Operating Instructions

Seed Drills

Compact-Solitair 9 HD

- EN -

Safety is our Concern!

Part No.175_4360
/

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Dear customer!

We would like to thank you for the confidence in buying this implement.

The advantages of this implement will be shown, only, when operated and used with due care and attention.

When handing over this implement your dealer has already instructed you with regard to operation, adjustment and maintenance. But this short introduction requires an additional detailed study of the instruction book.

Therefore read this instruction book carefully before the first use. Please pay attention to the safety instructions mentioned in this instruction book.

Any changes and modifications carried out not being mentioned expressly in this instruction book, may only be carried out with a written agreement of the manufacturer.

Ordering spare-parts

To each LEMKEN-implement an implement card is added, which shows all assemblies being relevant for that implement. The spare-parts list added to your implement includes beside the relevant assemblies also those being not relevant for your implement. Please ensure that only spare-parts will be ordered, which will belong to assemblies being printed on the implement card respectively are shown on the enclosed computer printout.

When ordering spare-parts please state type and serial No. of the implement. This information will be found on the identification plate. Put down this data on the following table so that it is always available.

Type of implement:
Serial No.:

Only use genuine LEMKEN spare-parts. Spurious parts negatively influence the function of the implement, show a shorter lifetime and increase in nearly all cases the maintenance effort.

We trust that you will understand that LEMKEN is unable to guarantee poor operation and damage caused by using spurious parts!

DEFINDED USE

- Please familiarise yourself with the LEMKEN-implement and its operations before putting the implement to work. Therefore use this instruction book with the 'General Health- and Safety precautions'!

- The LEMKEN-implements have been designed purely for the agricultural use! Any use beyond the one stipulated above is no longer considered as defined use!
- Under „defined use" the manufacturer's prescribed operation-, maintenance- and repair conditions are to be adhered to!
- The LEMKEN-implement may only be operated, maintained and repaired by such persons who have been made acquainted with it and who have been advised about the dangers!
- The applicable accident prevention advices as well as the generally accepted safety technical, working, medical and road traffic rules should be adhered to!
- Own modifications at the implement exclude the manufacturers' liability for damages caused by the modifications.

CONTENTS

1 SAFETY INSTRUCTIONS

General Safety Instructions

- Before using the machine, always check both it and the tractor for roadworthiness and operational safety!
- As well as the notes in these instructions the operator is advised to comply with the generally applicable safety at work regulations and those relating to use of the public highway!
- When driving on public roads with a raised machine the lifting control lever should be locked against unintentional lowering!
- The fitted warning and advisory plates give important information for safe operation; adhering to these increases your own safety!
- When using public roads adhere to applicable traffic rules!
- The operator should familiarise him-/herself with all controls and their functions before starting work. During work could be too late!
- The clothing of the operator should fit tight. Avoid wearing any loose clothing!
- To avoid danger of fire keep the implement clean!
- Before beginning to drive check surroundings area (children)!
- Sitting or standing on the implement during operation or during transport is not permissible.
- Attach implements as advised and only to the stipulated positions!
- Special care should be taken when the implement is coupled to or uncoupled from the tractor.
- When coupling or uncoupling the implement bring the supporting stands into the corresponding position (standing safety)!
- Fit weights only to the fixing points provided for those purposes!
- Adhere to the maximum permissible axle loads, total weights and transport width!

- Fit and check transport gear, road lights and warning guards!
- The release ropes for quick coupler latches should hang freely and in the lowered position must not release the quick coupling by themselves.
- Never leave the driver's seat whilst in motion!
- Handling behaviour, steerability and braking are influenced by mounted implements, trailers and ballast weights. Check for sufficient steerability and braking!
- When driving round bends note the width of the machine and/or changing centre of gravity of the implement.
- Put implement into operation only when all guards are fixed in position!
- Never stay or allow anyone to stay within the operating area!
- Never stay in the turning and slew area of the implement!
- Do not operate any hydraulic controls while anybody is in the operating area!
- On all pivoting parts actuated by power assistance (e.g. hydraulics) exists danger of injury by bruising and crushing!
- Before leaving the tractor lower the machine to the ground. Apply the parking brake, stop the engine and remove the ignition key!
- Do not allow anybody between the tractor and implement if the parking brakes are not applied!
- Swing attachment arm to transport position and secure!

Trailed implements

- Secure implement and tractor against unintended rolling!
- Never exceed the maximum permissible load of the drawbar or hitch!
- When fitting the implement to a drawbar or hitch, ensure sufficient movement at the hitch-point.

Hydraulic Equipment

- The hydraulic pipes are under pressure!
- When connecting hydraulic rams, the pipes must be connected as directed!
- Always release hydraulic pressure from both tractor and implement before coupling!
- When connecting hydraulic pipes to the tractor ensure that incorrect use is avoided. If the connections are reversed, the opposite function is carried out (e.g. raising/lowering) and there is a risk of accidents!
- Regularly check the hydraulic pipes and replace them in the event of damage or signs of ageing. The replacement pipes must comply with the technical specification as laid down by Lemken!
- When searching for leaks appropriate aids should be used because of the danger of injury!
- Hydraulic oil escaping at high pressure can penetrate the skin and cause serious injury! When injured see a doctor immediately! Danger of infection!
- Before working on any hydraulic equipment - lower all implements/attachments, release hydraulic pressure where possible and switch off the tractor engine!

Tyres

- When working on the tyres make sure that the implement has been placed on the ground safely and that it is secured by chocks against unintentional rolling!
- Fitting tyres requires knowledge and special tools!
- Repair work on tyres may only be conducted by trained staff and with suitable tools!
- Check air pressure regularly and adhere to the advised air pressure!

Maintenance

- Repair-, maintenance- and cleaning operations as well as adjustments and remedy of function faults should principally be conducted with engine stopped and brakes applied. Remove ignition key!
- Check and tighten nuts and bolts regularly!
- When conducting maintenance work on a lifted implement always place suitable supports underneath!
- For replacing any tools with cutting edges always use suitable tools and gloves!
- Dispose of old oils, grease and filters as prescribed by law.
- Before working on the electric gear disconnect battery cables!
- When conducting electrical welding operations on the tractor or on the mounted implement remove cable from the generator and the battery!
- Any spare parts fitted must meet with the implement manufacturer's fixed technical standards! This is for example ensured by using genuine spare parts!
- To avoid danger of explosion only use nitrogen for filling up gas tanks!

Seed Drills

- During the calibration test watch out for rotating or oscillating parts of the implement!
- Use only steps for filling. It is not allowed to travel on the steps during operation!
- When filling the hopper adhere to the instructions of the manufacturer!
- Lock track markers in transport position!
- Never place any parts inside the hopper as the agitator shaft rotates, even during preparation work e.g. calibration!
- Never exceed the maximum allowed filling quantity!

Brakes

- Check function of brakes before each drive!
- The braking systems must be checked regularly!
- Repair work on brakes may only be conducted by trained staff and with suitable tools!

2 SYMBOLS USED IN THE OPERATING INSTRUCTIONS

2.1 Hazard classes

The following symbols are used in the Operating Instructions for particularly important information:

DANGER

Denotes an imminent hazard with high risk, which will result in death or severe physical injury, if not avoided.

WARNING

Denotes a possible hazard with medium risk, which could result in death or severe physical injury, if not avoided.

CAUTION

Denotes a low-risk hazard, which could cause light or medium physical injury or property damage, if not avoided.

2.2 Information

Denotes special user tips and other particularly useful or important information for operation and efficient utilisation.

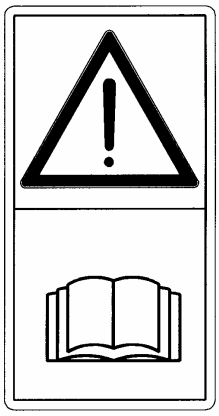
3 WARNING STICKERS

3.1 General Instructions

The LEMKEN implement is equipped with all features to ensure safe operation. Where potential danger areas of the implement can not be fully safeguarded, warning stickers are fitted which draw attention to these. Damaged, lost or unreadable warning stickers must be replaced immediately. The stated part numbers are used as order numbers.

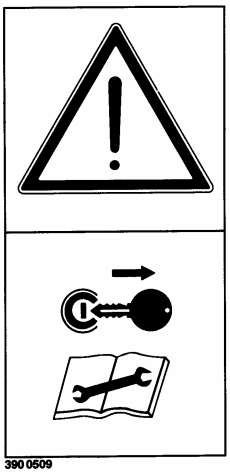
3.2 Meaning of the Stickers

Familiarise with the meaning of the stickers. The following descriptions inform about them in detail.



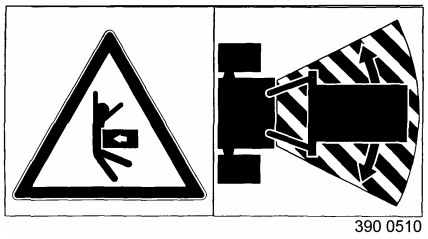
WARNING: Read and adhere to this instruction book and these „General Health- and Safety precautions„ before putting the implement to work!

390 0555



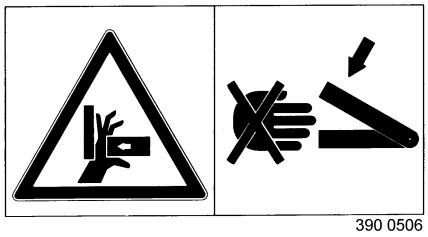
WARNING: Shut off engine and remove key before performing maintenance or repair work!

