Ex. 3255P-32  
D E F

Figure 5.2

D. Number of holes.

E. The hole's diameter is given in 1/10 mm, which gives 5.5 mm in the example.

F. Number of agitators.

#### 5.1.1.1 Changing a seed disc in seed meter and knock out wheel

The seed disc in the seed meter and cleaning wheel must be changed and adapted to the current crop. It is therefore important to replace the cleaning wheel with one designed for the currently used seed disc.

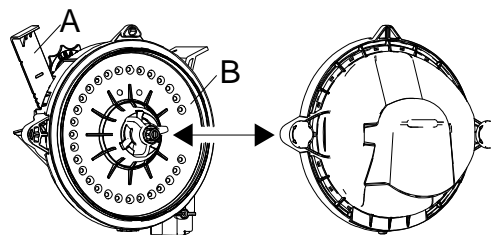


Figure 5.3

Ensure that the sliding hatch (A) of the seed meter is closed before starting removal of the seed disc in seed meter (B). This prevents the seed running out of the seed hopper.

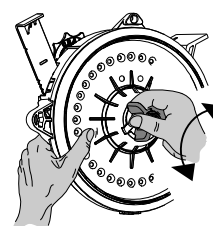


Figure 5.4

1. The seed disc in seed meter is removed by turning the locking knob anti-clockwise to its end position. Hold the seed disc in seed meter while doing this so that it does not rotate.
2. Install the new seed disc in seed meter and turn the locking knob clockwise until it engages against the stop lug on the seed disc in seed meter.
3. Check the setting of the seed disc in the seed meter. Rotate the seed disc once it is fitted. It should rest tightly against the seed meter without feeling stiff when rotated. See chapter "5.1.1.2 Adjusting the seed disc in the seed meter".

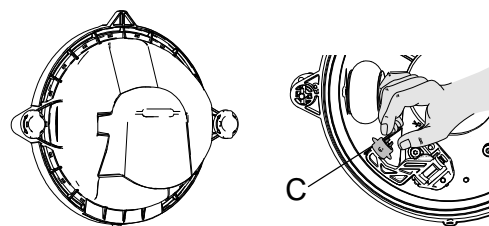


Figure 5.5

4. Pinch the ends of the shaft together to remove the knock out wheel (C).
5. The new knock out wheel is pushed tight on the shaft.
6. Knock out wheels not currently in use can be stored on the shaft, opposite the sealing wheel.

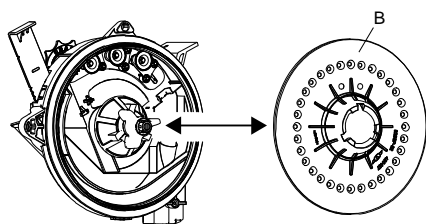


Figure 5.6

## 5.1.1.2 Adjusting the seed disc in the seed meter

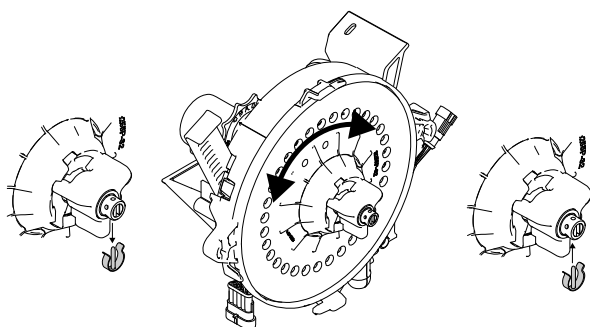


Figure 5.7

1. Undo the pin on the motor shaft.



There is an additional locking ring in the seed meter cover.

2. Turn the seed disc in seed meter anti-clockwise so that it is clearly free of the seed meter.
3. Turn the seed disc in seed meter clockwise until it is in contact with the seed meter such that it is quite stiff to rotate.
4. Then turn back the seed disc in seed meter and hub one or two holes (on the hub shaft). There should not be any obvious play between the outer edge of the seed disc in seed meter and the seed meter.
5. Lock the hub with the pin.

## 5.1.2 Changing and installing the seed grille and air duct grille

1. Open the seed meter and remove the seed disc in accordance with "5.1.1.1 Changing a seed disc in seed meter and knock out wheel".

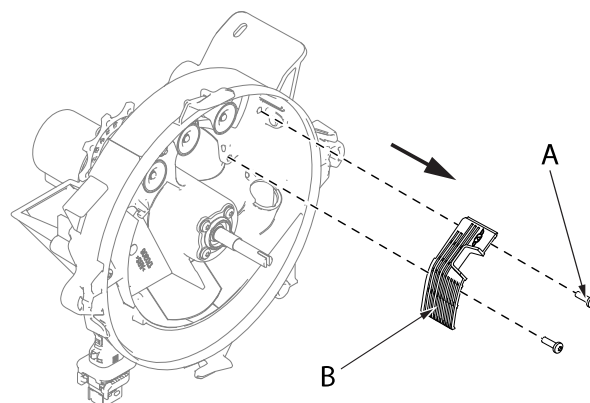


Figure 5.8

2. Remove the two screws (A) to remove the seed grille (B).
3. Change the seed grille.

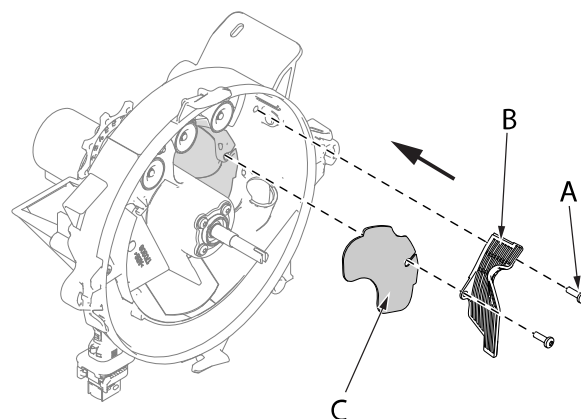


Figure 5.9

4. If an air duct grille (C) is desired, it should be securely attached between the seed grille (B) and the seed meter using the screws (A).

## 5.1.3 Setting the air pressure

The machine's air pressure is regulated by the fan speed. Air pressure is measured at all seed plates. The fan rotation speed and air pressure is read from the home screen (E-Control). Tyre pressure varies depending on the crop.



The maximum fan speed is 5000 rpm. Do not over-rev the fan.

### 5.1.4 Setting the singulator

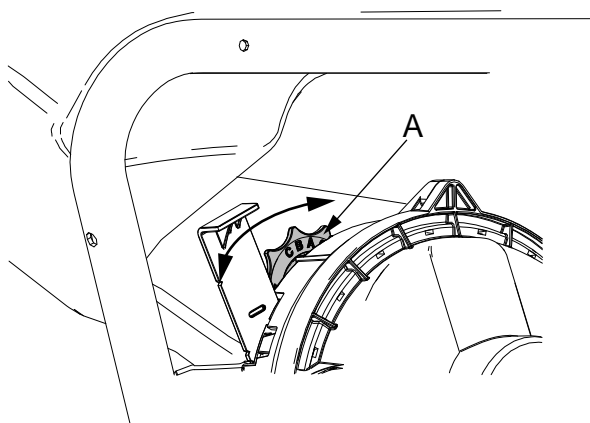


Figure 5.10

The singulator's function is to remove excess seed from the seed disc in seed meter. If two seeds get stuck in the same hole of the seed disc in seed meter, one of them must be removed.

The sensitivity of the singulator can be changed by adjusting the singulator dial (A). Singulator adjustment is important for avoiding skips and doubles.

- To reduce the proportion of doubles (the amount of seed from the seed meter is too **high** with several seeds per hole), **reduce** the singulator dial's set value. The lowest value is C.
- To reduce the proportion of skips (the amount of seed from the seed meter is too **low** with holes without seed), **increase** the singulator dial's set value. The highest value is 9 (at setting 9, the singulator has no effect).
- When sowing soya seed, the singulator setting must always be 9.

For row units equipped with WSX, the singulation can be automatically adjusted to the optimal setting.

### 5.1.5 Setting the sliding hatch

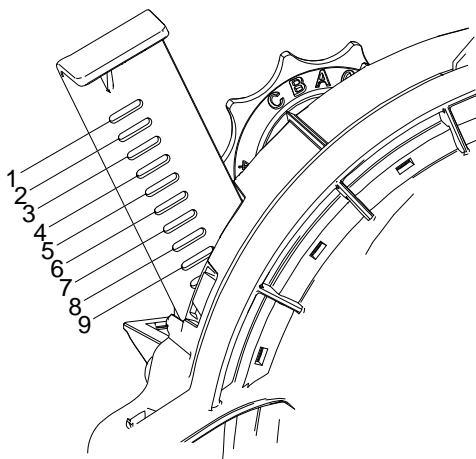


Figure 5.11 Seed meters

The seed meter has a sliding hatch that can be set to different positions.

