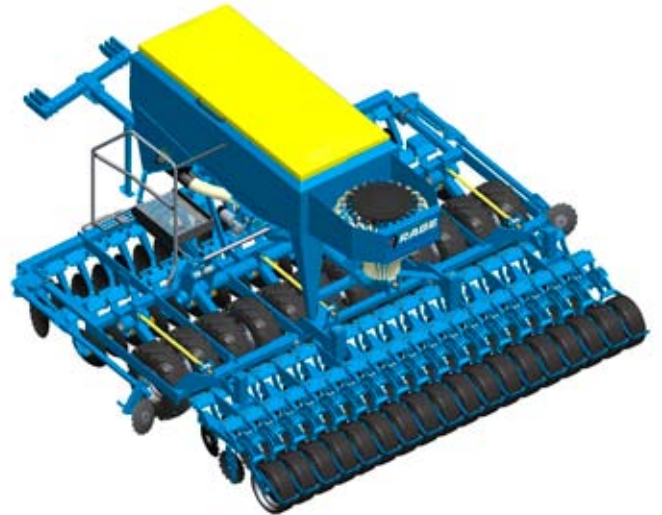


**PRELIMINARY  
VERSION**



## ***Operating instructions***

**Mulch seed drill  
EcoSeed**



***Read and follow the safety instructions!***



# Operating instructions

---

## Mulch seed drill EcoSeed

Read carefully through these operating instructions and safety precautions ("For your safety") before operating the implement for the first time, and ensure that they are observed at all times.

The person operating the machine must be trained and qualified in the operation, maintenance and safe use of the machine, and made fully aware of the hazards involved. Ensure that a copy of the safety precautions is passed on to all subsequent users.

Ensure that all relevant local accident-prevention regulations are observed, along with generally accepted safety procedures and any legislation that may apply with respect to health and safety in the workplace.

Observe all warning notices. (DIN 4844-W9)

Instructions in this manual accompanied by this symbol are used to indicate danger, along with warning notices fixed to the implement.

(See the appendix for details of warning signs.)



The CAUTION symbol indicates safety precautions that must be observed to prevent danger to the machine or its functions.



The NOTE symbol indicates specific procedures that must be observed to ensure the smooth and trouble-free operation of the machine.



### Loss of warranty

The mulch seed drill is designed exclusively for normal agricultural use. Any use for a purpose other than this shall be regarded as incorrect operation, and no liability will be accepted for the resulting loss or damage.

The definition of "use for intended purpose" also covers observance of the specified operating, maintenance and servicing instructions, along with the exclusive use of original spare parts. The use of non-original accessories, spares and/or consumables that do not carry specific approval from Rabe shall void all warranty liabilities.

We can accept no liability whatsoever for damage, loss or injury resulting from the carrying out of unauthorised repairs and/or modifications to the implement, or from the inadequate monitoring of its operation.

Claims for missing or damaged items detected at the moment of delivery (transit damage, missing parts) should be made immediately and in writing.

Warranty claims and our liability exclusions are based on our general terms and conditions.

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## Brief description

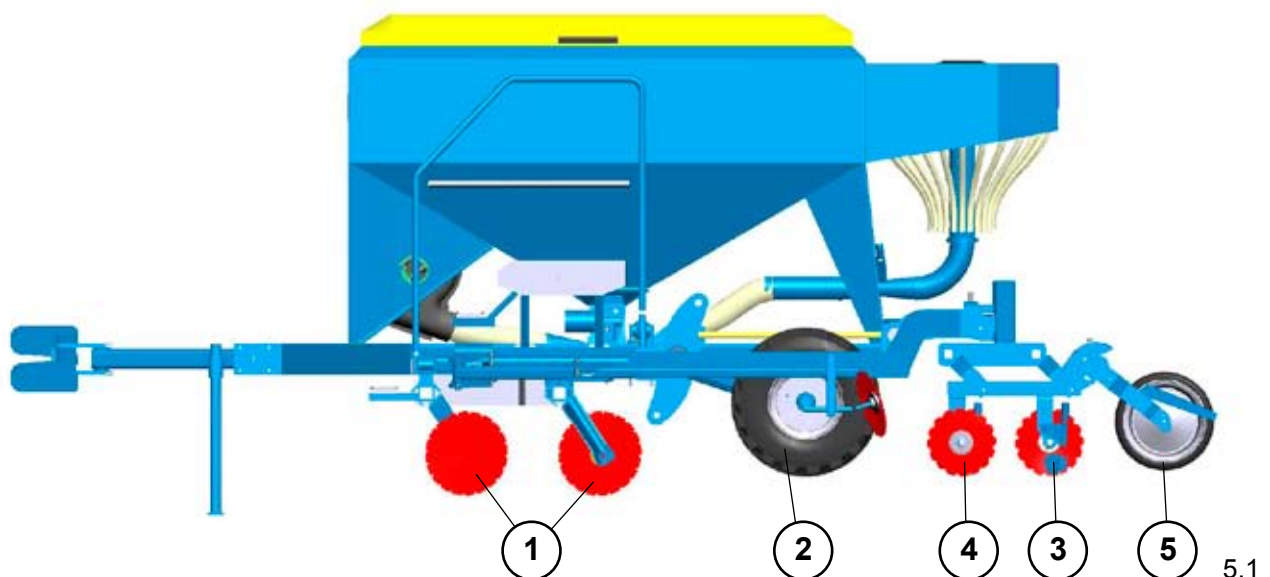
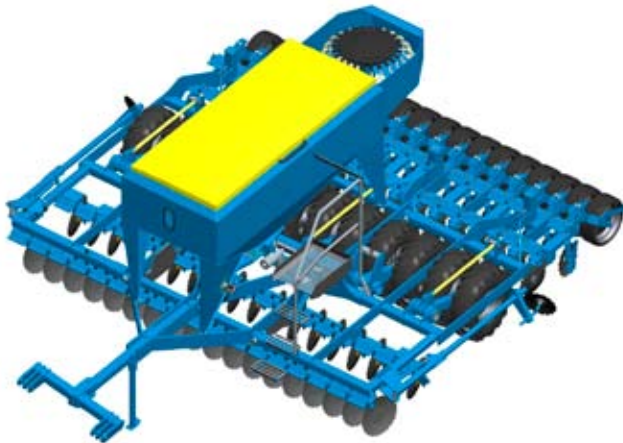
EcoSeed - the trailer drilling machine for mulch sowing and mulching/direct sowing. This compact version of the machine combines extra-lightweight frame construction with a carefully-balanced centre of gravity. The operating widths are 3 m, 4.50 m or 6 m. With its MegaDrill, Ceria, MegaSeed and EcoSeed units, Rabe now offers a new range of seed-drill machines designed to cover the needs of both conventional seeding and mulch sowing.

The front of the EcoSeed is fitted with a Field Bird two-row disc mulcher (5.1/1). The tyre-mounted packing roller (5.1/2) (Ø 780x264) running behind it covers the entire operating width of the machine. This ensures that the sowing coulters (5.1/3) have a smoothly-levelled and firm surface to sow on. A hydraulic system lowers an integrated twin-tyre running mechanism for the packing roller to allow transport by road.