390 0509



WARNING: Keep well clear of the working and swinging area of the implement!

390 0510



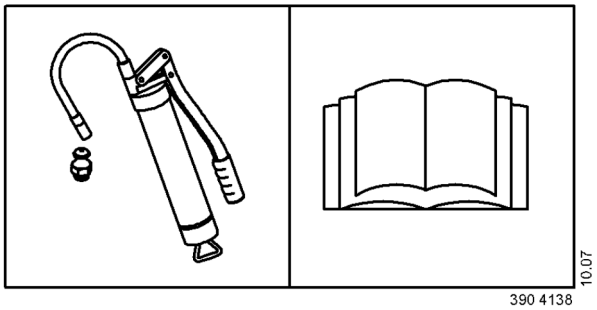
WARNING: Pinch point!

390 0506

WARNING! Do not ride with on the platform of the implement!

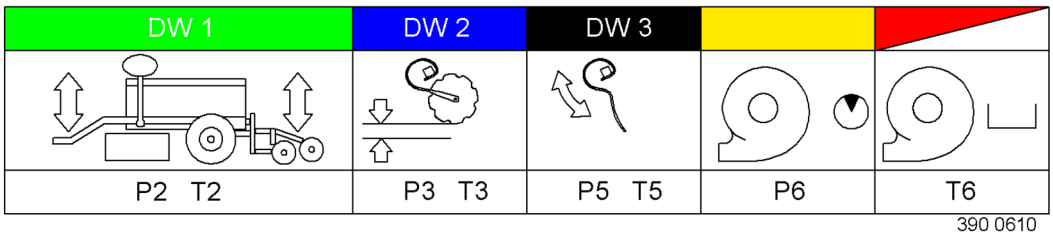
3.3 Position of Warning Stickers

4 OTHER SYMBOLS



Lubricate and service implement in accordance with maintenance chart!

Hydraulic hose connection overview



P2 / T2: Raising Heliodor section, leading roller and seeding bar

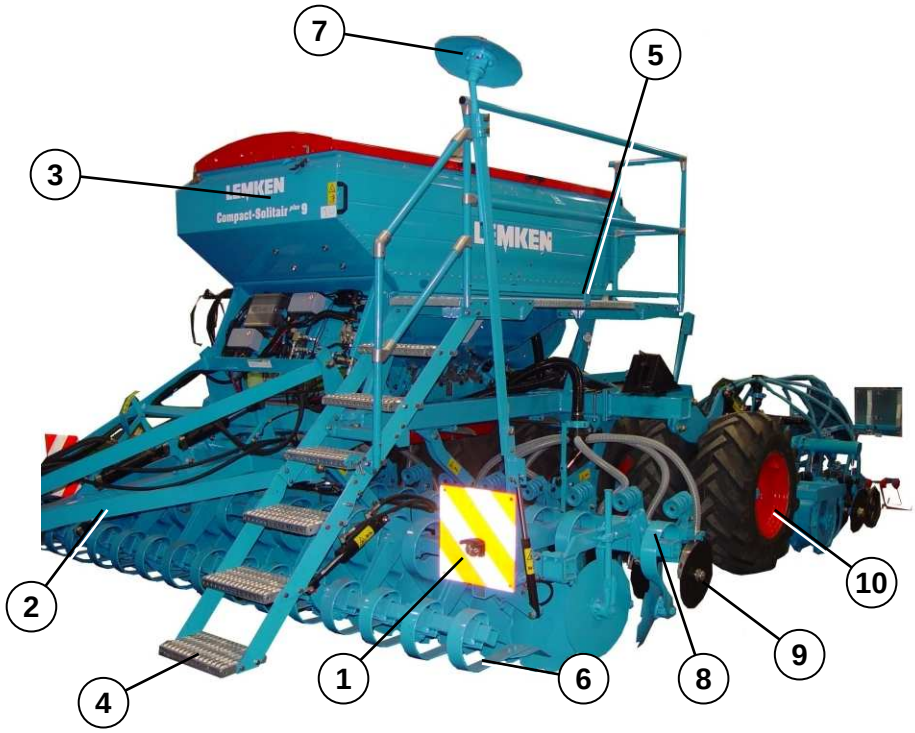
P3 / T3: Heliodor section working depth

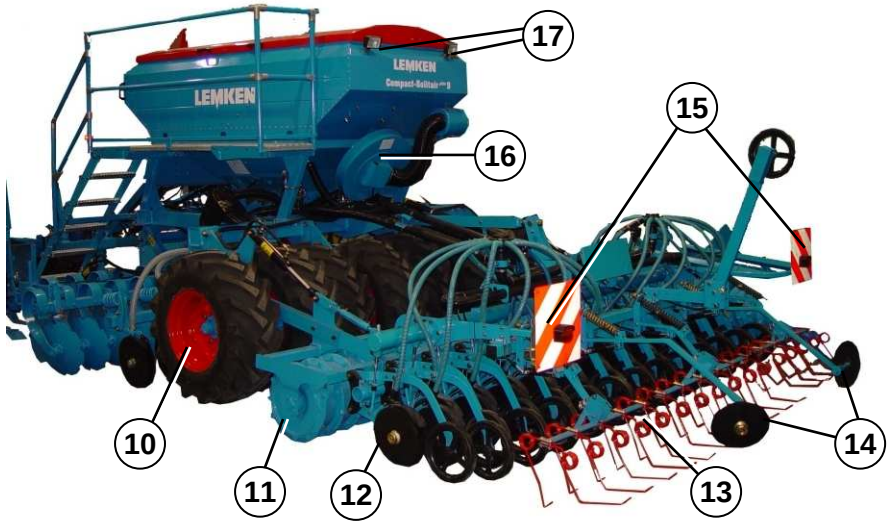
P5 / T5: Levelling work tines section

P6 / T6: Blower

5 DESIGN AND DESCRIPTION

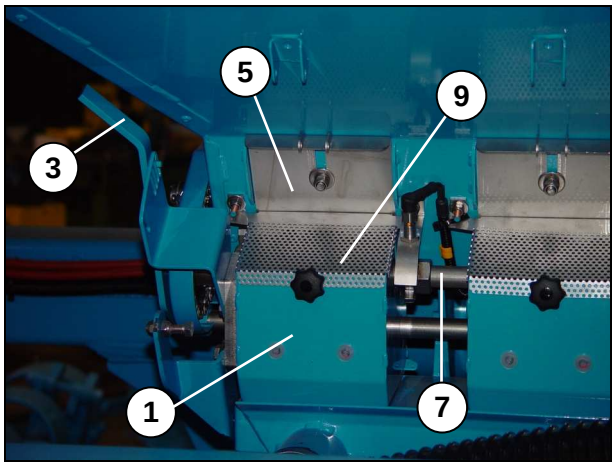
5.1 General information

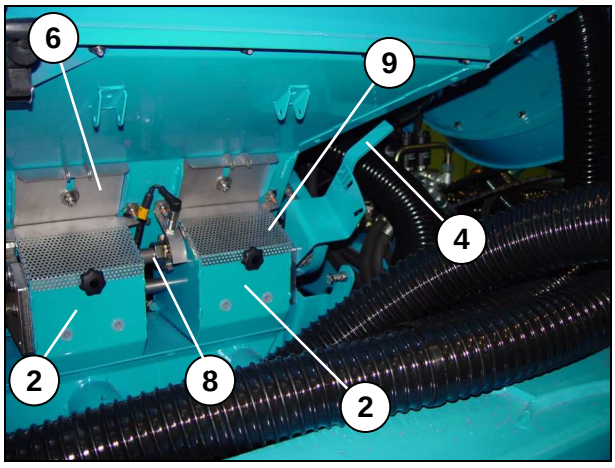


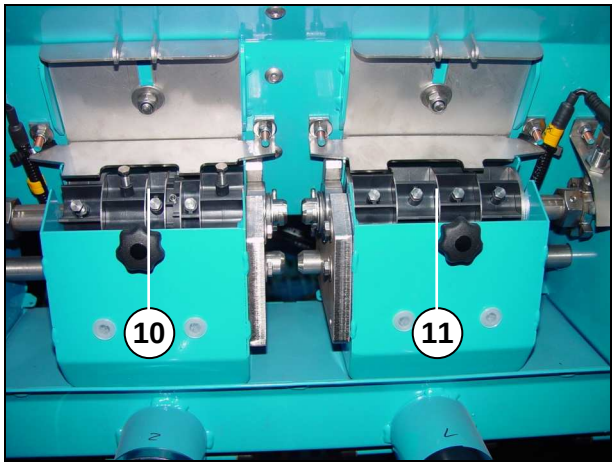


1 Front lighting system
2 Drawbar
3 Two-piece seed and fertiliser container
4 Ascent
5 Platform
6 Levelling work tines
7 Track markers
8 Heliodor compact disc harrow
9 Fertiliser bar
10 Tire packer / chassis and suspension
11 Leading roller
12 Seeding rail
13 Harrow
14 Advance marking
15 Rear lighting system
16 Blower
17 Spotlights