Positions 1–9 are used to regulate the seed level in the seed meter when drilling. The position is indicated by a number of completely visible marks on the sliding hatch. In position 9, the sliding hatch is fully open and in position 0 (not visible) it is fully closed.

If you want to change the seed disc in seed meter or remove the seed disc in seed meter to check something, the sliding hatch must be closed.

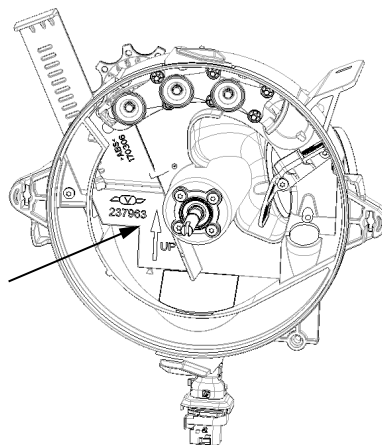


Figure 5.12

For small seeds and Central Fill, the hatch opening needs to be limited to reduce the seed level in the seed meter, see "Figure 5.12 ". An extra part should be fitted inside the hatch.

If you want to change the seed disc in seed meter or remove the seed disc in seed meter to check something, the sliding hatch must be closed.

### 5.1.6 Setting the press wheel



Tempo should never be operated without a fitted press wheel.



The factory default setting is the highest position.

## 5.1.6.1 Setting a fixed press wheel

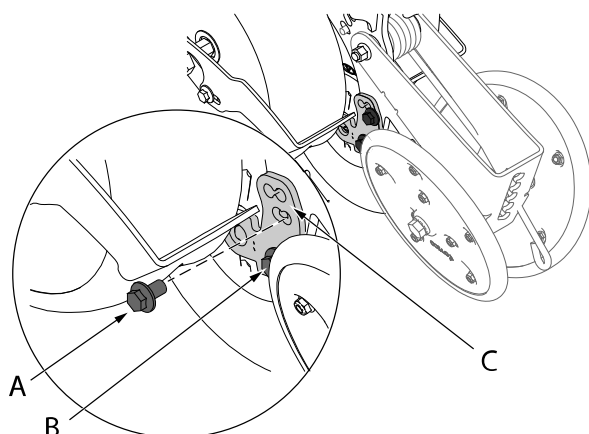


Figure 5.13 Fixed press wheel

1. Remove the top screw (A) completely and undo the bottom screw (B).
2. Move the bracket (C) to the desired position, see figure below.

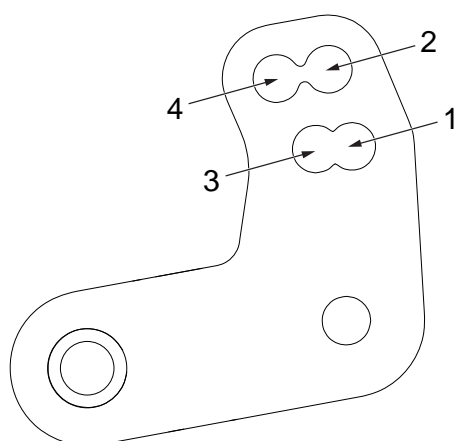


Figure 5.14

3. Insert the top screw and tighten the screws.
  1. Work position, ground
  2. Work position, deep
  3. Transport position (from factory)
  4. Not in use

## 5.1.6.2 Setting a spring-suspended press wheel

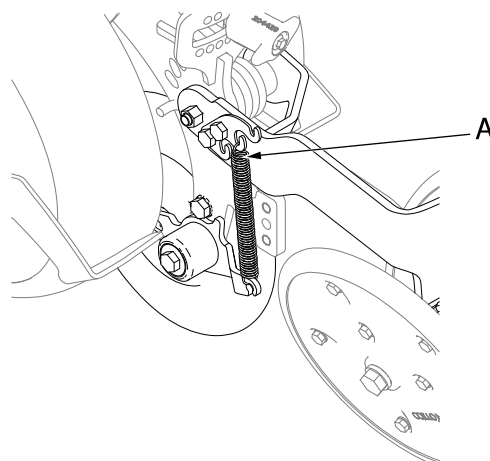


Figure 5.15 Spring-suspended press wheel

The spring-suspended press wheel is easily adjusted to three positions using the spring (A).

The lowest position gives the least force.

## 5.1.7 Setting the drilling depth

The drilling depth can vary between 0 and approx. 8.5 cm. The drilling depth depends on how deep the gauge wheels are set in relation to the seed discs. A spring-loaded switch lever can be used to adjust the height of the wheels, and thus the drilling depth.

None of the crossed-out holes may be used when the gauge wheel arms are set in the long position for optimised shallow drilling, see figure "Figure 5.16 ". If deeper drilling is required, change the adjustment link to a short gauge wheel arm, see "6.3.2 Setting the gauge wheel".

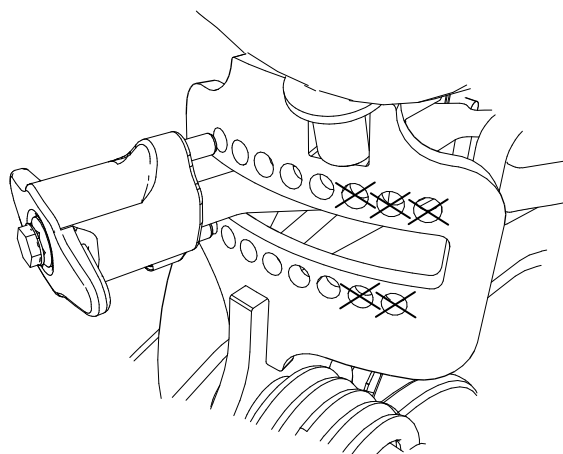


Figure 5.16

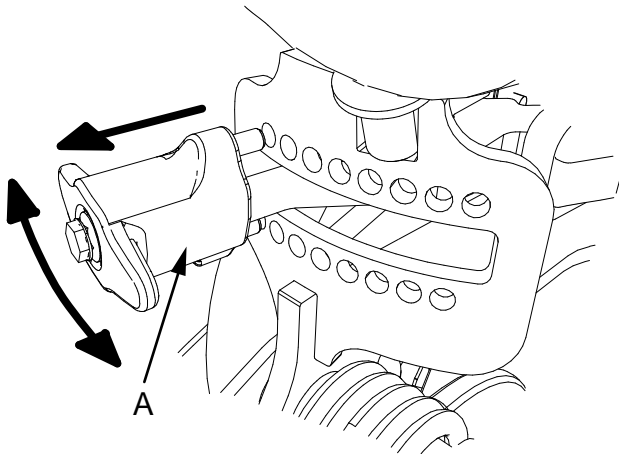


Figure 5.17

1. Pull out the switch lever (A) and move the lever to the desired position in the hole pattern. The holes in the top row are offset in relation to the holes in the bottom row in order to allow for small adjustments to be made. Pull out the switch lever and turn it slightly so that only the top or bottom locking lug moves forward one step.
2. Release the switch lever and check that it engages properly.

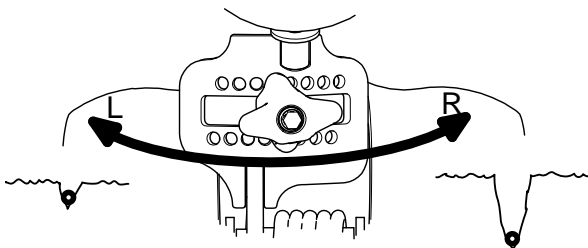


Figure 5.18

3. Test drill a short distance to check the actual drilling depth. The graduations through the hole pattern cannot be translated into an exact drilling depth in mm. Moving the switch lever towards position (L) does, however, reduce the drilling depth, while moving it towards position (R) increases it.

### 5.1.8 Weight transfer, row unit pressure

The row unit pressure is determined by a combination of the fill level in the hoppers, the types of optional additions that are attached to the row units and the weight transfer from the frame.

The machine can be equipped with a torsion spring for mechanical weight transfer or a cylinder for hydraulic weight transfer.

In order to control the row unit pressure, it is possible to choose how often the seed hoppers are filled and how the weight transfer is set.



For the drill to function correctly, the frame height must be adjusted so that the row unit linkage is parallel to the ground during operation.