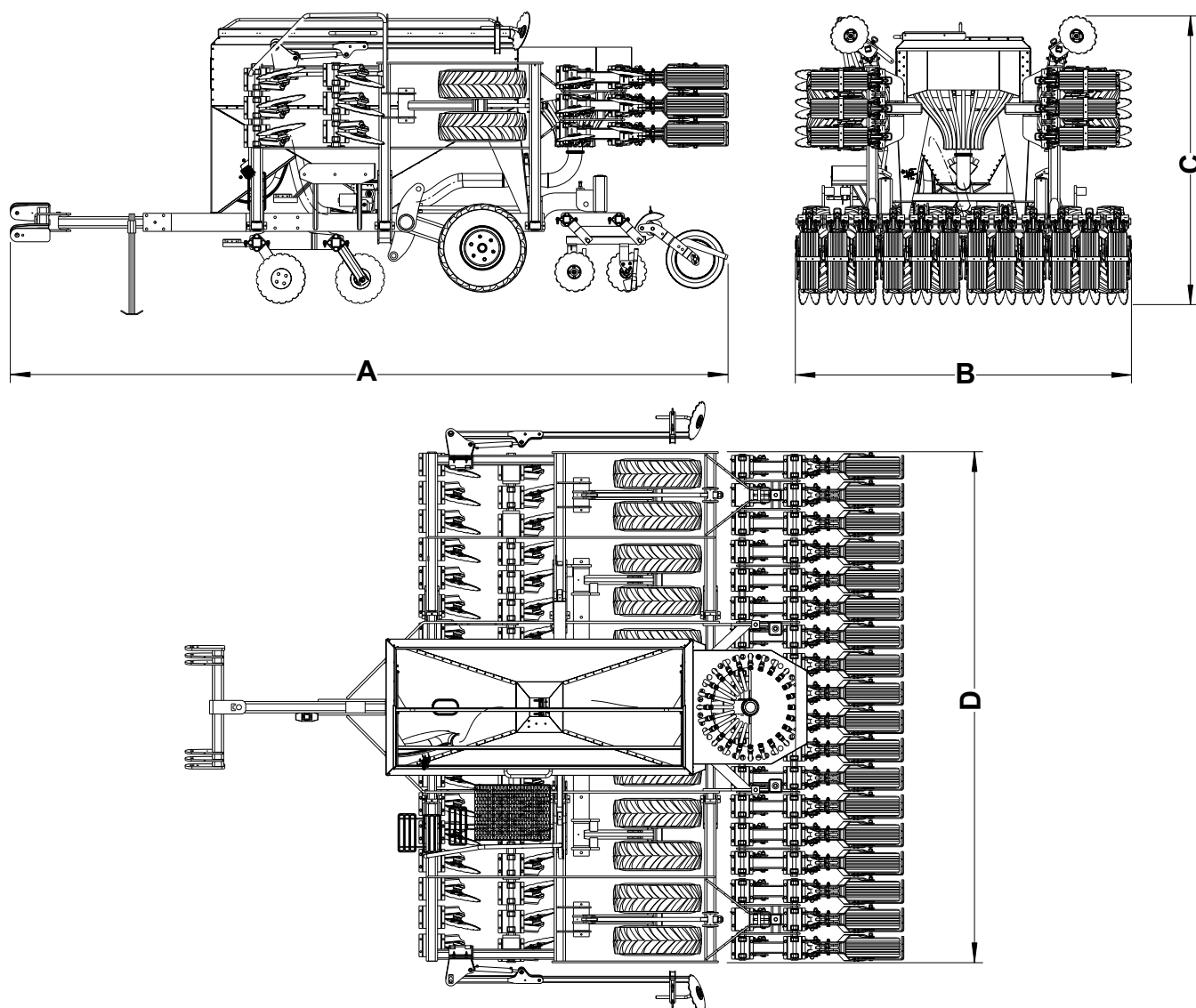
The mulch-sowing coulters are a particularly reliable combination of tilling coulters (5.1/4) and trailing coulters with 12.5 cm line clearance. Maximum coulters pressure is 80 kg. A wide, trailing pressure roller (5.1/5) with soft rubber tyres reliably guides each of the two coulters to the required depth in a parallelogram pattern. This machine makes running speeds of about 15 km/h with consistently high operating accuracy a practical possibility.

The centrally-located seed hopper has a volume of approx. 3000 litres. The large opening (2.50 long) with hinged flap and wide loading platform ensure easy filling from a front-loader shovel, worm feed or Big Bag.

The Artemis electronic module controls the dosing system and tramline settings, while monitoring all important machine functions.



## Machine data



EcoSeed			
Basic type	EcoSeed 3 m	EcoSeed 4,5 m	EcoSeed 6 m
Dry weight in kg (approx.)	5600	5600	6800
Tractor from KW/hp	103/140	103/140	147/200
Working width D in mm (approx.)	4500	4500	6000
Lengths A in mm (approx.)	6870	6870	6870
Transport width B in mm (approx.)	3000	3000	3000
Transport height C in mm (approx.)	2880	2880	3640
Max. supported load	1500	1500	1500
Max. overall weight	6200	6200	6600

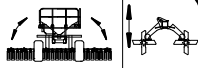




Dimensions and weights of basic version.

## Machine data

<b>EcoSeed</b>			
Basic type	EcoSeed 3 m	EcoSeed 4,5 m	EcoSeed 6 m
Seed hopper capacity	3000L	3000L	3000L
Number or rows (space between rows 125 mm)	36	36	48
Tyres	10.0/75-15.3 10PR BKT - AS		
Brake system	Compressed-air braking system		
Seed distribution	Pneumatic		
Dosing, drive	Electronically-controlled electric motor		
Fan blower, drive	Paddle-blade fan with hydraulic motor		
Towing	Lower arms cat III, short or twin-axle counterweight pendant Ø 41		
Required hydraulic connections	2x twin-action, 1x single-action, 1x non-pressurized return conduit		
Hydraulic pressure	max. 200 bar		
Control / monitoring	Electronic		
Operating speed	up to 15 km/h		
Transport speed	25 or 40 km/h* * depending on operating permit		

Increased noise level perceived by tractor driver (during operation) < "70 dB(A)".

## EcoSeed hose connections

weiß	Einklappen+Vorwerkzeuge	
white	Folding + front cultivation	
blanc	Repliage + Outils	
rot	Gebläse Druck/Rücklauf	
red	Fan pressure / return	
rouge	Turbine pression/ retour	
blau	Aufladung Scharschienen	
blue	Load on coulter bar	
bleu	Point déncrage de la rampe	
grün	Fahrwerk	
green	Transport wheels	
vert	chariot de transport	
gelb	Spuranreißer	
yellow	Track markers	
jaune	Traceurs	

## Safety precautions

Do not allow anyone to stand between the tractor and the implement during coupling or uncoupling, even if this is to allow operation of the external hydraulic controls. Danger of injury!

Always set the tractor's hydraulic control mechanism to "attitude control" before coupling or uncoupling.

Check the tractor and implement before each startup to ensure that they are in perfect working order for driving and operation.

Observe the maximum axle loads (with full hopper) and maximum permitted total weight.

Ensure that all safety devices are present and fitted before the machine is transported.

Clear the working and turning area of bystanders before manoeuvring or operating the implement. (This also applies to the lane markers.)

DO NOT stand or ride on the implement or remain within its turning circle or operating area.

Before leaving the tractor unattended, and also before carrying out adjustments, lower the implement, switch off the engine and remove the ignition key.

Note that there is a danger of crushing and cutting injuries occurring in the area of the three-point attachment and the hydraulic lifting and folding mechanism, and during lane marker operation. Beware of after-running coulters and rollers when the implement is lifted at the end of a fast run; do not approach until the coulters and/or rollers have come to a complete stop.

Handle hydraulic components and conduits with care, as they become hot during operation.

If the blower begins to rattle or vibrate, shut down the hydraulic system immediately and check the blade wheel of the blower for correct dynamic balancing.

Note that incorrect balancing is dangerous, and can result in irreparable damage to the blower. Before carrying out maintenance or adjustment work on the dosing devices – or driving on public roads – switch off the electronic system (position "0") and disconnect the system from the power supply (by pulling out the plug-in connection for the power supply/implement cable loom).

Disable the tractor's hydraulic control system to prevent accidental operation while the implement is being towed along public roads.

Always lower the implement at both front and back BEFORE carrying out adjustment or any other work.

When filling with treated seed and cleaning the machine with compressed air, note that seed dressing agent is a toxic irritant. Keep sensitive body parts well protected (e.g. goggles, face mask and gloves).

Before operating for the first time – or after a long period out of use – check all screws and bolts for tightness, make sure that all bearings are sufficiently greased, examine the hydraulic system for leaks and check tyre pressures.