5.2 Feeder unit







1 Feeder units for seed, left-hand feeder units

2 Feeder units for fertiliser, right-hand feeder units

3 Bottom gate lever - left-hand feeder units

4 Bottom gate lever - right-hand feeder units

5 Shutoff valve - left-hand feeder units

6 Shutoff valve - right-hand feeder units

7 Feeder shaft for seed

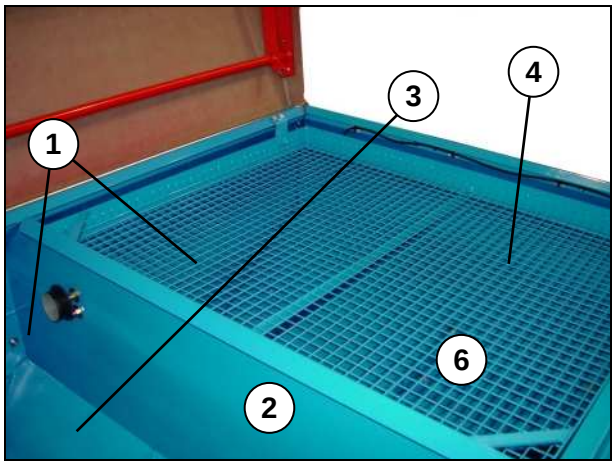
8 Feeder shaft for fertiliser

9 Cover panel

10 Seed wheels

11 Feeder wheels for fertiliser

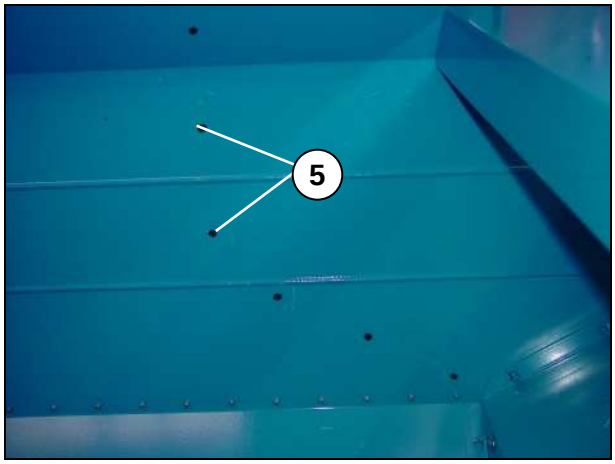
5.3 Container



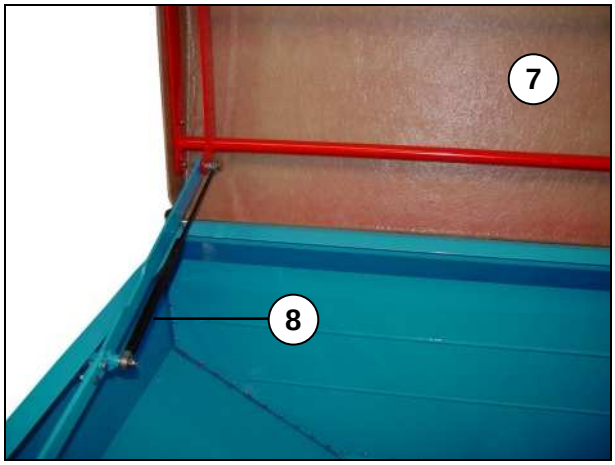
The container (1) is divided by means of a partition wall (2) into a container (3) for the seed and a container (4) for the fertiliser. It has a capacity of almost 3500 l. The partition wall (2) can be mounted in either a forward position or a rear position. This then alters the capacity of each container.

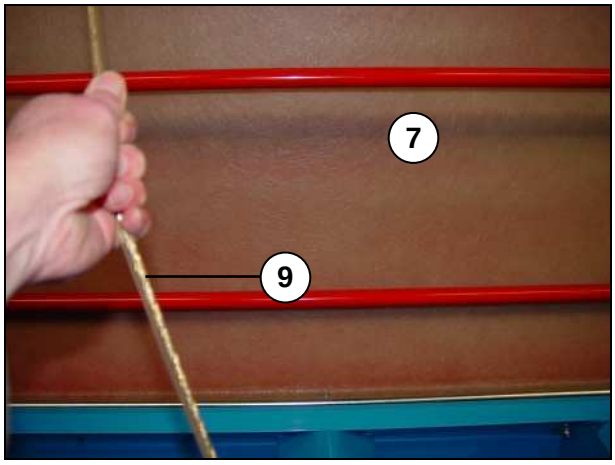
Next to a screen each, which is located at the bottom of the containers, the container (4) for them fertiliser is also equipped with an additional filling screen (6).

Position of partition wall (2)	Container (3)	Container (4)
Rear	2100 l (60%)	1400 l (40%)
Front	1400 l (40%)	2100 l (60%)



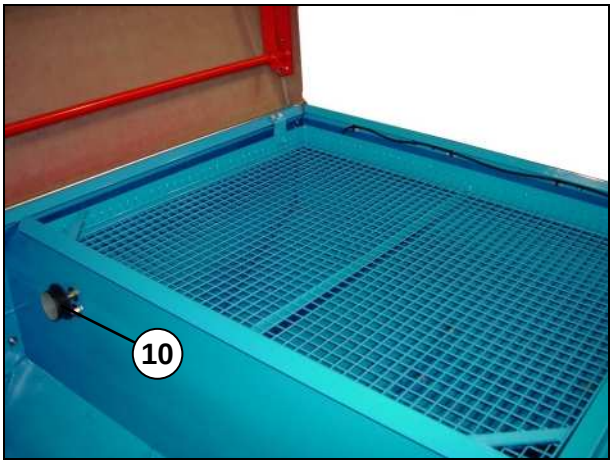
The fastening bores (5) are used for mounting the partition wall (2) in the front position. The steps in the container enable safe access to the containers, e.g. to perform cleaning or conversion work.





The opening and closing of the tank cap (7) is supported by gas-filled telescopic struts (8) and a traction cable (9).

If both containers are to be used for seed, the seed can be transferred from the rear fertiliser container into the front seed container. Connection (10) can be used for this purpose.



6 PREPARATION OF THE TRACTOR

6.1 Tyres

Ensure that all are at the manufacturer's recommended pressures and that left and right hand side tyre pressures are identical. (See manufacturer's instructions)!

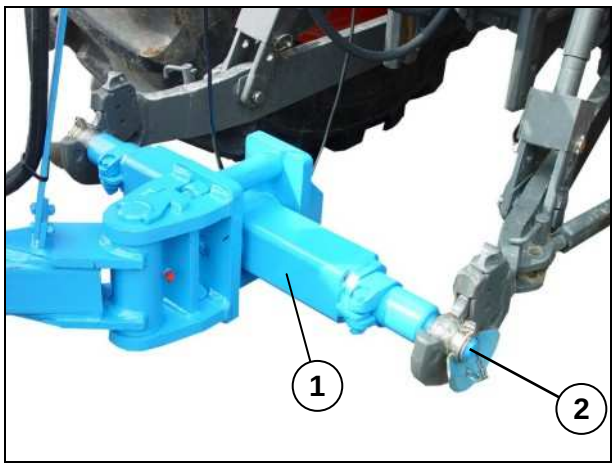
6.2 Lift Rods

Adjust lift rods to equal length by means of the adjuster device. (See tractor manufacturer's instructions)

6.3 Check Chains or Sway Blocks of the Three Point Linkage

Check chains or sway blocks must be adjusted so that the lower links of the tractor cannot move sideways during work.

6.4 Lower control link coupling



The category of the lower control link coupling on the implement side and the tractor side must match.

If they do not match, then either the tractor's three-point linkage or the implement's draw-in rail (1) must be replaced by a suitable version.

The maximum permissible tractor outputs and dimensions as per ISO 730-1 for the corresponding category are available in the following table.

Tractor output		Cat.	Pintle diameter of draw-in rail (mm)	Length of draw-in rail (shoulder distance) (mm)
kW	HP			
80 - 185	109 - 251	II / III	36,6	825
80 - 185	109 - 251	III	36,6	965
150 - 350	204 - 476	III / IV	50,8	965
150 - 350	204 - 476	IV	50,8	1166

The maximum permissible tractor output for each implement is available in the "Technical Data" section!

WARNING **Risk of injury through breakage of mounting studs**

A lower control link coupling with an undersize category may cause the mounting studs (2) to break!

When tractors with a large output are used the mounting studs (2) may break!

6.5 Control

For operation and transport the tractor hydraulic is to be switched to “position control”. See manufacturer's instructions!

6.6 Power Supply

For the electronic seed drill control Solitronic a power supply of 12 V is required.

Excess voltage and under voltage lead to a breakdown and can destroy electric components.

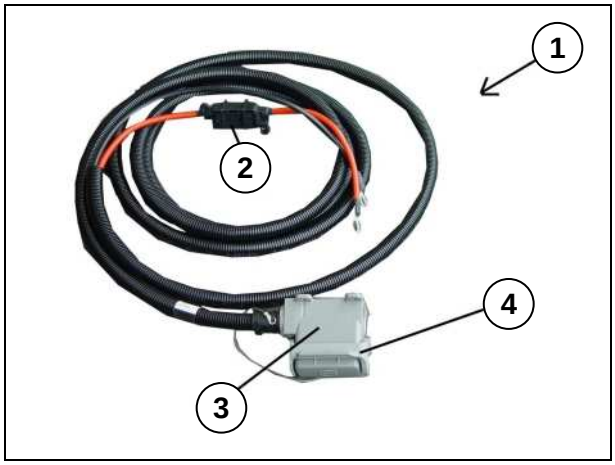
For the connection to the tractor battery the battery mounting set (1) with 40 A fuse (2) and plug connection (3) with lock (4) is used, which is included in the delivery.