#### 5.1.8.1 Mechanical weight transfer

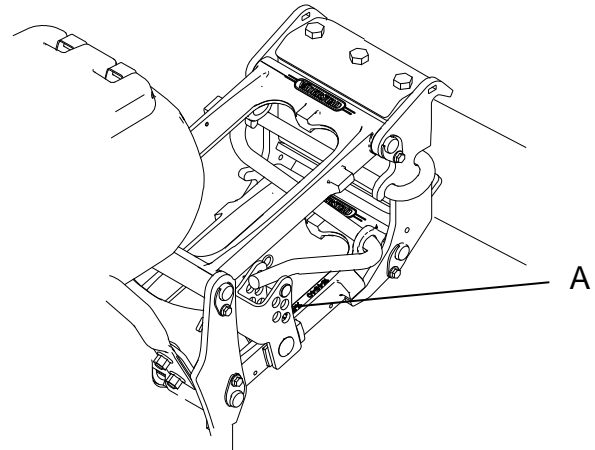


Figure 5.19 Mechanical weight transfer

Weight transfer from the frame to the row unit can be set using a torsion spring on all rows. The force can be adjusted to five different settings (A) using a pin. The higher the hole in which the pin is located, the greater the force that is transferred. In its lowest position, no force is transferred. The force is set when the machine is in the transport position.

## 5.1.8.2 Hydraulic weight transfer

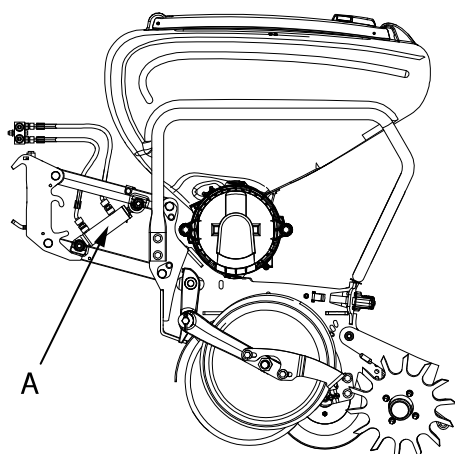


Figure 5.20 Hydraulic weight transfer

Hydraulic weight transfer from the frame to the row unit can be set on all rows. Adjustment is performed using the iPad. Consult the instruction manual for E-Services.

In order to utilise a high degree of weight transfer, the total weight of the machine itself must be sufficiently great. This becomes particularly important if the weight transfer on the row unit along with the fertiliser pressure are high. You should therefore check the placement of seed and fertiliser to ensure that the machine achieves the desired result.

## 5.1.9 Electronic adjustment of hydraulic wing pressure

Normally, the wing pressure is connected to the row unit pressure, but it can be adjusted as required (does not apply to 6m).

Adjustment is performed using the iPad. Consult the instruction manual for E-Services

## 5.1.10 Setting the closing wheels

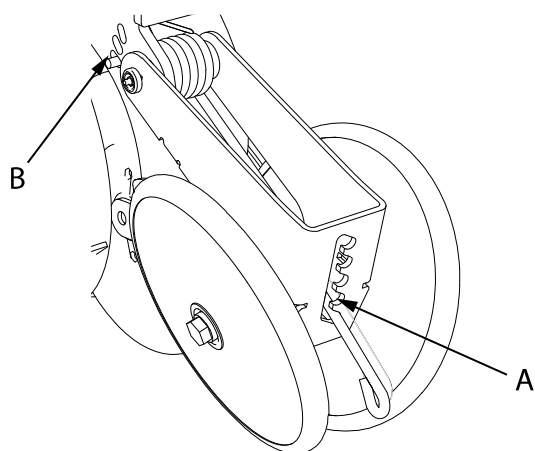


Figure 5.21 Fixed arm

### With fixed arm

- The pressure on the closing wheels can be easily adjusted to five different settings using the spring (A).
- The spring can also be pre-set to three different settings (B), the lowest of which gives the least force.

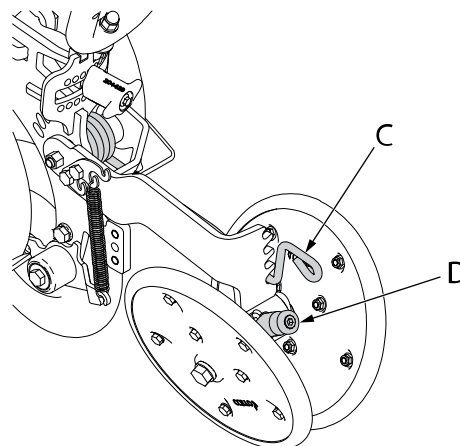


Figure 5.22 Adjustable arm

### With adjustable arm

- The pressure on the closing wheels can be easily adjusted to four different settings using the spring (C).
- The closing wheel angle can be easily adjusted to seven different settings using the screw handle (D).

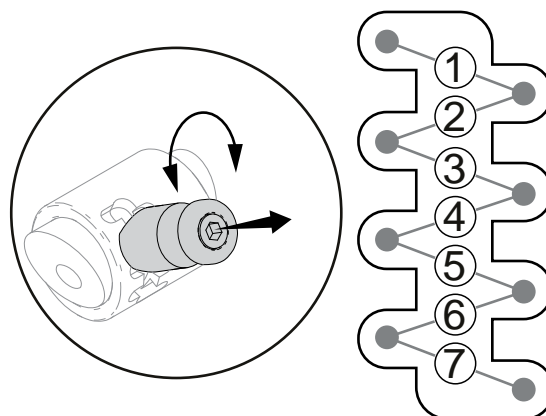


Figure 5.23

The screw handle (D) is removed and turned to achieve the desired position.



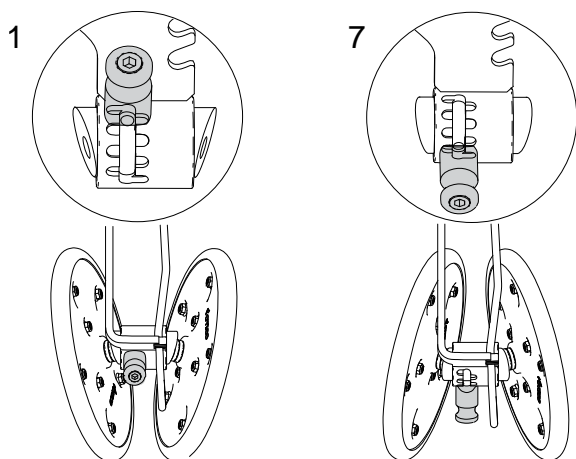


Figure 5.24

The figure shows the working angle on the closing wheels when the screw handle is in its uppermost position (1) and its lowermost position (7).

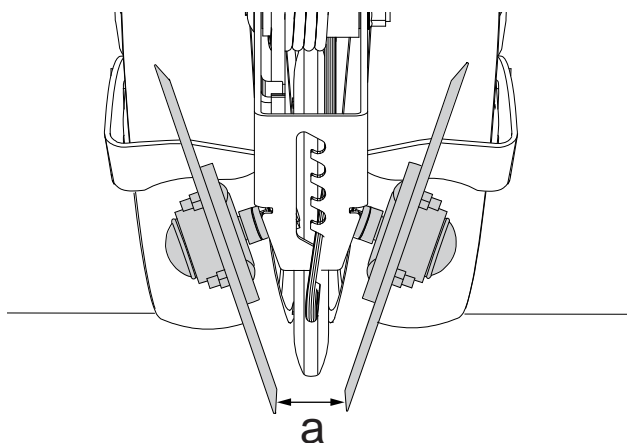


Figure 5.25

### Spike wheels

- The distance (a) between the Spike wheels must be between five and seven cm so as not to risk digging up and moving the seed from the bottom of the drill.

### 5.1.11 Moveable row cleaners, (optional)

Tillage row cleaners are used to ensure good conditions for the row unit. If there are a lot of stones or clods on the surface, the row cleaner is used to remove these so that neither the coulter nor the gauge wheels are damaged by the unevenness of the surface.

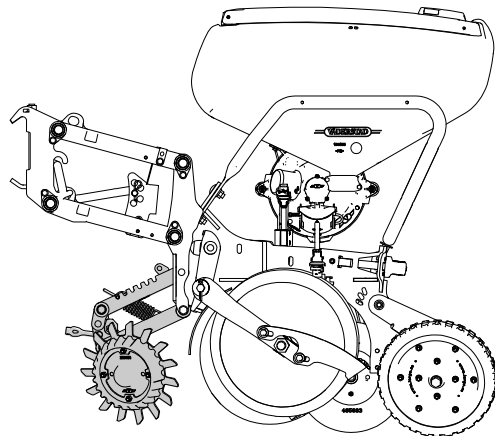


Figure 5.26

Tillage row cleaners are also useful where there is a lot of plant residue. Large amounts of plant residues can result in the seed failing to land in the soil properly or not lying deep enough.