- Maximum length of combination (tractor + implement) 18 m

- Maximum width 3 m


- Maximum height 4 m

- Maximum total weight of combination 16t, of which 20% on front axle.

The operating pressure of the hydraulic system must not exceed 200 bar.

The machine identification plate (8.1) contains certification details, and must not be altered or made illegible.

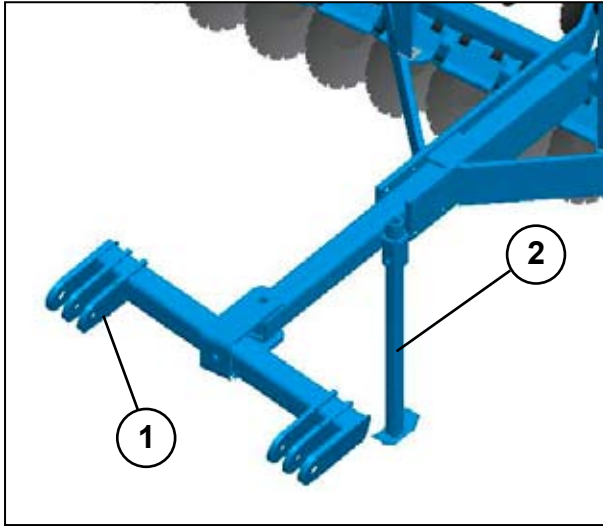


Typ: _____		
Fz.-Ident.-Nr. _____		
○	zul. Stuetzlast _____	kg
	zul. Achslast _____	kg
	zul. Gesamtgewicht _____	kg
	Eigengewicht _____	kg
Baujahr:	Nr. _____	

Rabe Agrarsysteme  
Gebt & Co. KG,  
D-49152 Bad Essen

8.1

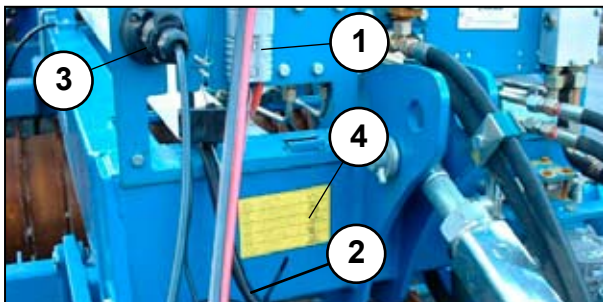




9.1



9.2



9.3



9.4

## 1. Towing

### 1.1 Coupling the implement

Couple the lower-arm floating axle (9.1/1). Correctly secure the coupling assembly. Secure the tractor's lower arm in the centre. Retract the support stands (9.1/2).

### 1.2 Brakes

Connect the yellow brake line (9.2/2). Connect the red brake line (9.2/1). The spring-loaded brake is released as pressure builds up in the braking system.

### 1.3 Electrical connections

There are three electrical connection points at the front of the machine:

- Power lead (9.3/1) for the electrical dosing-mechanism drive.
- Control lead (9.3/2) to act as connection for the drill computer.
- Connection lead (9.3/3) for the lighting system on the trailer drilling machine.

### 1.4 Hydraulic connections (9.3/4)

Depending on the configuration of the implement, the following hydraulic connections are required:

- Single-action control device with Ø 22 mm non-depressurized return conduit for the hydraulic blower drive (Plug-in coupling subass. 4).
- Twin-action control device for the running gear.
- The twin-action control device for the lane marker can be switched over, when required, to alter the receiver pressure of the hydraulic coulter rail load.

## 2. Transport position

### 2.1 The implement

Raise the implement at the back and front so that the frame is lifted horizontally. (9.4)

### 2.2 Folding in the sowing rail and soil preparation tools / roller

Note that the implement must be fully raised for folding in and out. (9.4)

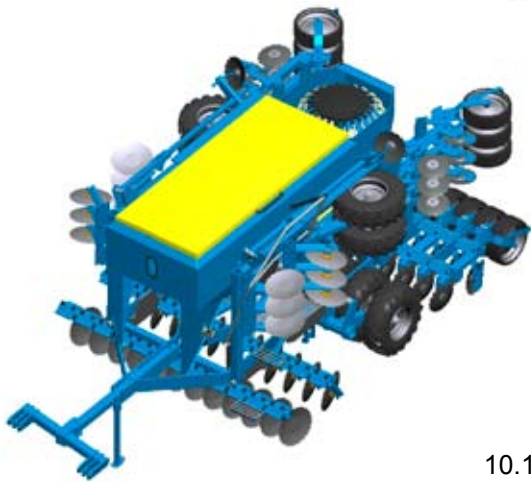
Fold in the folding parts with the twin-action control device. The folding half-sections are locked hydraulically in their retracted position.

Caution: Block the tractor's onboard control unit to prevent accidental operation during transport operations. Switch off the electronic system and/or pull out the plug.

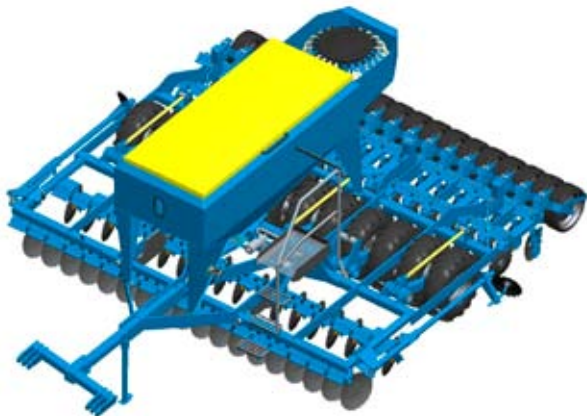
### 2.3 Safety

Before transporting on public roads, ensure that the safety devices are attached and that the road lights are in working order.

Observe the transport procedures.



10.1



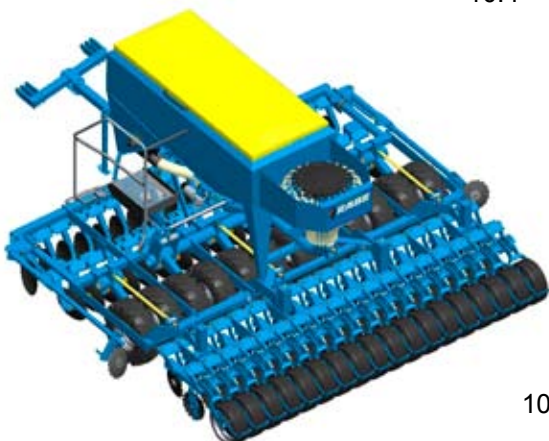
10.2



10.3



10.4



10.5

### 3. Lowering the implement

The implement can be parked in either its retracted (10.1) or extended position.

We recommend putting the implement in its folded-out position (10.2) and lowering it completely before storing it for the winter.

Parking in retracted position (10.2):

Lower the running gear as far as possible.

You should also prop up the implement frame on both sides to prevent accidental lowering.

Chock the machine to prevent it rolling away.

#### 3.1 Uncoupling the brakes

Uncouple the red brake line and hang it in its holder (9.2/1);

Uncouple the yellow brake line and hang it in its holder (9.2/2);

The spring-loaded brakes act on the running gear.

When the pressure vessel is full, pressing the red button on the brake valve (10.4/1) releases the brake once (even if the brake line is disconnected).

#### 3.2 Hydraulic connections

Uncouple all hydraulic connections from the tractor.

Protect the hydraulic plug from dirt with the sealing caps and place in the holder provided for this purpose.

#### 3.3 Electrical connections

Disconnect all cables from the tractor. Store the removable electronic control box and its cables in a dry place.

Carefully cover the plug sockets on the implement and tractor.