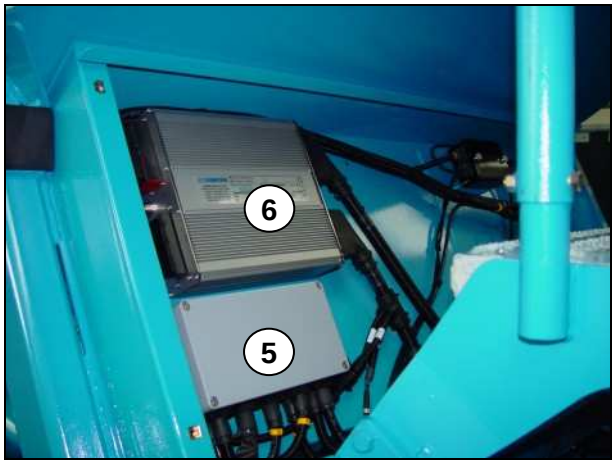
By means of the plug connection the complete seed drill control will be supplied with power. At the left side of the seed drill the coupling box (5) and the job computer (6) are fitted. After attachment and detachment of the implement, the electric pipes will be connected as follows:

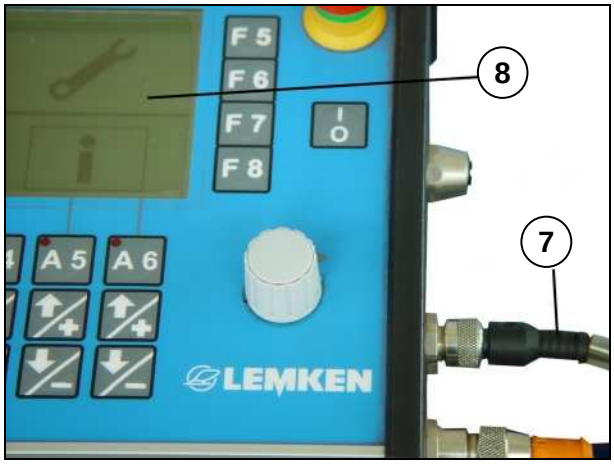
Connect 8-wires cable (7) of the electronic seed drill control to the operation terminal (8).

Connect cable with plug (9) to the plug connection of the battery mounting set and fix by means of the lock.

After detachment, the electric pipes must be disconnected and kept in a dry place on the seed drill. The operation terminal must also be kept in a dry place or in the tractor cabin.







6.7 Required sockets

For the electric devices of the implement the following power sources must be available with the tractor.

Function	Voltage	Direct connection to the battery	Socket
Electronic seed drill control	12	x	-
Lighting equipment	12	-	according to DIN-ISO 1724
Working lights	12		

6.8 Required hydraulic control units

For operation of the individual following listed hydraulic devices, the tractor must be equipped with the following control units.

Hydraulic device	Single-acting control unit with depressurized return connection	Double-acting control unit	Colour	Code
Blower hydraulics	x		Supply = yellow Return = white (red)	P6 T6
Raising heliodor section		x	Green	P2 T2
Raising of seeding rail*				
Raising track markers				
Raising leading roller				
Raising fertiliser bar				
Levelling work tines section		x	Black	P5 T5
Working depth of heliodor section		x	Blue	P3 T3

* Not when leading roller fitted

6.9 Brake system

6.9.1 Air brake system

For the air brake system of the implement the tractor must be equipped with a two-hose air brake system with coupling heads according to ISO 1728.

6.9.2 Hydraulic brake system

In combination with a hydraulic brake system the tractor must be equipped a hydraulic coupling of the size BG 3.

6.10 Operation and adjustment of the hydraulic devices

6.10.1 Fan hydraulic

Via the hydraulic pipes to the hydraulic motor of the fan also the valves for the hydraulic switch of width sections, the hydraulic pre-emergence markers and the hydraulic harrow lifting device will be pressurised with oil.

Hydraulic device	Function	Adjustment	Operation
Fan hydraulic	Hydraulic motor for the fan	Control valve	Tractor spool valve
	hydraulic switch of width sections	Operation terminal of the Solitronic	Press a key*
	Pr-emergence marker	Operation terminal of the Solitronic	Press a key*
	Operation of S-harrow	Operation terminal of the Solitronic	Press a key*
	Adjustment of coulter pressure	Operation terminal of the Solitronic	Press a key*

* see operating manual for the electronic seed drill control Solitronic Version 1.51

- If the allowed minimum fan RPM is remained under, the hydraulic devices of the fan hydraulic will no more be supplied sufficiently with oil!

6.11 Implement hydraulics

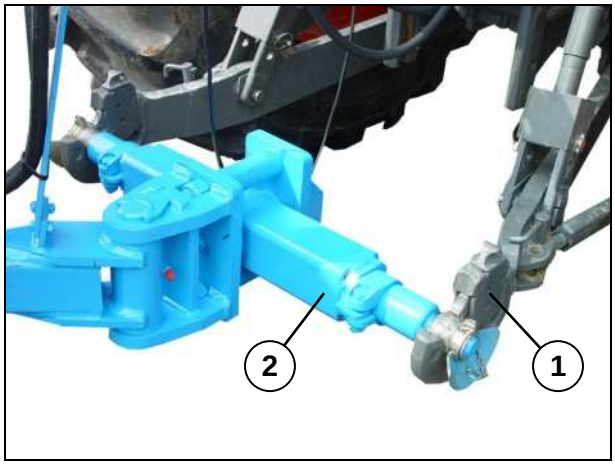
All other hydraulic functions on the implement are adjusted and actuated using either a double-acting control unit or two or three double-acting control units DW 1, DW 2 or DW 3 to match the equipment. In the basic equipment specification without a levelling work tines section and without any hydraulic working-depth adjustment for the heliodor section, only one double-acting control unit DW 1 is required for the complete sequence control, coulter pressure adjustment and the pressure load on the optional leading roller.

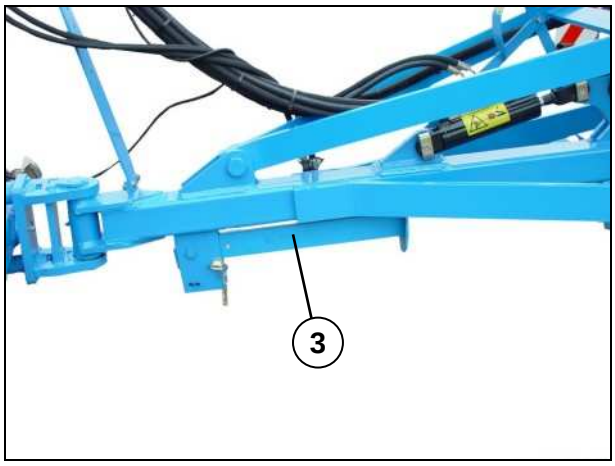
Hydraulic device	Function	Setting	Actuation
Heliodor section	Raising and lowering	Solitronic control terminal	Tractor control unit DW 1*
	Working depth	Tractor control unit	Tractor control unit DW 2*
Seeding rail	Raising and lowering to set value	Solitronic control terminal	Tractor control unit DW 1*
Track markers	Extending/retracting	Tractor control unit	
leading roller	Raising and lowering	Solitronic control terminal	
Fertiliser coulter	Raising and lowering	Pin adjustment	
Levelling work tines section	Working depth	Tractor control unit	Tractor control unit DW 3*

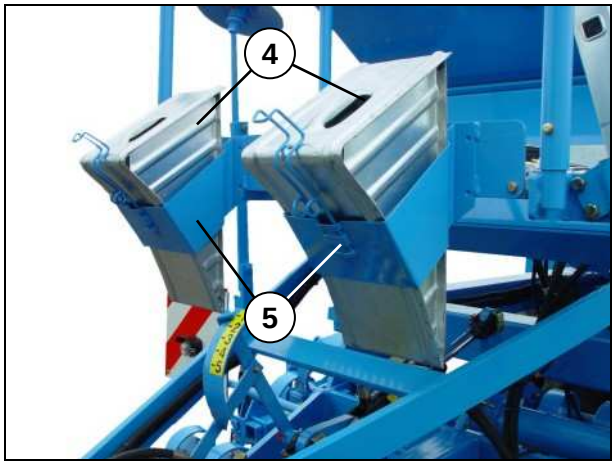
* The designations DW1, DW2 and DW3 describe the tractor control units that are required depending on the particular implement equipment. The assignment is listed in the above table. If throughout the remainder of these operating instructions and in the operating instructions for the Solitronic seed drill control system these control units are quoted, then the assignment in the above-mentioned table must be taken into consideration for better understanding and for reliable operation.