#### 5.1.11.1 Settings for weight transfer and bottom stop, floating row cleaner



Take care! Avoid trapping/crushing hazards!

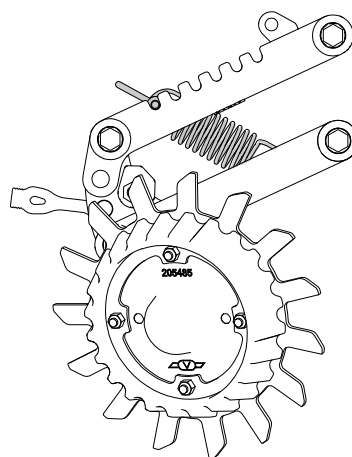


Figure 5.27 Weight transfer

The illustration shows the maximum weight transfer applied. Adjustment is made by moving the position of the spring in the upper linkage, the spring in the lower linkage must be in the rearmost position.



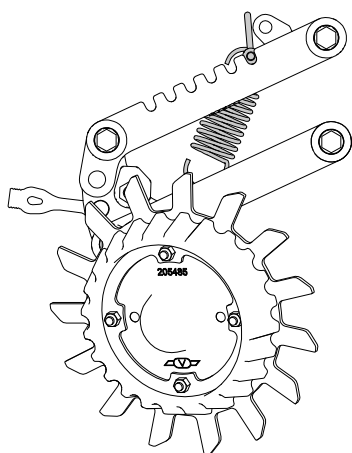


Figure 5.28 Weight reduction

The illustration shows the maximum weight reduction. Adjustment is made by moving the position of the spring in the upper linkage, the spring in the lower linkage must be in the foremost position.

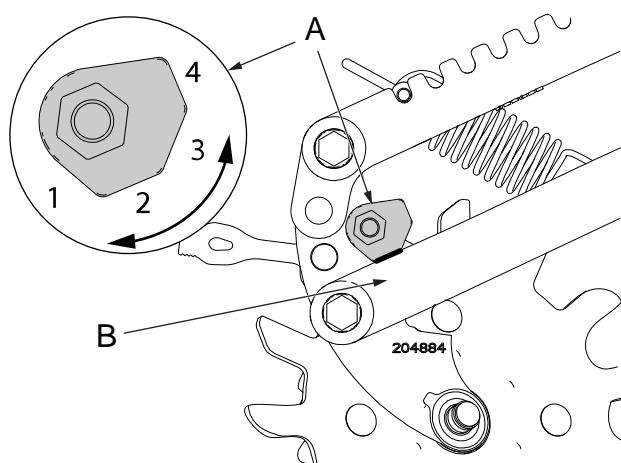


Figure 5.29 Bottom stop positions

The bottom stop consists of an eccentric plate (A) attached to a bolt (not shown in the figure).

The bottom stop limits the maximum operating depth of the row cleaner. There are 4 different bottom stop positions.

#### Adjust the bottom stop position

1. Loosen the bolt a little.
2. Raise the row unit and turn the eccentric plate (A) to the desired position.
  - Position 1 is equivalent to the normal free position.
  - Position 4 is equivalent to the shallowest working position, approx 45 mm shallower than position 1.
3. Release the row unit so that it hangs freely and ensure that the surface of the eccentric plate has a parallel contact with the bracket (B).
4. Tighten the bolt to 81 Nm.

#### 5.1.11.2 Parked position, floating row cleaner

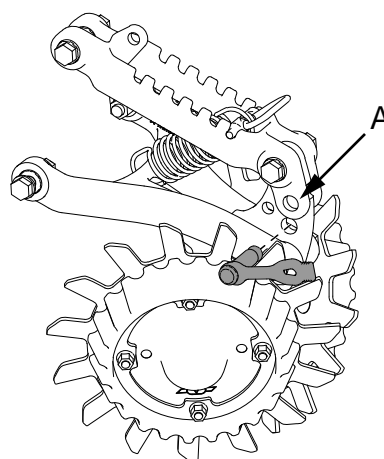


Figure 5.30

If you do not wish to use the row cleaner, put it into the parked position. To do this, pull out the pin, lift the row cleaner while putting the pin through hole (A).

## 5.2 Micro-granulate

### 5.2.1 Calibration

#### 5.2.1.1 Settings on the output unit

1. Ensure that there is a sufficient amount of micro-granulate in the micro-granulate hopper before the calibration sample is taken. There should be micro-granulate to a minimum depth of 15 cm in the hopper.

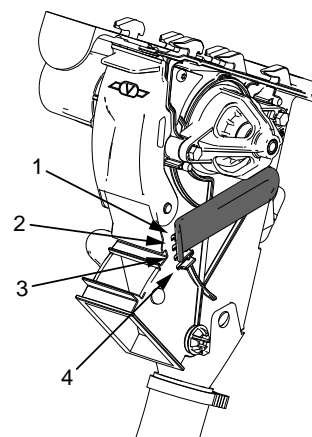


Figure 5.31

2. Set the bottom flaps, see "Figure 5.31 " to the right position according to the table Output settings for micro-granulate.
3. The output rate can be adjusted using the sliding hatches at the bottom of the micro-granulate hopper. Normally, the hatches are set to position 2, see illustration. Make sure the sliding hatches are firmly locked into each position.

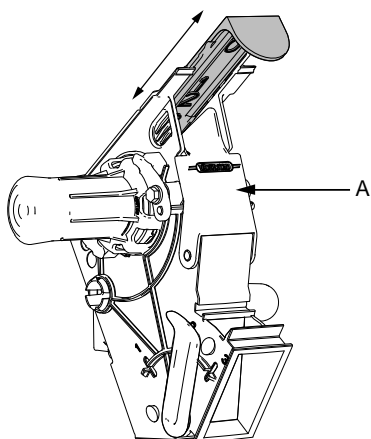


Figure 5.32

2. Open the hatches of the output units and lift out the feed rollers (B).
  3. Fit the new rollers and remount the motors.
  4. Close the hatches of the output units.
4. Open the plastic shutters (A) and check that the bottom flap is in the right position. Also ensure that the correct roller is fitted. There are three rollers, one for micro-granulate, one for fertiliser and a universal roller. Close the plastic shutter.
  5. Select the row unit on which calibration is to be carried out.
  6. Place the container under the coulter.

### 5.2.1.2 Calibration, E-Control



For ISOBUS/E-Control, please refer to the separate user guide.

### 5.2.2 Selecting the feed roller



Change the same type of roller for all units.

To adapt the feed to different types, grades or amounts of micro granulate, there are various rollers to choose from.

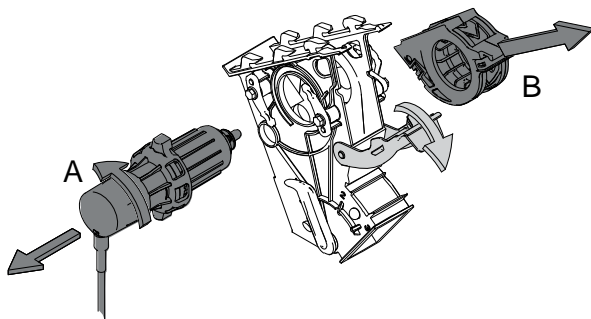


Figure 5.33 Output rollers

1. Remove the motor (A) by twisting it and pulling it out by the hub.

## 6 Maintenance and service

### 6.1 Safety when servicing



The machine must always be secured before any type of service or maintenance work is commenced.



Always shut down the tractor and take out the ignition key in conjunction with work in the seed hopper and when carrying out work on the machine.



Never work under the machine during maintenance or service work unless it has been secured with trestles and the lifting cylinder has been blocked.



Never stand near hydraulic hoses under pressure. Recover all spilled oil after servicing the hydraulics system.



Note that poor welding may result in serious personal injury or fatality. If you are unsure, contact a professional welding technician for instructions.



Exercise extreme caution when undertaking any kind of work with the machine's hydraulic system. Wipe with clean paper or cloths. Place parts on a clean surface (not directly on the work bench) Rinse before assembly, for example with a decreasing agent.



Never rinse the bearings with a high pressure water supply! It is important to grease the bearings after washing in order to remove any water that has remained behind.



Never clean bearings directly with a high-pressure water jet. Clean electrical components by blowing them with air or by wiping them with a slightly dampened cloth.



To maintain the machine's high level of quality and operational safety, use only Väderstad genuine spare parts. The warranty and any claims under it will become void if parts other than genuine parts are used.

1. Lubricate the machine according to the intervals specified in the lubrication schedule, and always before and after winter storage and after high-pressure water cleaning.
2. Before operation, ensure that all nuts and bolts have been tightened (does not apply to bolts in flexible joints).
3. During the season, check periodically that the nuts and bolts have not worked loose and inspect joints and hydraulic ram mountings for wear.