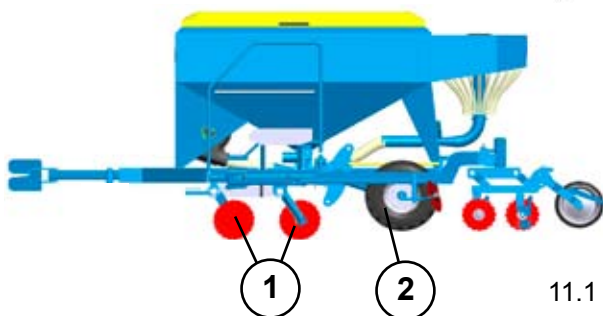
### 4. Changing to working position (10.5)

Extend the folding tools and sowing rails with twin-action control device.

Fully extend the cylinder. Horizontal position of the tools.

Switch on the electronic operating system.





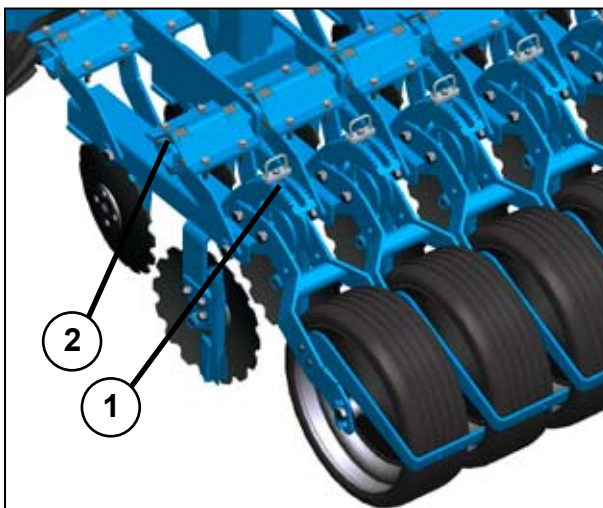
11.1

## 5. Use and adjustment

### 5.1 Previous soil tillage

#### 5.1.1 Mulching-disc assembly

The working depth of the disc coulters (11.1/1) is set by the tyre-mounted roller (11.1/2). Adapt the drill speed to the nature of the mulching operation. This also increases sowing performance.



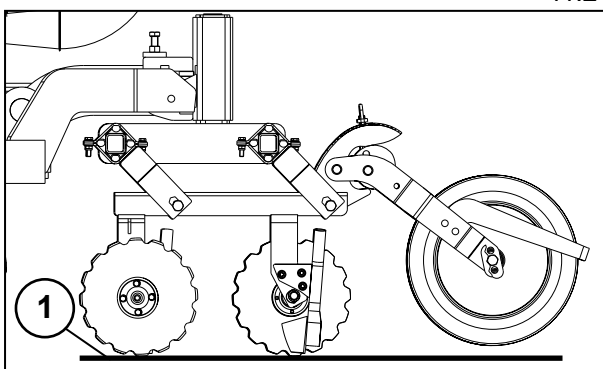
11.2

### 5.2 Sowing rail

Coulter pressure adjustment: Coulter pressure is adjusted to a fixed setting. This is based on the proportional weight of the machine, as transferred to the coulters and pressure rollers. The parallelogram arrangement of coulter elements can be directed upwards. The disc coulters are spring-mounted on rubber elements (11.2/2).

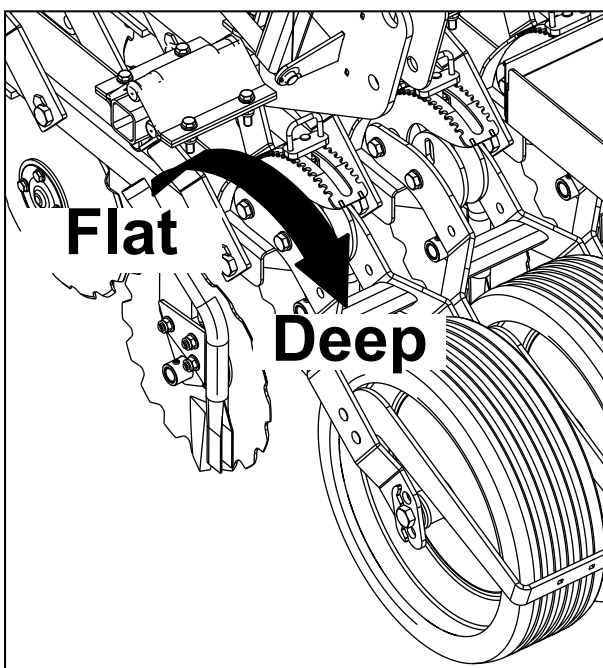
#### 5.2.1 Adjustment of sowing depth / pressure roller

Start by adjusting the pressure rollers (11.4) to the required sowing depth with the eccentric mechanism (16-position) secured in the gauge hole (11.2/1). - Adjust all pressure rollers to the same setting.

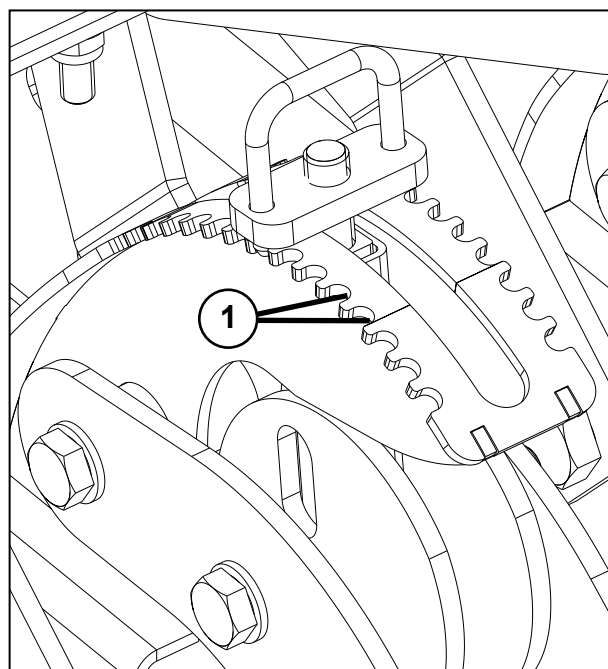


11.3

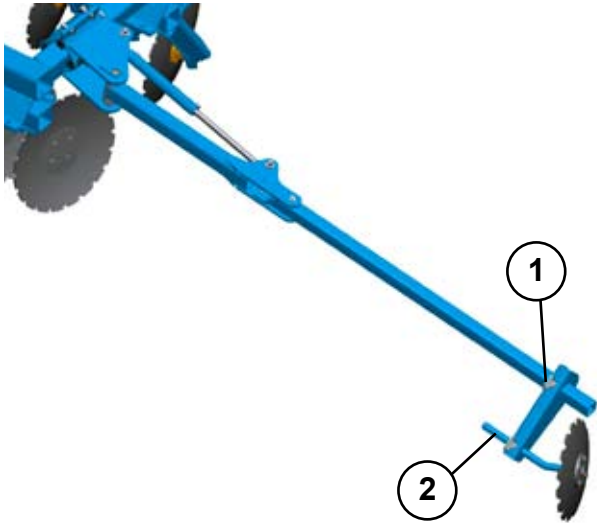
...for "normal sowing depth": on a firm, even surface, set the pressure rollers to the coulter level (11.3/1). (4th or 5th hole 11.5/1). Sowing depth may have to be corrected for field operation (by means of the eccentric mechanism and gauge hole 11.2/1)



11.4



11.5



12.1

### 5.3 Lane marker

The disc lane markers can be centred up with respect to the tractor. Setting: move the extension arms into their operating positions. Adjust the disc contact point (12.1/1) correspondingly; (depending on working width and row distance of the drilling machine and the tractor-lane width during lane marking).

The lane marker is switched over by means of a hydraulic shuttle valve on the drilling machine. A single-action control valve must be fitted to the tractor for this purpose.

Fine adjustment is carried out by displacing the marking disc.