7 ATTACHING AND DETACHING THE IMPLEMENT

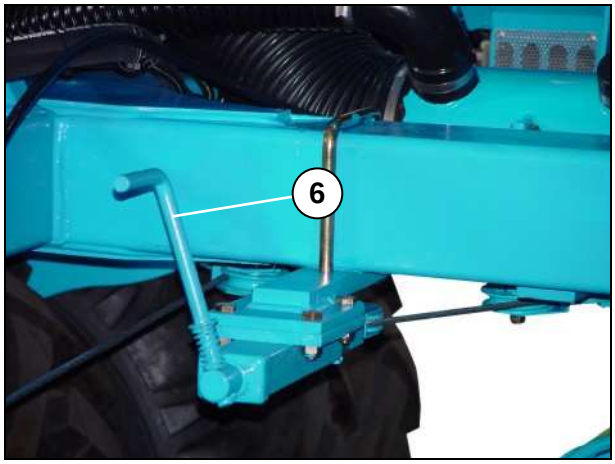
7.1 Attaching

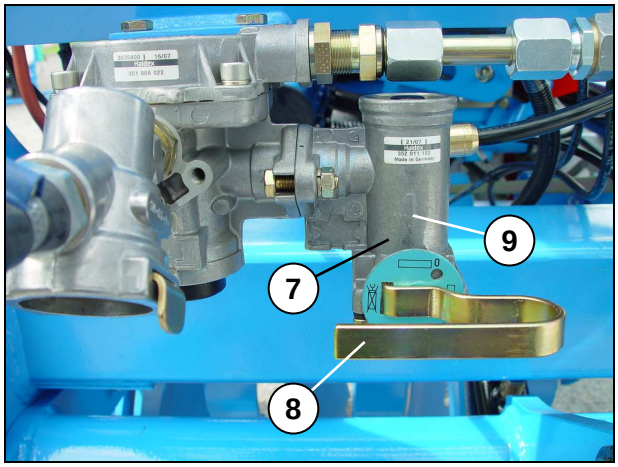






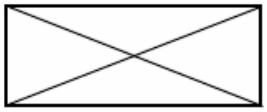
- For attaching the hydraulics of the tractor must be set to position control!
- Connect the tractor lower link (1) to the drawbar (2) and secure!
- Swing stand (3) upwards and secure!
- Connect hydraulic hoses!
- Connect braking hose!
- Connect electric cables. Place operation terminal with cable in the tractor cab and connect to the socket!
- Put wheel chocks (4) into the holders (5) and secure!
- Turn lever (6) of the parking brake anticlockwise to release the parking brake!
- Lock tractor spool valves to avoid unintentional operation of the hydraulic devices during transport. Switch off operation terminal!





– Adjust braking power regulator (7) in accordance to the following table!

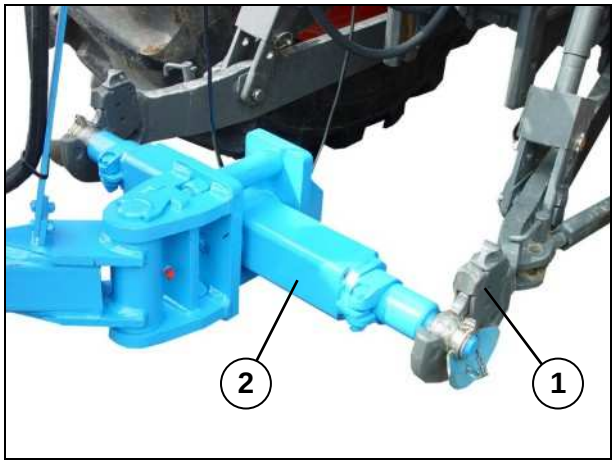
– For the adjustment the lever (8) of the braking power regulator (7) will be turned correspondingly. That adjustment of the braking power is active to which the arrow (9) is pointing.

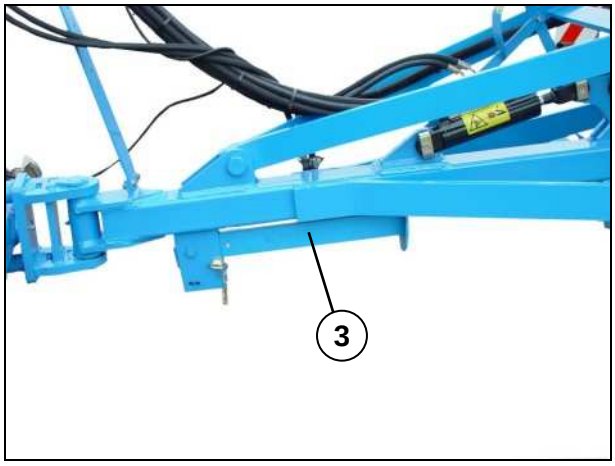
Axle load		**Weight in accordance to the equipment and filling**	**Adjustment of the braking power regulator**	**Information**
9/300	**9/400**			
up to 3.000 kg	up to 3.000 kg	Basic equipment with empty seed hopper		For manoeuvring, brake is switched off
3.000 kg - 4.500 kg	3000 kg - 5000 kg	with 0% to 50% filled seed hopper		Low braking power
4.500 kg - 5.500 kg	5000 kg - 6000 kg	with 50% to 80% filled seed hopper		Medium braking power
5.500 kg - 6.500 kg	6000 kg - 7500 kg	With more than 80% filled seed hopper		Maximum braking power

Reduce braking power a little, when the wheels block often!

Increase braking power, when the braking power is insufficiently!

7.2 Detaching





The implement must always be parked on level and firm ground!

– Swing-down and secure stand (3)!
– Set tractor hydraulics to position control before detaching the implement!
– Remove the wheel chocks (4) out of the holders (5) and secure!
– Detach electric cables!
– Disconnect electric cables!
– Turn lever (6) of the parking brake clockwise to apply the parking brake! The operation force at the handle of the lever (6) amounts to up to 30 dN (kp).

  Disconnect the lower links (1) from the drawbar (2)!

– Move the operation lever of the spool valve several times to and fro to make the hydraulic hoses free of pressure!
– Disconnect hydraulic hoses and fit protection cap!
– Disconnect brake hoses!

- Read and adhere to the ‚'general safety instructions' as well as the instructions ‚attached implement'!
- Attach and detach implement only when the track markers are folded-in and secured!

8 USE

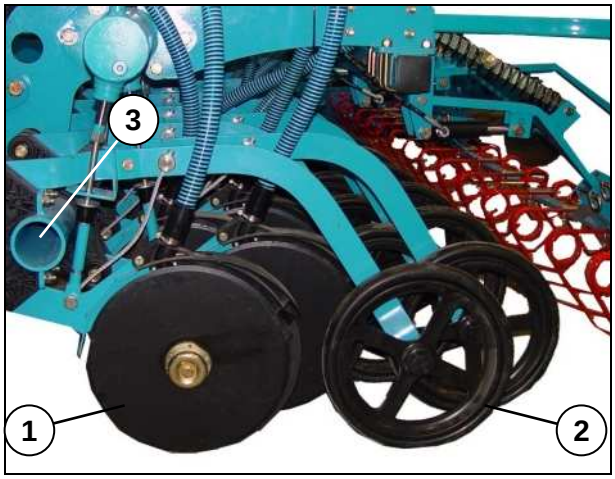
8.1 General Instructions

Before the first use it is recommendable - with fully lowered implement - to carry out the following adjustments at the farm. Afterwards only few adjustment corrections have to be carried out in the field.

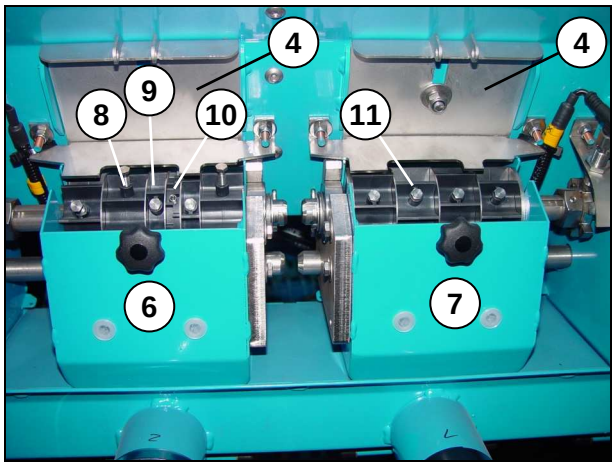
- With each hydraulic operation of the coulter bar and when lifting respectively lowering the Heliodor-section, the track markers will also be folded-in and –out at the same time.
- The track markers will not fold-in und –out, only when they are foldet in and secured or when they have been inactivated in the corresponding operation menu.
- Ensure that nobody is staying in the area of the folding area of the track markers!

Start the tractor, only when nobody is staying in the working- and swinging area of the implement!

8.2 OptiDisc double disc coulters



The OptiDisc double disc coulters (1) with pressure roller (2) are mounted on rubber and parallel to each other. The height of the frame tube (3) above each positioning device must be such that the underside of the frame tube (3) is approx. 360 mm above the ground.



8.3 Impulse wheel

The impulse wheel must be 0 – 5 cm lower than the pressure rollers when the seeding bar is raised.

8.4 Shutters

The shutters (4) on the feeder units must be open.

8.5 Feeders

Two feeder units each are specified. The left-hand feeder units (6) with six seed wheels each provide the seed, which is then sent to the seeding coulters.

The right-hand feeder units (7) with four feeder wheels each regulate the amount of fertiliser forwarded to the fertiliser coulters.