### 6.2 Securing the machine for servicing

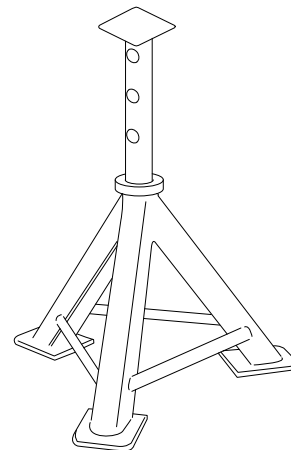


Figure 6.1



For all work underneath the machine or when there is a risk of pinch point injury, the machine must be supported safely on stands. Placing yourself under the machine when it is not properly secured is dangerous and can lead to fatalities. **Secure the machine using trestles or similar.**



Make sure that the surface beneath the trestles is stable enough.

Always **switch off** the iPad (E-Control) when performing maintenance and service work on the machine.

### 6.3 Maintenance and service of the row unit

Regularly clean the row unit of soil and dust, especially the area around the seed meter and the press-wheel. Check that no stones or clods are caught between the discs and the seed coulter.

Check for play and wear in the joints and bearings, replace if necessary. All joints in the row unit have replaceable bushes and shafts. The same bearings are used on the gauge wheel, press wheel, closing wheel and also on the fertiliser unit gauge wheel(s).

Vacuum the hopper and seed meter when changing seed variety or at the end of work. If necessary, remove the air grille (accessory for some models) in order to clean it. Ensure that no seeds are remaining on the seed hopper's sealing surface, against the cover or sitting trapped in the seal because this can produce an air leak.



Avoid contact with and inhalation of seed dressing.

#### 6.3.1 Changing and adjusting seed discs

When they show signs of wear, adjust the seed discs on the row unit so that they no longer have contact with each other.

Recommended wear limit: 350 mm.

1. Remove the gauge wheel arms.

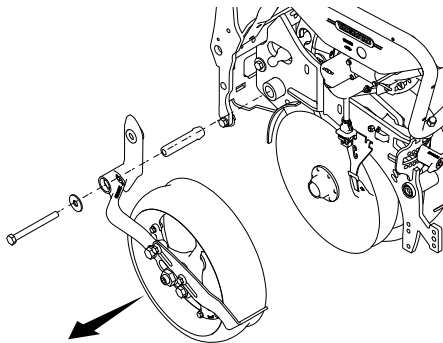


Figure 6.2

2. Remove the cover over the discs' layers.
3. Loosen the layer nut. Note: The nut on the right hand side of the row unit has a right hand thread, and the one on the left hand side of the row unit, a left hand thread.

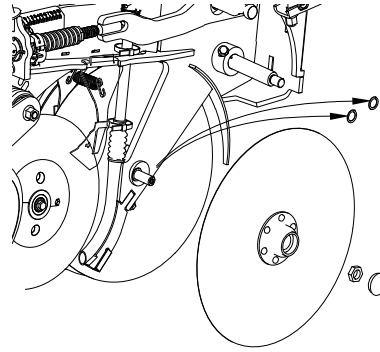


Figure 6.3

4. Hold onto the disc scraper while the disc is being removed.
5. Remove the appropriate number of shims and refit in reverse order. Tightening torque: 130 Nm.
6. Make the same adjustment on the right and left sides so that there are an equal number of shims on each.
7. Properly mounted discs should not press against each other. The correct play between discs is 0-0.2 mm.
8. Refit the gauge wheel arm and the screw for the gauge wheel arm. Tightening torque: 130 Nm.

#### 6.3.2 Setting the gauge wheel

The length of the gauge wheel arm can be adjusted. Having the arm in the long position improves precision during shallow drilling. Having the arm in the short position improves precision during deep drilling.

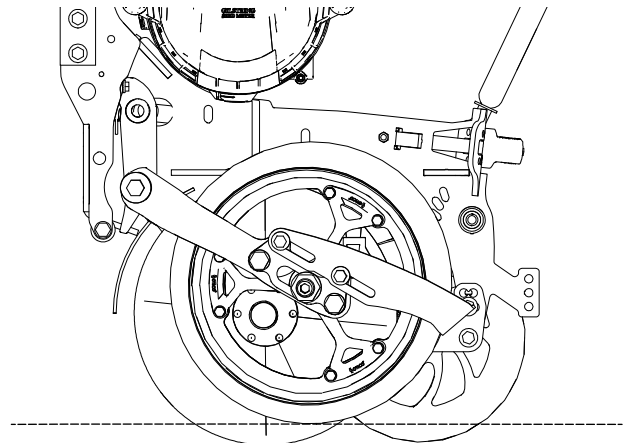


Figure 6.4 Gauge wheel arms in long position for shallow drilling

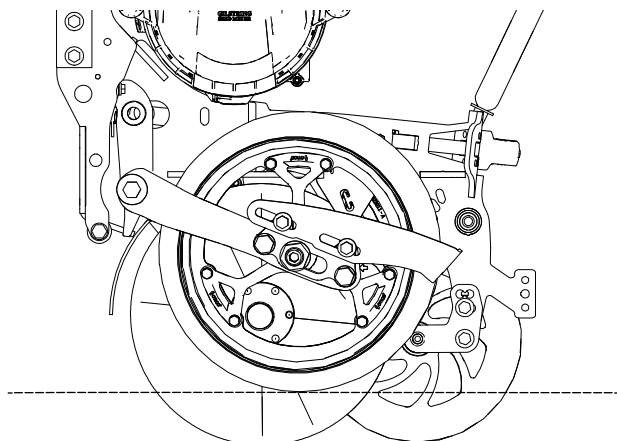


Figure 6.5 Gauge wheel arms in short position for deep drilling

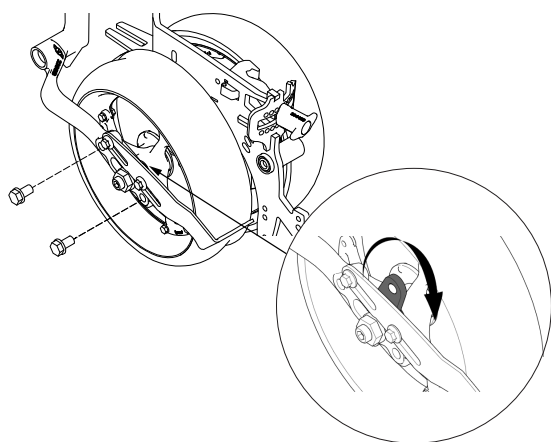


Figure 6.6

1. Loosen the lock nut on the gauge wheel shaft one full turn and remove the two M16 screws.
2. Turn the link where the gauge wheel shaft is fitted 180° to move the gauge wheel forward on the arm.
3. Refit the two M16 screws.
4. Adjust the gauge wheel against the disc using a 12 mm (or 1/2") Allen key and tighten the M24 nut.

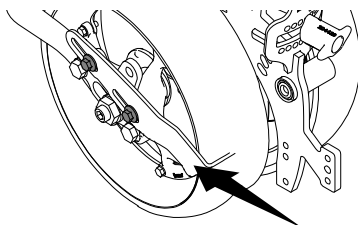


Figure 6.7

5. Adjust the gauge wheel scraper by loosening the two M12 screws, then slide the scraper into place and retighten the screws.

6. Pull the end of the rubber stop outwards from the frame and turn it 90° downwards to vertical position. When the gauge wheel arm is in the long position, the rubber stop must always be in the horizontal position.



Incorrect positioning of the rubber stop can cause mechanical damage to the inner edge of the gauge wheel and/or to the disc hub.

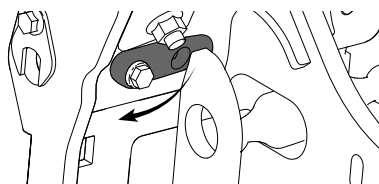


Figure 6.8

7. Check the new drilling depth achieved with the shorter gauge wheel arms and adjust to the desired drilling depth. See "5.1.7 Setting the drilling depth".

## 6.3.3 Changing the seed couler



Note that the seed tube is available in various widths. The seed couler for the 16 mm tube does not fit the 22mm seed tube, and vice versa.