Centring-up with respect to tractor (12.2.1), measured from outer share:

$$\frac{\text{Working width} + \text{row distance}}{2} = A$$

Example: 3 m operating width (B = 300 cm)  
12 cm space between rows (R = 12 cm)  
170 cm tractor lane (S = 170 cm)

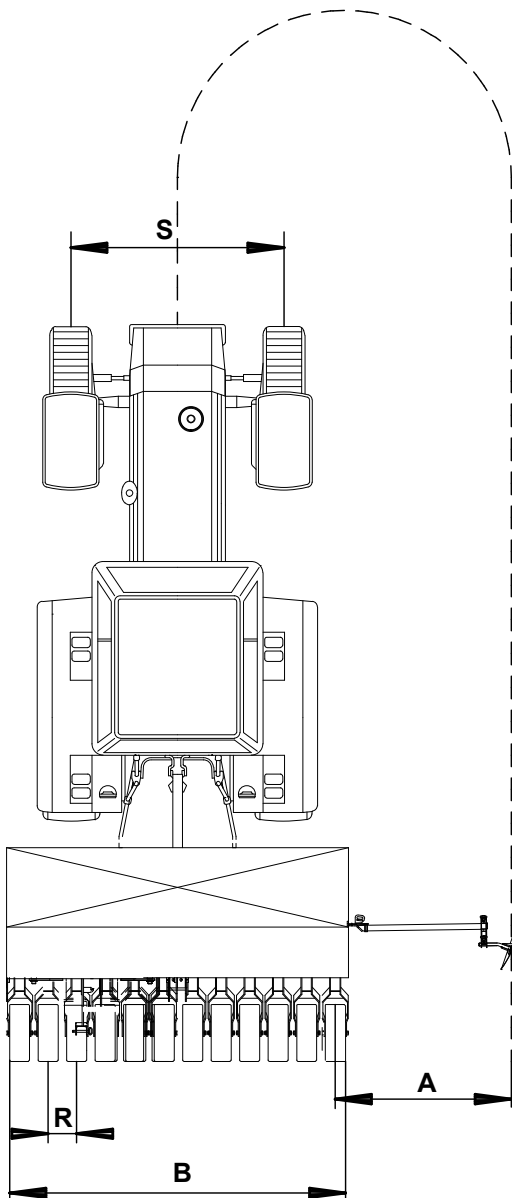
$$\frac{B + R}{2} = \frac{300 + 12}{2} = 156 \text{ cm} = A$$

Turn the disc axle (12.1/2) to give the disc more or less grip on heavy or light soil accordingly.

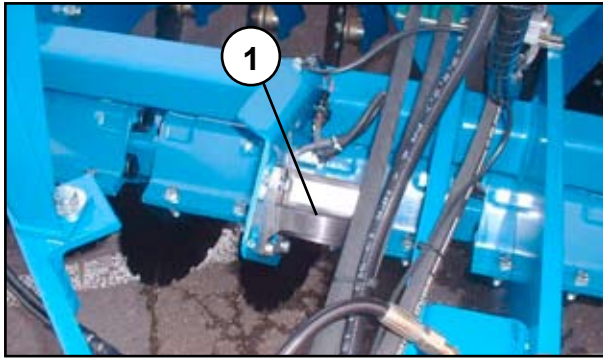
The lane markers are switched over at the forward furrow by means of a single-action tractor control device

... Set to "raise" at the end of the traverse – both lane markers are now raised,

... When starting the "lower" traverse – during operation, the control device must always be left set to "lower" (floating setting).



12.2



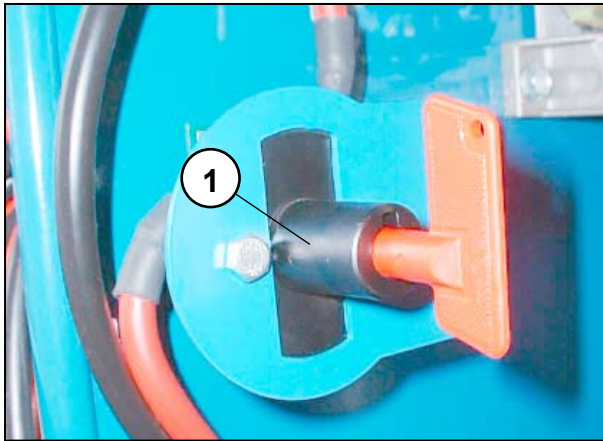
13.1

#### **5.4 Radar (13.1/1)**

The radar device supplies the control system with traverse-related data. Tracking detection is carried out without contact. The dosing system stops if the fan speed is too low (to prevent blockages).

#### **5.5 Power supply (13.2)**

Operating power is taken directly from the tractor battery. The power-supply cable loom, including main fuses, master switch (13.2/ 1) and plug sockets, is permanently installed on the tractor.

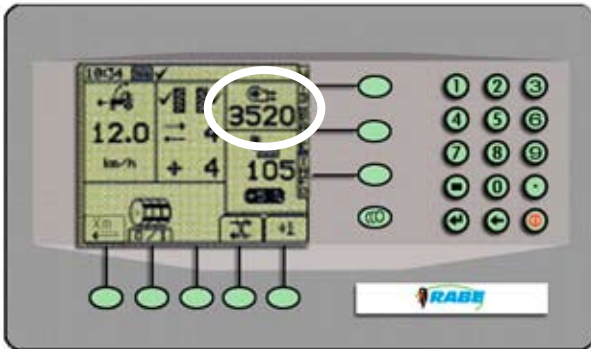


13.2

## 5.6 Fan speeds

The corresponding blower speed should be selected to provide an appropriate stream of air for the operating width and seed type.

Fan speeds		
Operating width	Fan speed	
	min	max
from 4m	2500	3500



14.1

The current fan speed is displayed at the computer terminal (14.1).

An oil capacity of approx. 30 litres/ min is required for operation at max. fan speed.

A hydraulic valve (14.2/2) regulates fan speed. For operation at min. fan speed, the hand wheel (14.2/1) should be turned outwards until the desired turning speed is reached.

-turn out = reduced volume (lower turning speed)

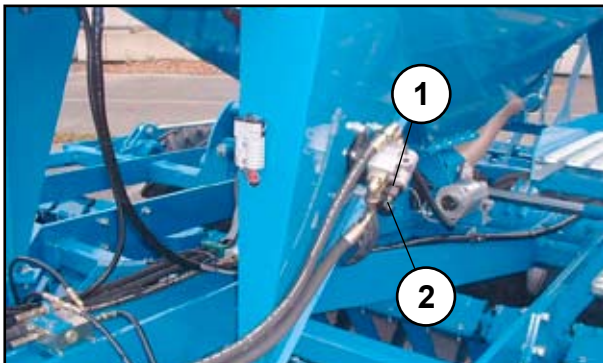
-turn in = increased volume (higher turning speed)

For operation at max. fan speed, the hand wheel should be turned inwards until the desired turning speed is reached.

The hand wheel should then be locked in place.

Hydraulic blower drive requires the following tractor-mounted items:

- With open hydr. system, a separate oil circuit with a min. feed rate of 35 l/min.
- Single-action control device or twin-action control device with oil quantity adjustment and float setting. On load-sensing or closed hydr. system, a single- or double-action control device with priority switching and oil-flow adjustment. Before initial startup of the blower, the flow rate should be adjusted at the tractor-mounted control device to approx. 30 l/min. At reduced blower speeds, the flow rate should be increased.
- Non-pressurized return with NW 22 tube and size-4 hydraulic system.
- Hydraulic-oil cooler to prevent damage to the tractor's hydraulic system: If the blower is operated with a twin-action control device, it must be possible to switch the control device directly from operating to float setting at switch-off.



14.2

Operating position	Pressure range Approximate values
	from 4m
Coarse seed	80 - 100 bar
Fine seed	30 - 50 bar

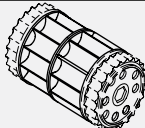
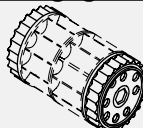
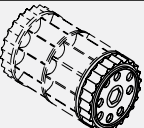
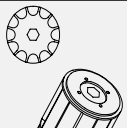
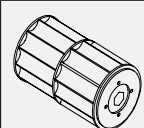
Control device to "lower" = blower op.