The seed wheels (8, 9, 10) on the left-hand feeder units (6) have to be switched on or off straight away. The feeder wheels (11) on the right-hand feeder units (5) must all be switched on.

8.6 Bottom gates

Before filling the seed container, the bottom gates for the left-hand feeder units (6) have to be configured in accordance with the sowing table. The bottom gates for the right-hand feeder units (7) have to be set to position 1.

8.7 Track markers

The track markers have to be set to the centre of the tractor track.

8.8 Sensors

The function of the sensors has to be checked. See operating instructions for the LEMKEN Solitronic electronic seed drill control system.

8.9 Tramline width

Set tramline width to track width of cultivation tractor If the track width of the cultivation tractor was quoted when the implement was ordered, the tramline width will be configured ex-factory.

8.10 Blower speed

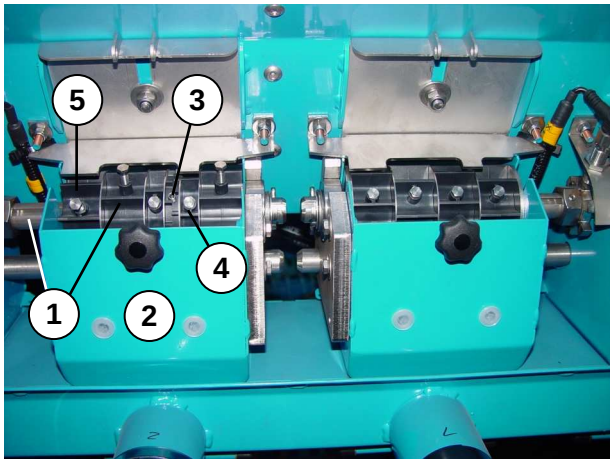
The blower speed has to be set to the required speed using the tractor's flow control valve. See section on "Blowers".

8.11 Solitronic electronic seed drill control system

The electronic seed drill control system enables the implement to be configured using the control terminal (12) whereupon the calibration test sample can then be conducted. See operating instructions for the "Solitronic" electronic seed drill control system.

8.12 Feeder shafts

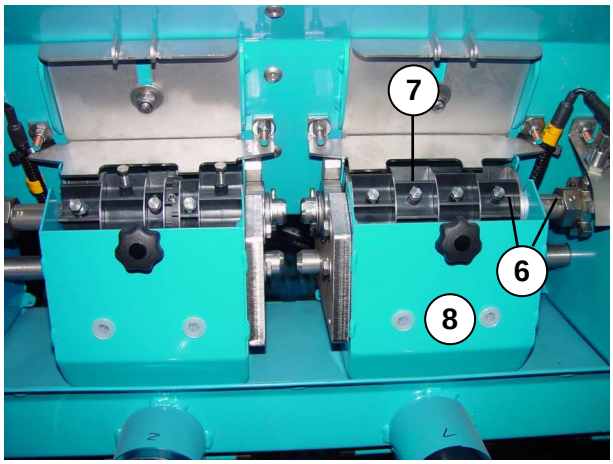
8.12.1 Feeder shaft for seed



The feeder shaft (1) is equipped with 6 seed wheels for each feeder unit (2), these include a precision seed wheel (3), two narrow seed wheels (4) and three wide seed wheels (5). Located between each of the seed wheels are parting discs, which serve to ensure that the individual seed wheels operate independently. The seed wheels can be switched on or off separately.

Before a calibration sample is made, the seed wheel has to be set to match the seed and the required seed rate by switching the seed wheels on or off according to the sowing table.

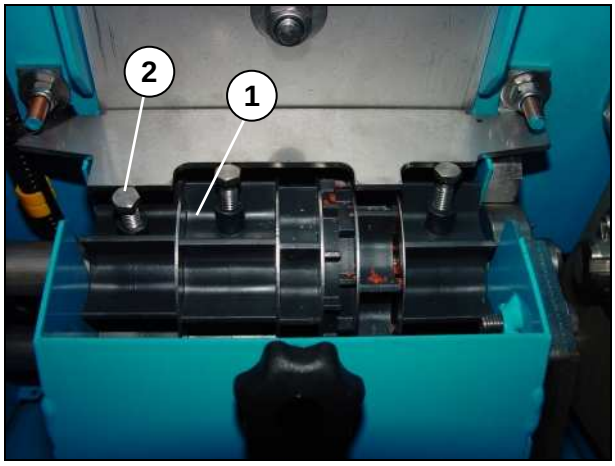
8.12.2 Feeder shaft for fertiliser

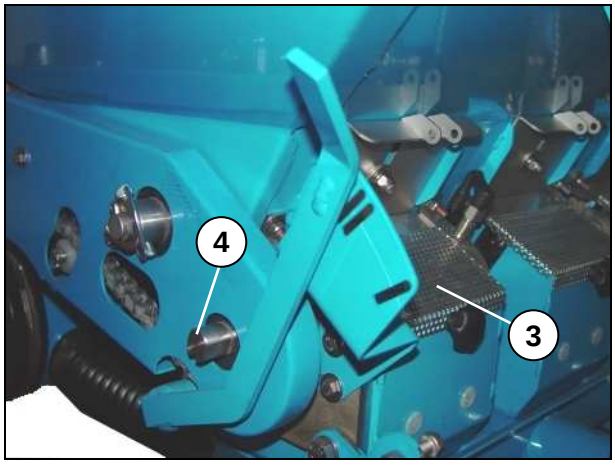


The feeder shaft (6) is equipped with four feeder wheels (7) for each feeder unit (8), they are separated from each other by parting discs.

The feeder wheels (7) for fertilisers may not be switched off.

8.13 Switching seed wheels on or off





The seed wheels (1) are switched on or off by means of the stop screws (2) that are located on the seed wheels.

After the protective covers (3) have been dismantled and the feeder shaft (4) rotated far enough to enable the stop screws (2) to be easily accessed, the stop screws can then be screwed slightly in or out using an 8 mm socket wrench and a 3 mm hexagon socket wrench.

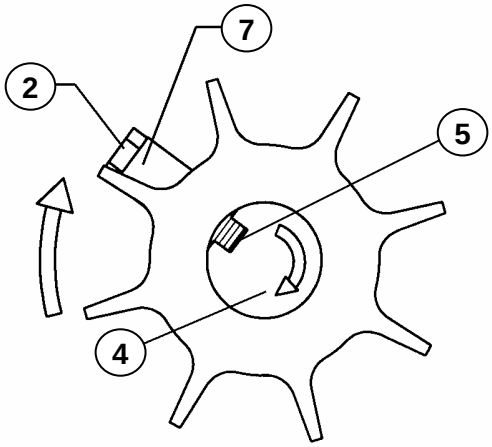
The feeder shaft (4) can be rotated if necessary using a 17 mm open end wrench. The feeder shaft (4) is suitably flattened at its free end for this purpose.

8.13.1 Switching on the seed wheels

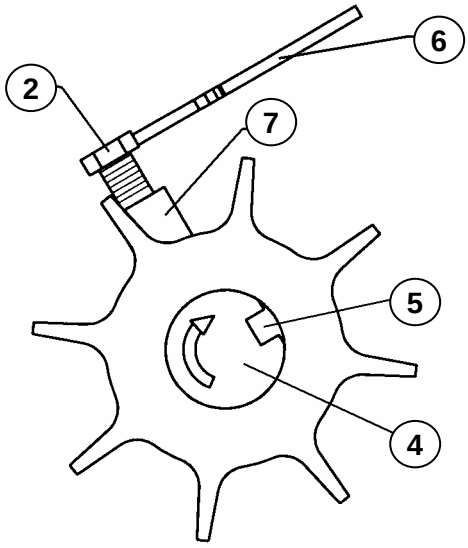
A seed wheel is switched on by screwing in the stop screw (2). When screwing in the stop screw, care must be taken to ensure that it is always screwed exactly into the groove (5) of the feeder shaft (4), and therefore always within the seed wheel circumference.

The hexagon screw has to be screwed in far enough to ensure that it is within the seed wheel circumference and not firmly clamped to the groove (5) on the feeder shaft (4). If clamped too firmly, each seed wheel will then take on an ‘oval shape‘ which in turn will result in sowing inaccuracies or damage to the seed wheels.

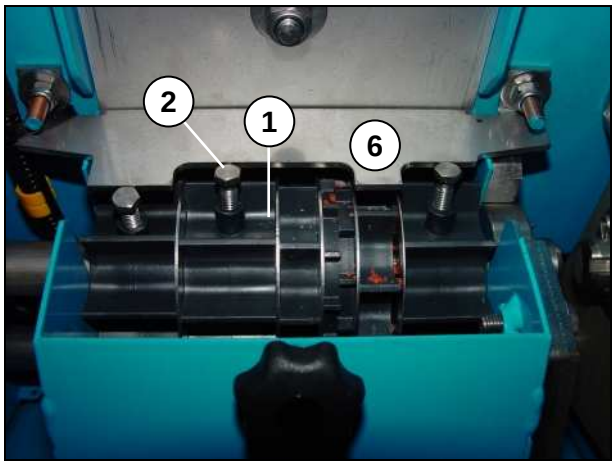
Seed wheel switched on!



Seed wheel switched off!



8.13.2 Switching off the seed wheels



The seed wheels (1) are switched off by undoing the stop screw (2), and by doing so far enough until it makes contact with the stop plate (6).