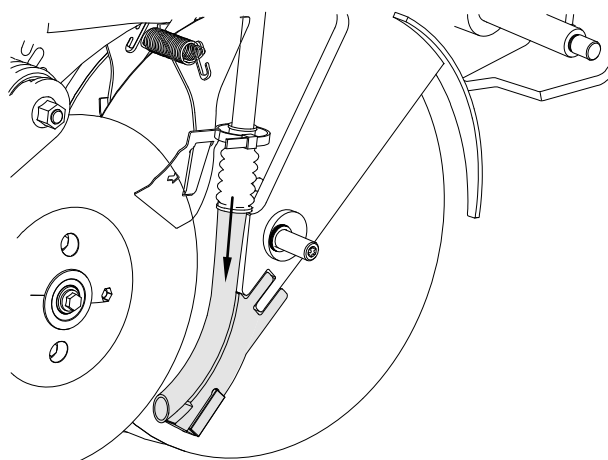


Figure 6.9

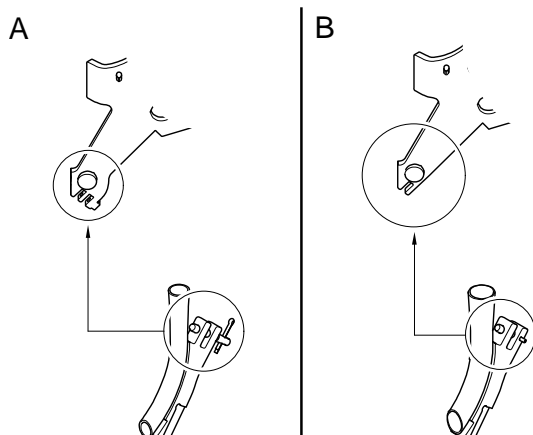


Figure 6.10

Choose variant A or B.

1. Remove the gauge wheel and seed disc on one side.
2. Remove the pin that holds the seed coulter.
3. Reassemble the seed coulter.

### 6.3.4 Changing a press wheel on a fixed bracket



Only use the press wheel that is intended for the short, fixed arm.

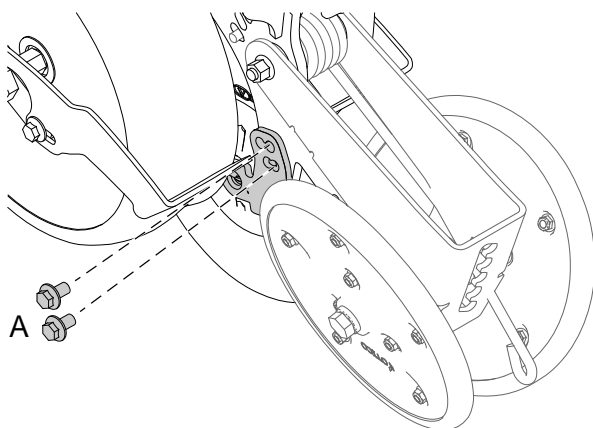


Figure 6.11

1. Remove the two screws (A) to remove the bracket from the row unit.

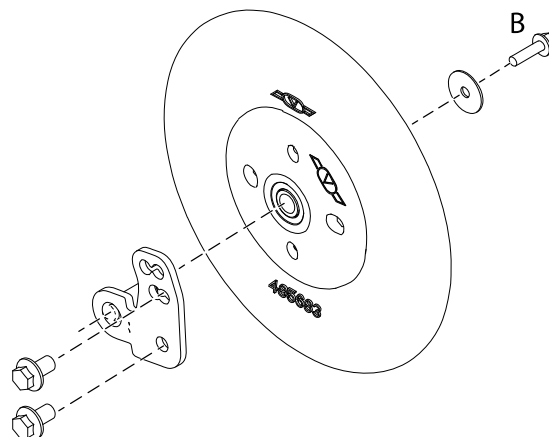


Figure 6.12

2. Remove the centre bolt (B) in order to detach the wheel from the bracket.
3. Replace the pressure wheel.

### 6.3.5 Changing a press wheel on a spring-suspended bracket



Only use the press wheel that is intended for the long, spring-suspended arm.

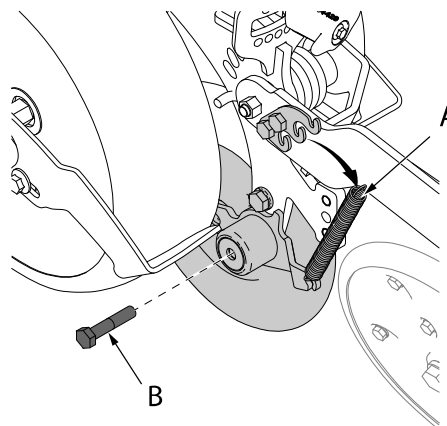


Figure 6.13

1. Loosen the spring (A) and remove the screw (B) in order to remove the bracket from the row unit.

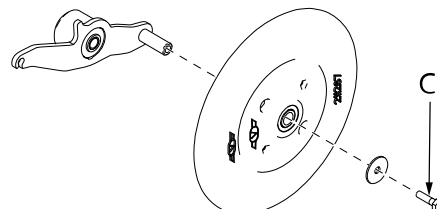


Figure 6.14

2. Remove the centre bolt (C) in order to detach the wheel from the bracket.
3. Replace the pressure wheel.

### 6.3.6 Replacing the seed meter lid seals

A worn seal means that the pressure in the metering unit is not reaching 3.5 kPa (0,035 bar) as it should. Compare a new seal with the old one to determine the wear on the seal. Replace if necessary.

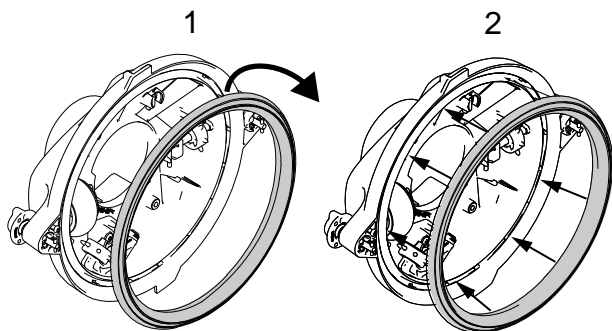


Figure 6.15

1. Remove the old seal.
2. Fit the new one. Make sure the new seal is pressed firmly down into the slot all around its circumference.

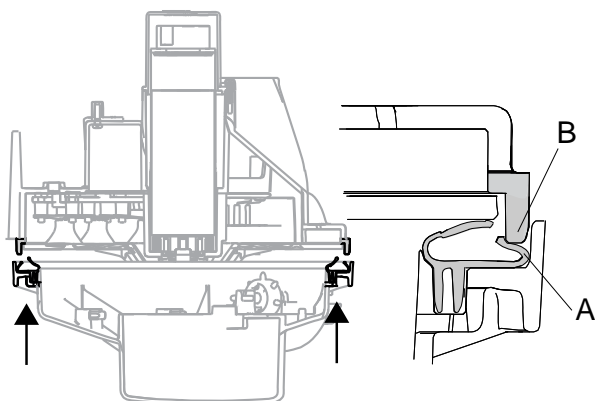


Figure 6.16

3. Press down the lip of the outer seal (A) so that it comes under the rim of the seed meter (B). The seal must be flush against the edge of the seed meter, see illustration.

### 6.3.7 Removal/installation of seed meter from/to the seed hopper

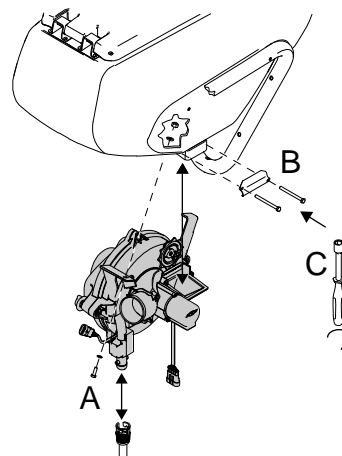


Figure 6.17

*Disassembly:*

1. Remove the connectors.
2. Loosen the seed tube from the seed meter by lifting and turning the bayonet couplings beneath the seed sensor.
3. Unscrew the seed meter from the seed hopper.

*Assembly:*

1. First insert the short screw (A) without tightening it.
2. Press the seed meter against the seed hopper and attach the clamp connection (B). Tighten these screws carefully and alternately using the accompanying sleeve screwdriver (C). Do not use other tools since these can place an excess loading on the thread in the seed meter.
3. Re-tighten the short screw (A) using the same tool.
4. Install the seed tube and check that it is sitting fast by pulling down on it. The seed tube should then spring back up to its original position.
5. Replace the connectors.

### 6.3.8 Cleaning the air duct grille

There is a risk that waste matter which is sucked in via the fan can get stuck and block the air duct grille.

Remove the air duct grille for cleaning if required.

1. Open the seed meter, remove the seed disc in accordance with "5.1.1.1 Changing a seed disc in seed meter and knock out wheel" and remove the seed grill in accordance with "5.1.2 Changing and installing the seed grille and air duct grille".
2. Remove the air duct grille and clean out any waste matter.