Control device to "float setting" = blower switched off.

### IMPORTANT !!!

In order to prevent fluctuations in fan speed when towing with the load-sensing system, all further powered items (coulters-pressure adjustment, lane markers, etc.) should be adjusted at the corresponding control device to run with the lowest possible quantity of oil. For long-term operation of the blower, follow the indications in the operating manual supplied with the tractor, or consult with the tractor manufacturer.

## 5.7 Seed wheel settings for pneumatic seed drills with hydraulic fan drive

Seed Variety	Seed wheels					Bottom flap position	Fan setting
	Standard seed wheels			Coarse seed wheel(100% filled) Order No. 9001.24.30	Coarse seed wheel (50% filled) Order No. 9001.24.31		
	Coarse seed wheel engaged	2 small seed wheels engaged	1 small seed wheel engaged				
							
Wheat	X			O	O	1	N
Barley	X			O		1	N
Rye	X			O	O	1	N
Triticale	X			O	O	1	N
Oats	X			O	O	1	N
Spelt (Grain)	X			O		1	N
Oil seed rape		X I	O I(<2,5kg/ha)		O I	2	R
Foder rape		O I			X I	2	R
Red clover		O I			X I	1	R
Lucerne	O				X	1	R
Turnips		X I	O I			1	R
Lupins	O I			X I		3	N
Mustard	O I				X I	1	R
Radish	O I				X I	1	R
Phacelia		O			X	1	R
Vetches	X			O		1	N
Grass seed	X (>20 kg/ha)	O (<12 kg/ha)			O (>10 kg/ha)	1	N/R*
Peas	O I			X I		4	N
Beans	O I			X I		4	N
Flax	O				X	1	N
Linseed					X	1	R
Sunflower		O I			X I	2	N
Soja	O I			X I		3	N

**X** Standard setting

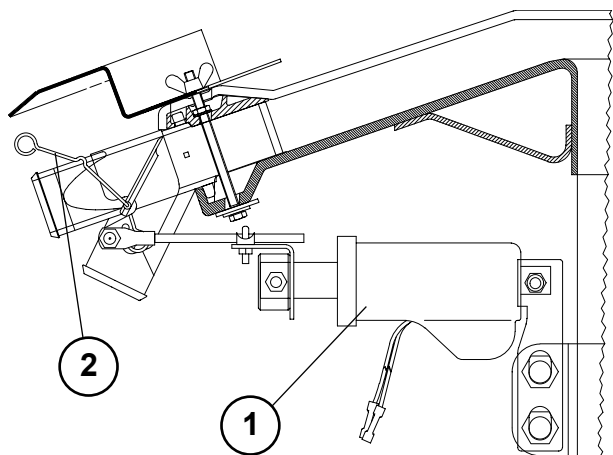
**O** Use possible

**I** without agitating fingers

Fan rpm		
Fan setting	up to 3m	> 3m
Normal ( <b>N</b> )	3000	3500
Reduced ( <b>R</b> )	2300	2800

\* Use the reduced fan drive setting (R) for seed rates below 20 kg/ha. The kg/ha figures are only approximate





16.1

## 6. Distributor head/tramline

The dosed seed is evenly allocated by the distributor head, and fed to the coulters via the spiral hoses.

Note that the hoses should slope downward towards the coulters. Sagging hoses should be made to slope downwards and/or shortened accordingly.

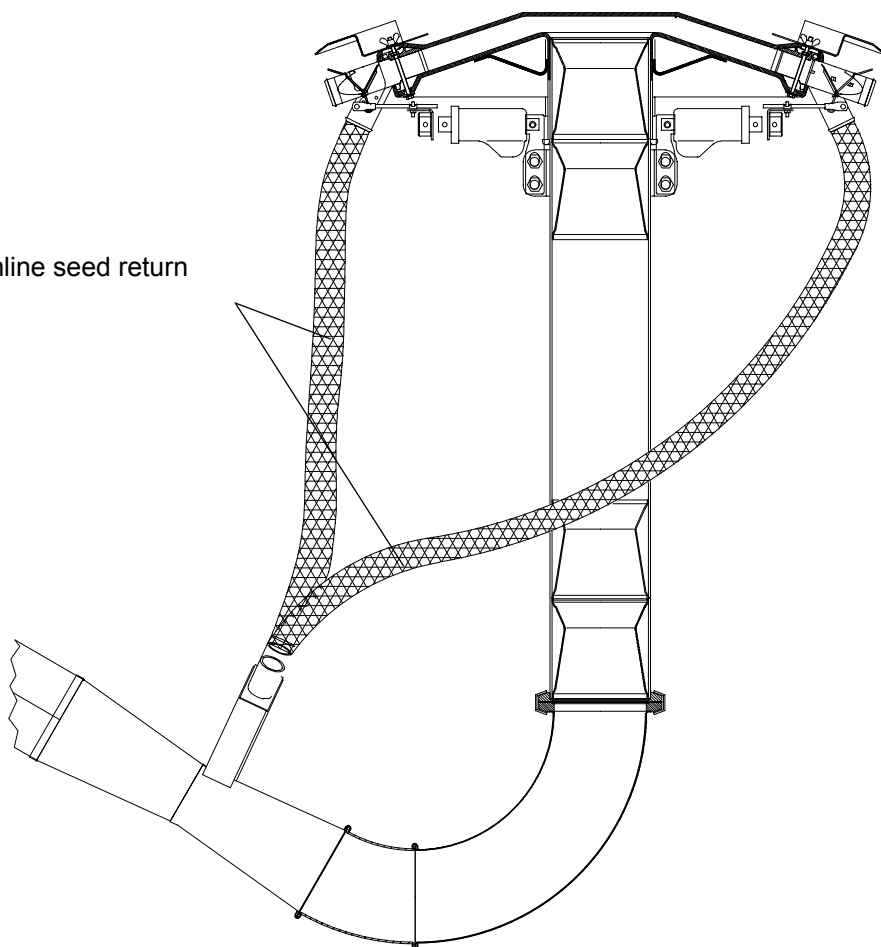
With the tramline function activated, the seed is “fed back” from the outlets concerned and the dosing quantity is automatically reduced by this amount.

At the tramline outlets, the lower flap lever is linked to the servomotor by a screw-mounted spring (16.1/1);

“spring length” must be set with the cable clamp so that the flap lies at the top on the outlet wall with the tramline activated.

The upper flap lever (16.1/2) (left) on the tramline outlets MUST NOT be fixed in position.

Tramline seed return





## **7. Checking of sowing accuracy on drilling machines with elec. dosing wheel drive.**

### **Rule 1**

The electrical turning system and manual turning system at the tail wheel must always produce the same turn readings.

(Only slight fluctuations are permitted)

(Only possible on machines with tail wheel)

### **Rule 2**

The electronic Ha counter setting must match the working width of the machine.

### **Rule 3**

The turning procedure should only be carried out without enabling the additional amount.

### **Rule 4**

Select the recommended dosing-wheel setting.

### **Rule 5**

Use calibrated scales (domestic scales). Do not use a spring balance or sack scales.

The above points must be observed if best-possible performance is to be guaranteed.

## **7.1 Tips for correct usage**

- Preparing the combined implement for work: soil preparation tools, running gear, lane markers, fan speed / hydraulic motor.

- Check settings (as in turning test): Dosing-wheel setting (coarse-dosing wheel blocked when using fine seed), agitator shaft (agitator fingers removed when handling rapeseed), turning cover, seed-quantity settings,

- Switch on the electronic system.

- When starting up prior to use, run the motor at half-speed at least, then maintain a constant turning speed,

- Start sowing operation. Note that seed takes a certain time to get from the dosing mechanism to the sowing coulters (approx. 1 s / 2 m). This should also be taken into account when stopping briefly. Raise the implement and carry out a reset (see "Pre-dosing").

- Check all coulters for blockages before starting to sow, and re-examine at regular intervals.

- Check sowing depth

- Match drive speed to working conditions so that the seed is evenly spread.