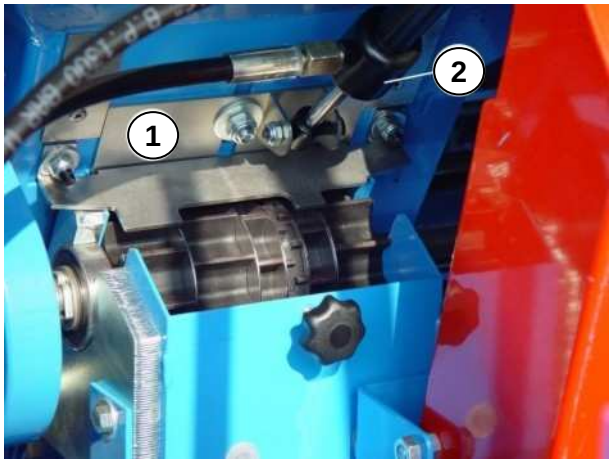
The stop screw must not be unscrewed too far out of the tooth root (7), as it may then drop out.

A new calibration test sample has to be conducted each time the seed wheels are switched on or off! The settings for the feeder units must all be identical!

CAUTION

- Please read the General Safety International as well as the 'Maintenance' safety instructions!
- The seed wheels, seed shaft and agitator shaft all rotate in the Calibration test sample menu and when the impulse wheel turns. Ensure a sufficient safety distance is given.

8.14 Stop slides

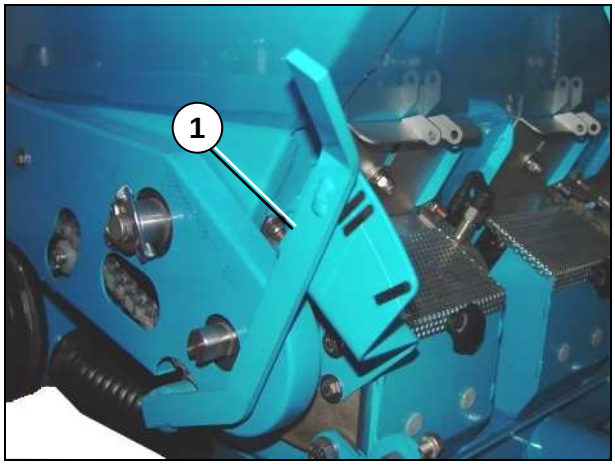


During operation all slide plates (1) must be fully opened.

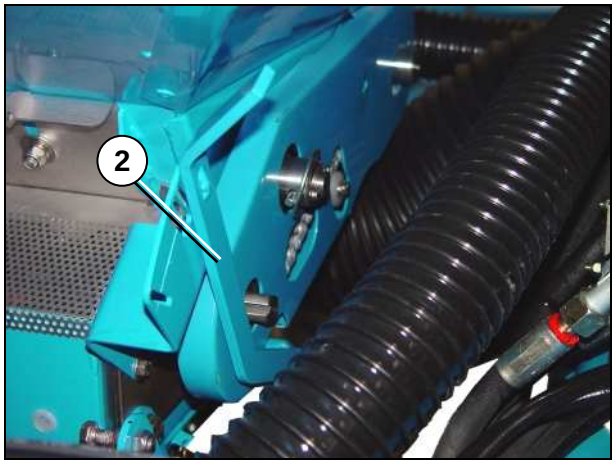
If necessary the seed flow from the hopper to the metering units can be stopped by means of one or more slide plates (switch of width sections).

As an option the slide plates can be operated via hydraulic rams (2) from the tractor seat via the operation terminal of the electronic seed drill control if required.

8.15 Bottom gate position



The bottom gates for feeding the seed have to be set using the bottom gate lever (1) to match the particular seed and in accordance with the sowing table.



The bottom gates for fertiliser feeding have to be moved to position 1 using the bottom gate lever (2).

8.16 Calibration test sample

The calibration test sample can be conducted when the seed wheels and the bottom gates for seed feeding are set in accordance with the sowing table and the bottom gates for fertiliser feeding are set to 1. See operating instructions for the LEMKEN Solitronic electronic seed drill control system.

A calibration test sample must always be conducted, when

the seed wheels are switched on,

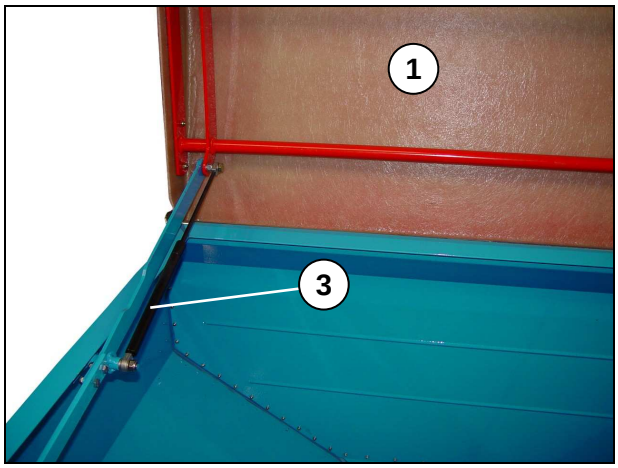
the seed wheels are switched off,

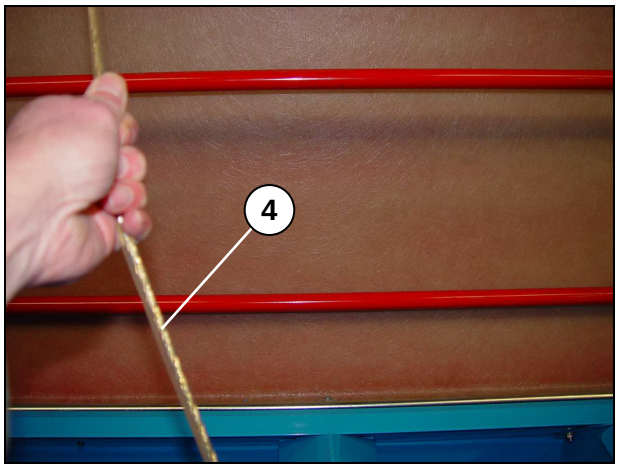
seed or fertiliser is changed,

each bottom gate lever is adjusted or

other essential adjustments are made to the feeder devices or to the setting parameters for the LEMKEN Solitronic electronic seed drill control system.

8.17 Filling





To fill the container the lid (1) must be swivelled upwards.

To do so grab the handles (2) and swivel the lid (1) upwards against the force of the gas-filled telescopic strut (3). Use the traction cable (4) to make sure that the lid (1) can be swivelled in a controlled manner into its end position.

The gas-filled telescopic strut (3) fixes the lid (1) in the opened position.

Once filling has been completed the lid (1) has to be closed again.

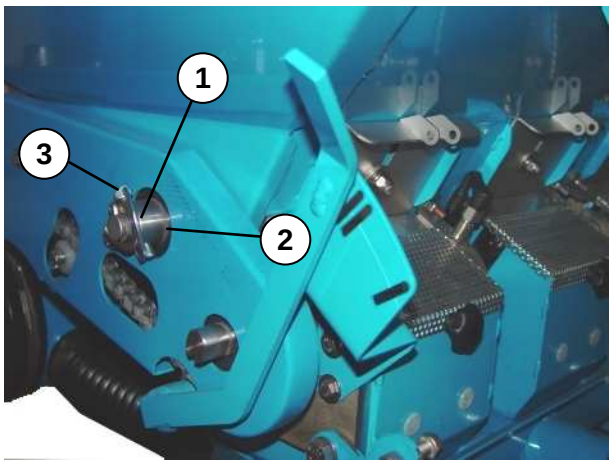
Close the lid with the aid of the traction cable (4) against the force of the gas-filled telescopic strut (3) until the handles (4) of the lid (1) can be accessed. Grab hold of both handles (4) and close the lid.

Danger

- In strong winds the lid may be moved downwards in an uncontrolled manner!
- The lid is spring mounted!

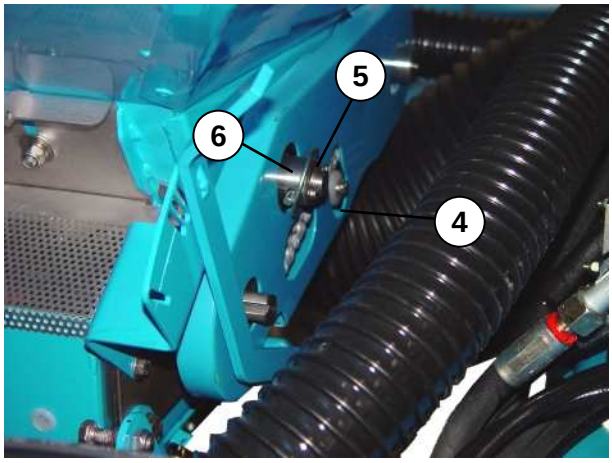
8.18 Agitator shafts

8.18.1 Agitator shaft in seed container



For example, for encrusted rape, the agitator shaft (1) has to be switched off. This is done by pulling the split ring (3) out of the drive pinion (2) of the agitator shaft (1).

8.18.2 Agitator shaft in fertiliser container



The agitator shaft (4) in the fertiliser container should not be switched off.