### 6.3.9 Cleaning and replacing the seed counter



It is especially important to regularly clean the seed counter in dusty field conditions!



When cleaning, do not use solvents as these can damage the photocell!



Note that the seed tube is available in various widths - 16mm and 22mm. The seed counter and adapter for the 16 mm seed tube does not fit the 22mm seed tube, and vice versa.

The seed counter is a photocell. Clean the glass in seed counter, as required. Cleaning is done from inside the seed meter with the seed disc removed. Using the special brush provided, clean the outlet as well as the seed counter through the hole in the adapter (A). When cleaning the photocell, use the intended brush (soft brush). It may be necessary to use water and dish soap.

Disconnect the contacts, when replacing the seed sensor.

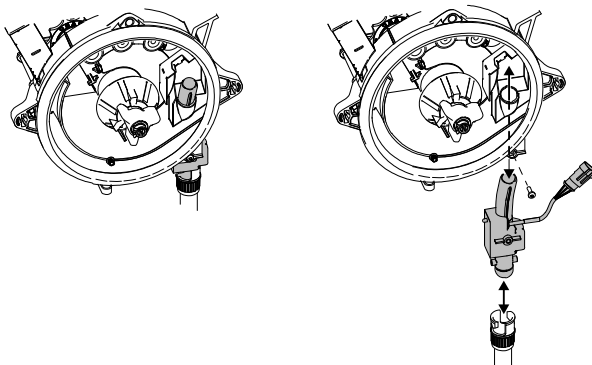


Figure 6.18

1. Twist the bayonet connection on the seed tube and remove it from the seed sensor.

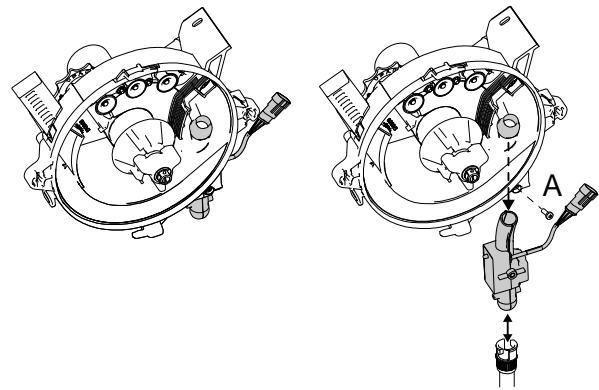


Figure 6.19

2. Remove the screw (A).
3. Replace the seed sensor.



Install the seed tube and check that it is secured by pulling. When released, the seed tube should spring back up to its original position.

### 6.3.10 Changing the adapter



Note that the seed tube/counter is available in various widths. The adapter for the 16mm tube does not fit the 22mm seed tube, and vice versa.

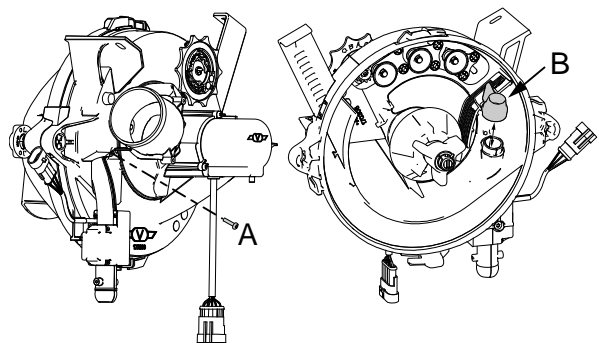


Figure 6.20

1. Remove the screw (A). Use the existing screwdriver (Torx).
2. Replace the adapter (B). Tighten the screw with caution to not damage the threads in the adapter.

### 6.3.11 Checking and replacing the singulator

When the singulator rollers start to wear, and their diameter is reduced, this negatively affects the efficiency of the device. And then, the singulator needs to be replaced.



## Checking for wear

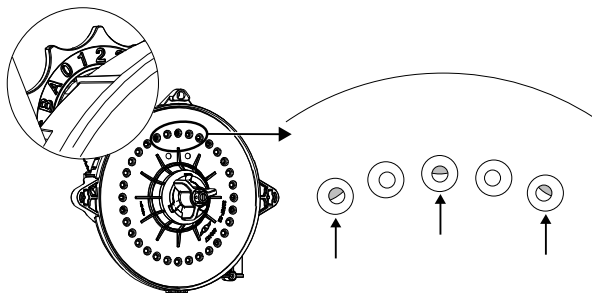


Figure 6.21

1. Install a seed disc with only one row of holes, for example one used for maize or sunflowers.
2. Set the singulator dial to "0". With this setting, the rollers cover half the hole at the centre of each roller. If the position of the rollers deviates significantly from this position, the singulator must be changed.

## Replace the singulator unit



The method to replace the singulator unit is different for row units with auto singulation, see "Replace a singulator unit with auto singulation".



Replace can be made with the seed meter in place - only the seed disc needs to be removed.

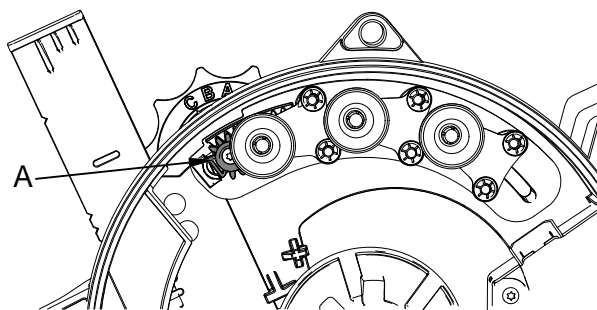


Figure 6.22

1. Remove the gearwheel (A) by rotating the singulator dial to position C
2. Remove the screw from the centre of the gearwheel.
3. Carefully pry off the gearwheel with a screwdriver.

4. Slide the singulator to the right and lift it away from the T-shaped locking lug.
5. Install the new singulator in the reverse order of the above.

The gearwheel should be remounted so that the section without teeth is placed against the stop lug at the base of the singulator. At that moment, the singulator dial should be in position C.

6. Press the gearwheel firmly into place and refit the centre screw.

## Replace a singulator unit with auto singulation

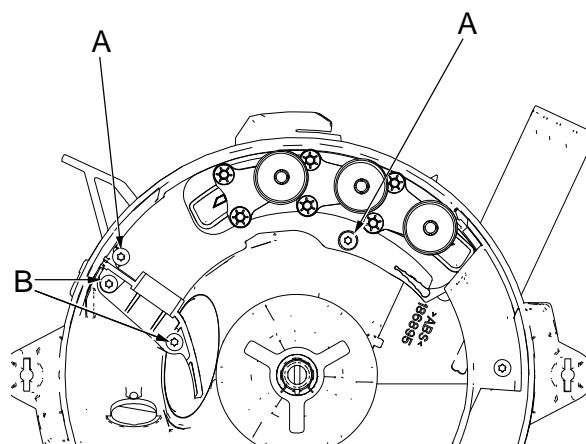


Figure 6.23

1. Move the singulator to the end position, see "Figure 6.23".
2. Remove the two screws (B) that holds the grid, and remove the grid.
3. Remove the two screws (A), and pull the singulator straight out.

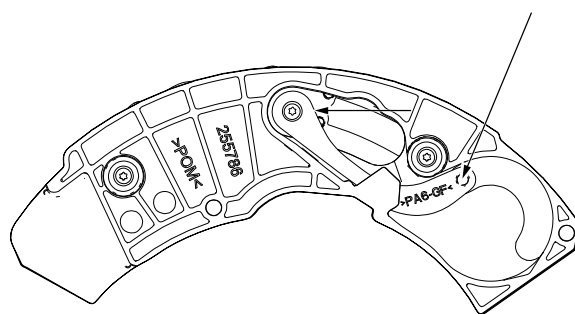


Figure 6.24

4. Make sure that the new singulator is in the same end position. Check that the stay is in the position as shown in figure "Figure 6.24".

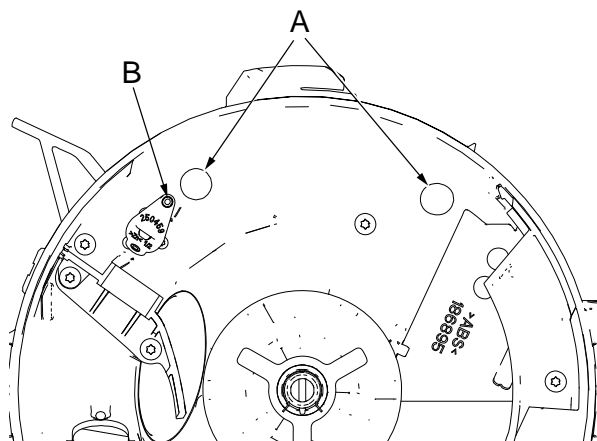


Figure 6.25

5. Check that the arm on the motor axle (B) is in end position. Assemble the new singulator straight into the Seed Meter with the two holes (A) as guidance for the alignment.
6. Attach the two screws to the singulator. Attach the grid and the two screws.
7. Move the singulator back and forth to check that the singulator moves between the end positions.