- Always leave the hydraulic control device for the lane markers in "float" mode during operation (see also "Lane markers"),

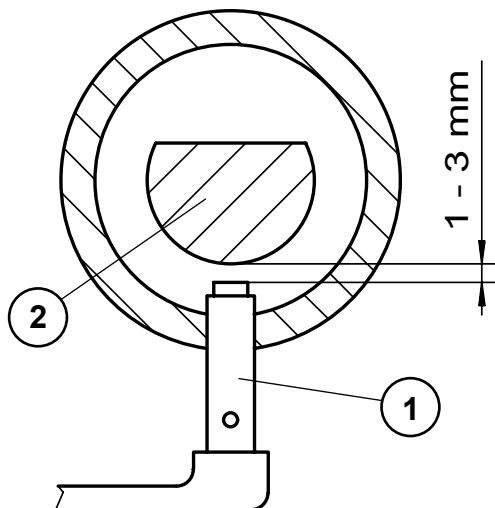
- When filling up, ensure that no foreign bodies (waste paper, sack ties) get into the hopper. Keep the hopper cover closed during operation. Monitor the filling level (low-level indicator),

- Given the hygroscopic characteristics of seed (including dressing agent), the hopper should be emptied before a long period without operation. Note that dressing agent is a toxic irritant.

- Emptying the remains: Lower the drilling machine and place a collection container under the discharge hopper. After emptying, turn all dosing wheels slightly (with star grip) and/or press the button to run the fan briefly to remove all remains of seed (so as not to attract rodents and other pests).

## 8. Maintenance instructions

**Sensor adjustment:** The inductive sensors are set to a gap of 1-3 mm. To adjust the fan sensor (18.1/1), proceed as follows: Rotate the fan shaft (18.1/2) so that the shaft groove is not aligned with the threaded hole of the sensor. Rotate the sensor by hand up to the fan shaft, then rotate it back by  $3\frac{1}{2}$  turns and lock with the nut. The sensor is fitted with an LED function indicator so that "Function of sensor" is displayed whenever a correction adjustment or test activation takes place.



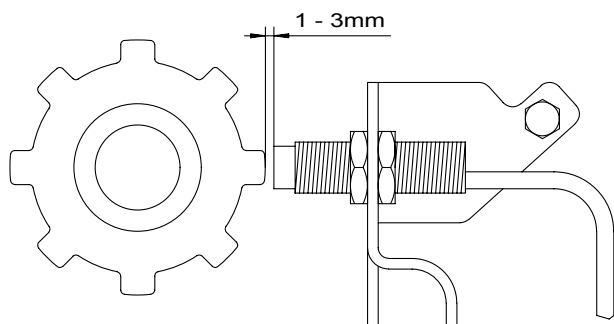
18.1

Use a soft cloth and mild household detergent to remove any dirt from the drill computer-box (DO NOT use solvents).

DO NOT immerse the housing in liquid.

Disconnect all wires to the electronic terminal box before carrying out welding work on the tractor or attached devices, or when charging the tractor battery or connecting a second battery (for carrying out a jump-start).

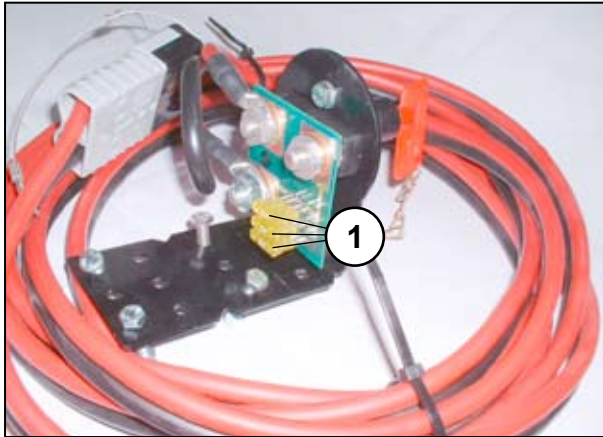
Given the hygroscopic characteristics of seed (including dressing agent), the hopper (and dosing wheels) should be emptied before a long period without operation. Run the blower briefly to complete the emptying of the seed conduits. After cleaning, leave the emptying outlet and rotating cover open, so as not to attract rodents and other pests. When carrying out cleaning operations, note that dressing agent is a toxic irritant. Protect such sensitive parts of the body as the mucous membranes, eyes and respiratory organs. Do not allow earth or mud to dry on the coulters. Apply a grease gun to the lubrication nipples of the bearings at regular intervals (i.e. every 100 hours). A toothed pressure roller will remain in good condition if it is cleaned after each operation and protected from corrosion.



18.2

Park the EcoSeed machine in a dry, undercover location, with its coulters and lane discs clean and protected to prevent corrosion. Protect the electronic terminal box (with connection cables) from moisture and store in a dry place.

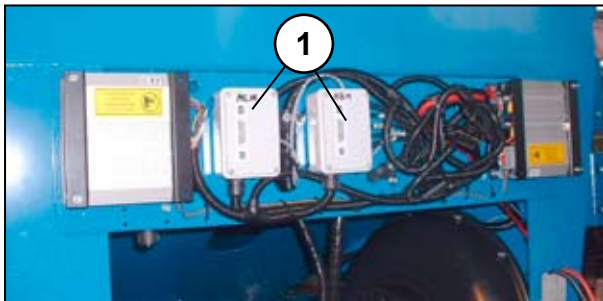
Cover the plug socket for the supply cable loom (to protect from possible soiling). Check the hydraulic hose conduits at regular intervals and replace any damaged or brittle items (see list of spare parts). Hose conduits are subject to a natural ageing process and should be replaced at intervals of no more than six years. Avoid directing the hose at the bearings for any length of time, especially when cleaning the implement with high-pressure water. (The inductive sensors on the monitoring devices are set to a gap of 1 - 3 mm (18.2). The sensor is fitted with an LED function indicator so that "Function of sensor" is displayed whenever a test activation takes place. For details of sensor adjustment, (see maintenance instructions).



19.1

## 8.1 Fuses

Fuse overview		
Place of installation	Fuse designation	Rabe article no.
Supply cable loom (19.1/1)	Flat vehicle-type fuse 20A	9012.14.34
Switch box (19.2/1)	Flat vehicle-type fuse 10 A	9012.14.10



19.2

Residual risks	
Danger zone	Note
Folding side sections	Operating instructions
Transport position	Operating instructions

## 9. Caution / transport

Bring device into position for transporting; check for transport readiness.

Do not carry passengers, and keep away from the danger area.

The tractor can tow trailer implements weighing up to 3 t in weight; trailers with an axle weight of over 3 t must be fitted with brakes.



Maximum speed, depending on the type of operating permit, is 25 km/h or 40 km/h.

Observe the relevant speed limits and traffic regulations when transporting the implement by road. Always take the centre of gravity into account.



Observe the corresponding road traffic regulations (StVZO or local equivalent). These specify that the user is responsible for the correct hitching of the tractor and implement for driving on public roads and rights of way. Attached implements must not affect the safe driving of the tractor-trailer combination. The attachment of the implement must not result in the maximum permitted axle weight of the tractor, the maximum permitted total weight, or the load capacity of the vehicle tyres (regardless of air pressure) being exceeded. For safe steering, the front axle of the tractor must bear at least 20% of the vehicle's unladen weight.



The maximum permitted width of the load is three metres. The tractor and trailer must not exceed a total length of 18 m.

A special permit is normally required if the maximum permitted dimensions are exceeded.

No avoidably overhanging item must endanger other traffic or road users (sect. 32 StVZO or your local equivalent). Overhanging items that cannot be avoided must be covered and fitted with warning notices. Safety devices include appropriate lighting and signs around all sides and the rear of the vehicle and towed implement, e.g. red/white striped warning signs (423 x 423 mm) and triangles (stripes of 100 mm in width, angled at 45°, running from outside to bottom).