### 6.3.12 Replacement of the knock out wheel arm

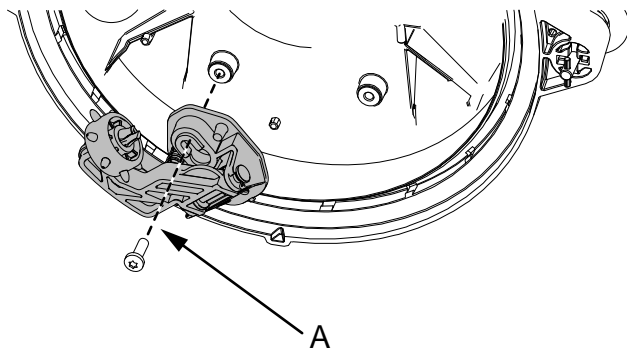


Figure 6.26

The knock out wheel holder is simply replaced by loosening the Torx screw (A) and replacing the entire unit.

### 6.3.13 Replacing the electric motor

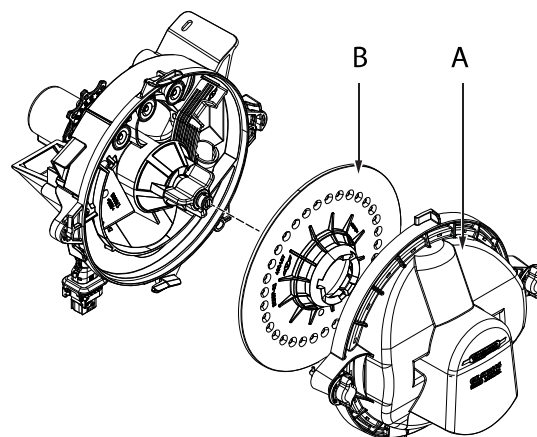


Figure 6.27

1. Remove the lid (A) and the seed disc (B).

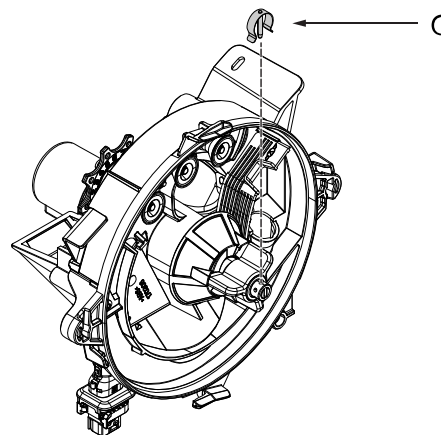


Figure 6.28

2. Remove the lock ring (C) from the motor shaft.

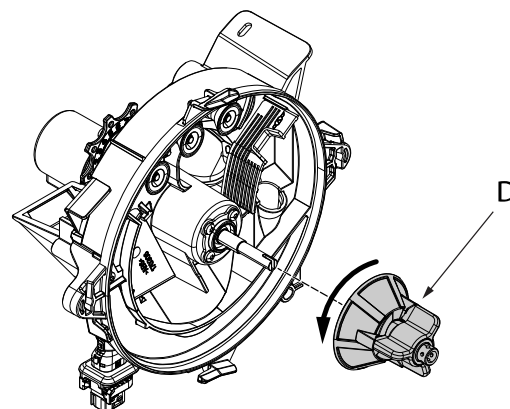


Figure 6.29

3. Unscrew the hub (D) from the motor shaft.

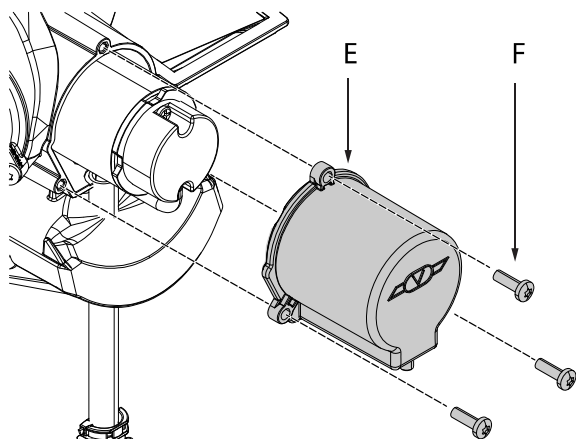


Figure 6.30

4. Remove the protective cap (E) from the back of the seed meter by loosening the three screws (F).

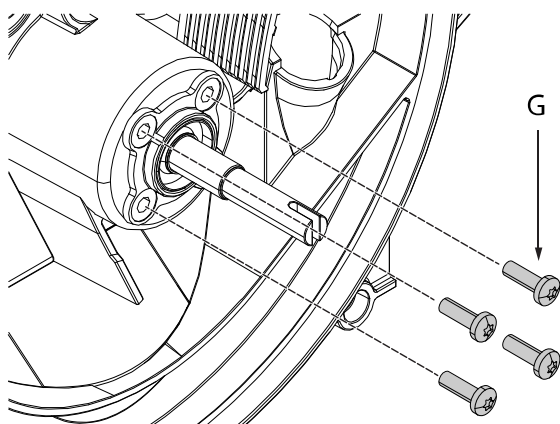


Figure 6.31

5. Replace the electric motor. The four screws (G) that hold the motor in place should be tightened carefully at approx 1 Nm since they are mounted in plastic.



If the threads become damaged, the motor may be rotated through 45 ° and mounted in the extra holes.



Never leave fertiliser in the machine for any length of time!



Check the fertiliser hoses to ensure that they are empty.

The micro-granulate output unit should be cleaned regularly and always when the season has come to an end.

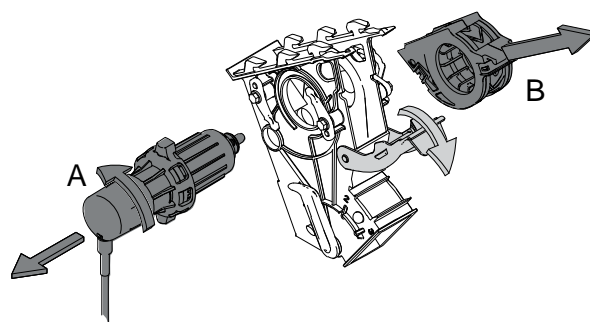


Figure 6.32 Detach the parts of the output system for cleaning

1. Clean the parts of the output system that can be accessed from outside.
2. Remove the motor (A) from each output unit by twisting it and pulling it out by the hub.
3. Open the hatches of the output units and lift out the feed rollers. Clean the rollers and output units (B).
4. Fit the rollers and remount the motors.
5. Close the hatches of the output units.

## 6.4.2 Adjustment of the bottom flaps

## 6.4 Maintenance and service of the micro-granulate unit

### 6.4.1 Cleaning the output system



Safety first! Avoid contact with and inhalation of micro-granulate and fertiliser. Always follow current environmental and safety legislation for work with hazardous substances. Always read and adhere to the instructions given by the granulate supplier. When working with fertilisers and pesticides there is often a requirement for protective masks and gloves.

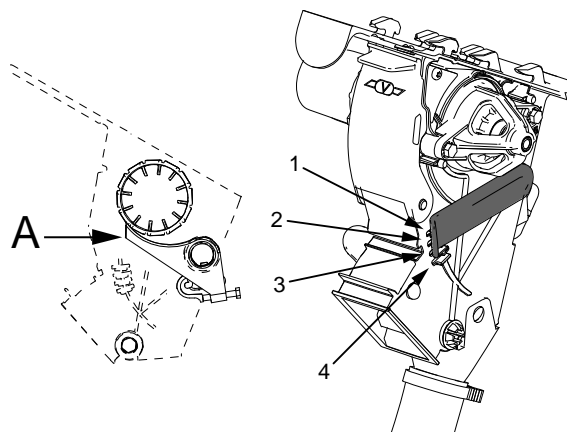


Figure 6.33

In the bottom flap position 1, the play (A) between the output roller and the bottom flaps should be 0 mm.

In the bottom flap position 2, the play (A) between the output roller and the bottom flaps should be 0,2 mm.

The distance should be checked at the outer edge of the bottom flap. If necessary, adjust the settings screws (B) where appropriate.

By weighing the amount fed out from more than one output box, it is possible to check that the machine is feeding out equal amounts from each unit.



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