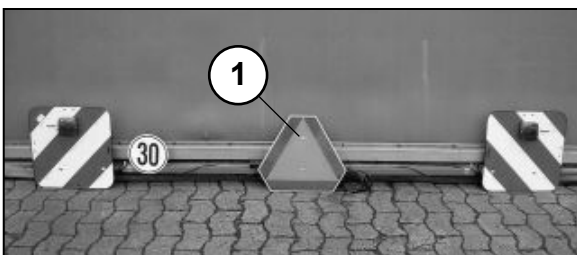


Towed implements and semi-trailers must be fitted with rear red revolving flashing lights and lateral amber flashing revolving lights, and must be driven with the vehicle lights switched on at all times – even in daytime (additional warning lights must be fitted if the implement protrudes by more than 400 mm outside the normal trailer lights).

RABE can supply, as optional extras, the safety covers required for transport on public roads.

RABE can also supply the TÜV certificate required for issue of an operating permit in certain jurisdictions.

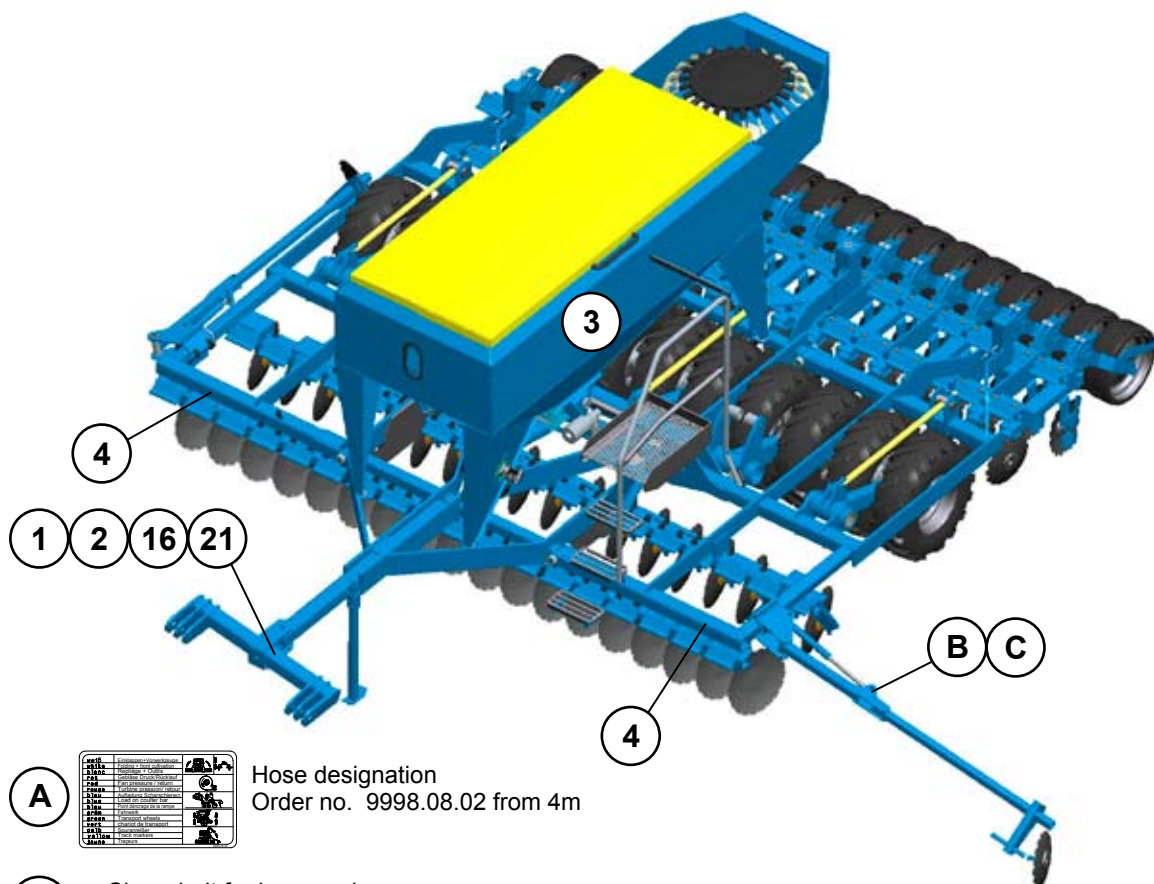
When transporting on public roads in Poland, the warning triangle (20.1/1) must be fixed to the centre of the machine.



20.1



## 10. Arrangement of warning signs on the implement



Hose designation  
Order no. 9998.08.02 from 4m

**B**

Shear bolt for lane marker  
Order no. 9998.02.42

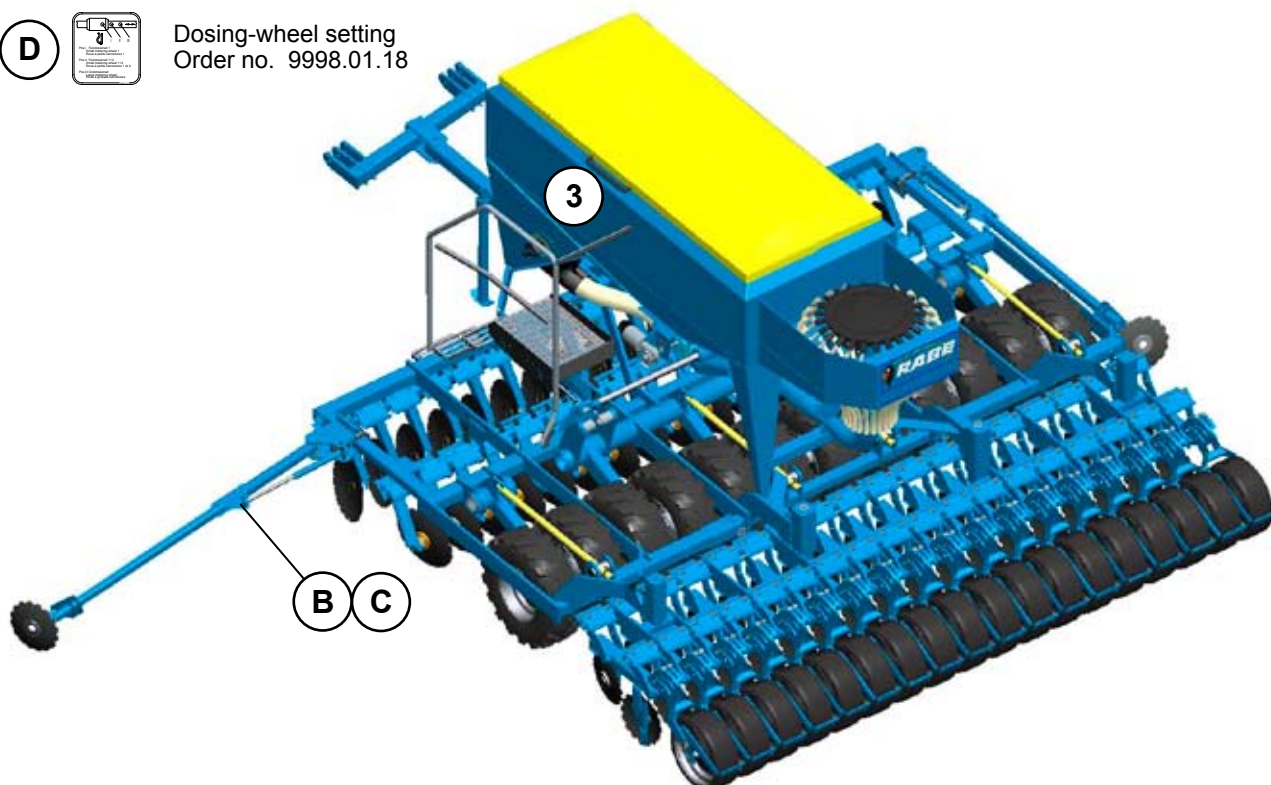
**C**

Shear-bolt mounting  
Order no. 9998.02.43

**D**



Dosing-wheel setting  
Order no. 9998.01.18



For key to symbols, see following warning signs!