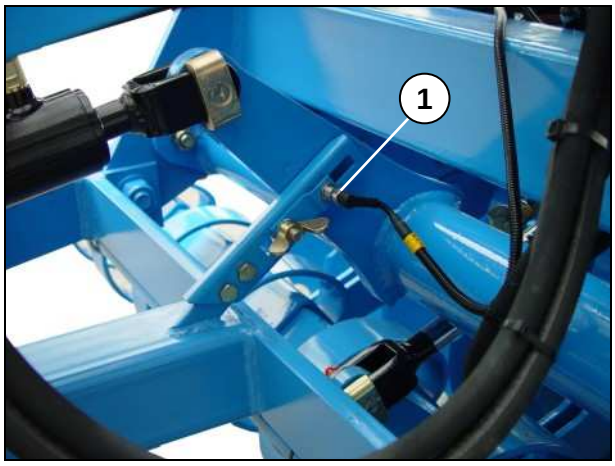
If however, switch off is required, the remove the split ring (5) out of the agitator shaft's (6) drive pinion.

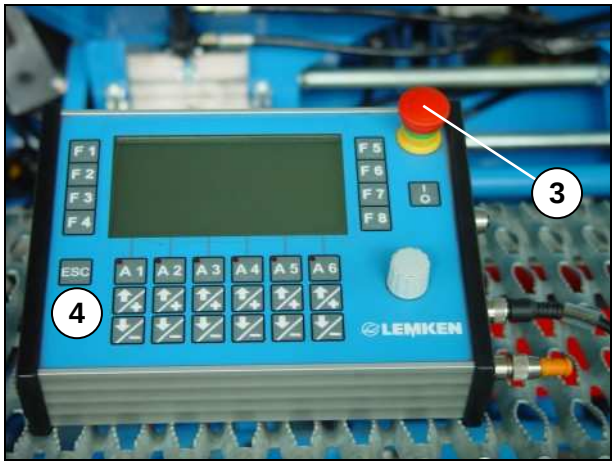
9 SEQUENCE CONTROL

WARNING

- Activate the sequence control only when no-one is standing in the vicinity of the implement's operating or swivelling range!
- The actions induced by activating the sequence control are conducted as long as the control unit DW1 is kept in the pressure position or until the respective operating position is reached.

9.1 General information





When the control unit DW 1 is actuated for raising and lowering the heliodor section (compact disc harrow), the sequence control is activated. The following occurs when the lever of the control unit DW1 is kept in the pressure position

- the heliodor section is raised,
- the track markers are folded in,
- the fertiliser bar is raised and
- the seeding rail or the leading roller and the seeding rail are raised
- or
- the Heliodor section is lowered,
- the track markers folded out
- the fertiliser bar and
- the seeding rail or the leading roller and the seeding rail are lowered.

The actions performed as a consequence of activating the sequence control can be stopped,

by setting the control unit DW1 to the neutral position, or

if one presses the emergency-stop switch (3) on the control terminal (4)! The delay between raising the heliodor section, raising the fertiliser bar and raising the seeding rail or lowering the heliodor section, lowering the fertiliser bar and lowering the seeding rail is adjusted using the control terminal of the Solitronic electronic seed drill control system and regulated by the sensor (1). See hereto, the Solitronic electronic seed drill control system operating instructions as of version 1.51. If, e.g. the heliodor section is raised and the sensor (1) switches, the delay time starts.

At the same time the sowing shaft and the feeder shaft for the fertiliser are stopped. If necessary, the sensor (1) can be adjusted in height, which in turn results in the sowing shaft and the fertiliser feeder shaft having an earlier or later start or stop.

9.2 Raising the tools

Set control unit DW1 to raise until a beep is sounded (approx. 5 seconds). The heliodor section is raised first, the track marker is folded in and then the fertiliser bar, the seeding rail and, if equipped, the leading roller are then raised.

9.3 Lowering the tools

Set control unit DW1 to lower until a beep is sounded (approx. 5 seconds). The heliodor section is lowered first, the track marker is folded out and then the fertiliser bar, the seeding rail and, if equipped, the leading roller are then lowered.

9.4 Deactivating the raising and lowering process

The control terminal of the Solitronic electronic seed drill control system can be used to deactivate the heliodor section, fertiliser rail and the seeding rail, as well as the track markers. When the control unit DW1 is actuated, only those functions are conducted that were not deactivated.

If, for example, only the track markers are to be folded-in, e.g. to avoid an obstacle, then the raising of the heliodor section, fertiliser bar and the seeding rail can be deactivated.

If the soil is to be processed twice in a row before seeding is performed, the raised seeding rail and the raised fertiliser bar can be separately deactivated.

DANGER

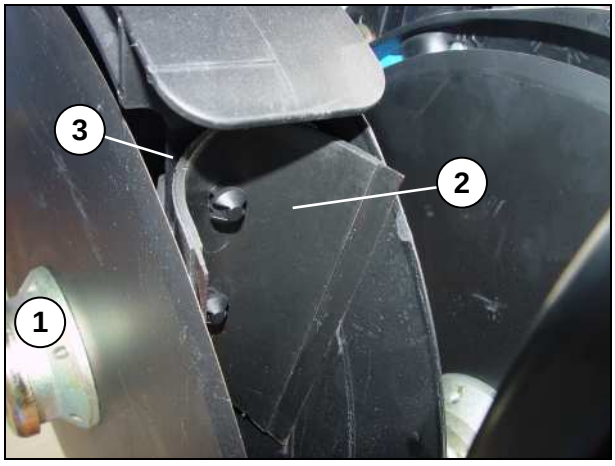
Following each actuation of the control unit DW1, the track markers are folded in and out, if they have not been locked into the folded-in position or if they have not been deactivated.

10 ADJUSTMENTS

- Read and adhere to the General Safety Instructions!
- The implement may only be operated, maintained and repaired by such persons who have been made acquainted with it and who have been advised about the dangers!
- Adjustment- and maintenance operations as well as eliminations of malfunctions should principally be carried through with engine stopped and parking brake applied. Remove ignition key!

10.1 Double disc coulters

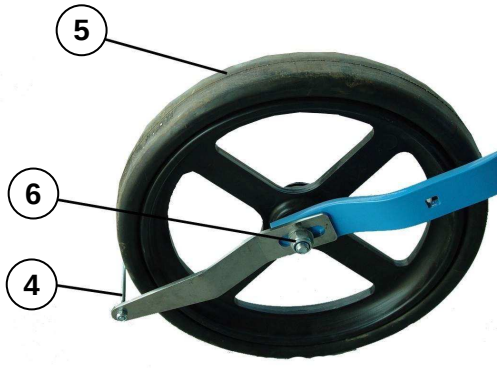
10.1.1 Scrapers



The double disc coulters (1) are equipped with a self-adjustable scrapers (2).

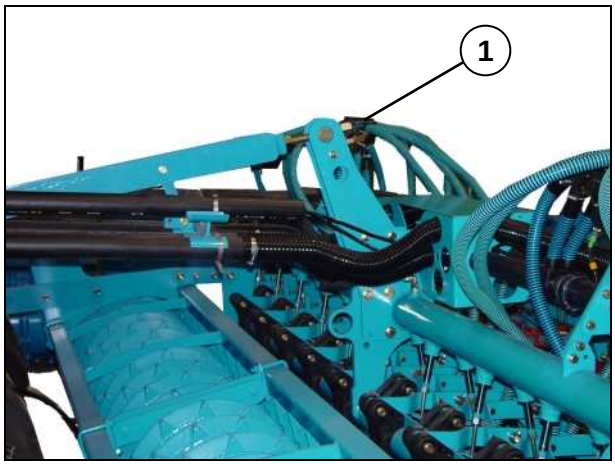
As an option to these standard scrapers (2) made of plastic hard metal scrapers are available, which are equipped with hard metal plates at the margin.

The single scraper (2) is put onto the holder (3).



The scrapers (4) that are delivered as accessories are recommended when too much earth collects on the pressure rollers (5). After loosening the nut (6) the scraper (4) can be set at the distance desired to the pressure roller. The distance should be 1 – 2 cm. Tighten the nut (6) again after having set the distance.

10.1.2 Drilling Depth of the seeding coulters

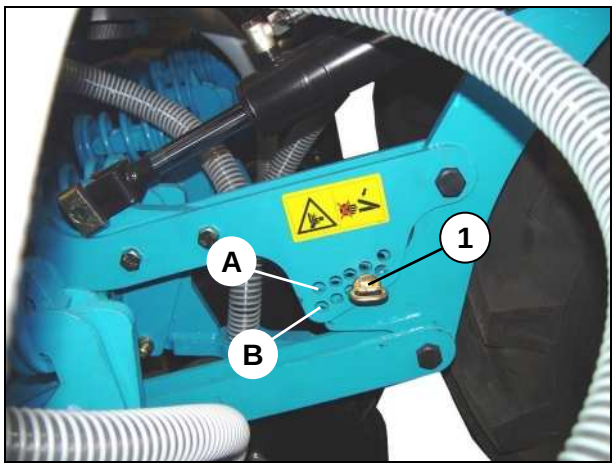


With the adjuster screw (1) the drilling depth is adjusted.

Turn the screw clockwise => deeper drilling depth.

Turn the screw anti-clockwise => less deep drilling depth

10.1.3 Settling depth of fertiliser coulter



Set settling depth using guide pin (1)!

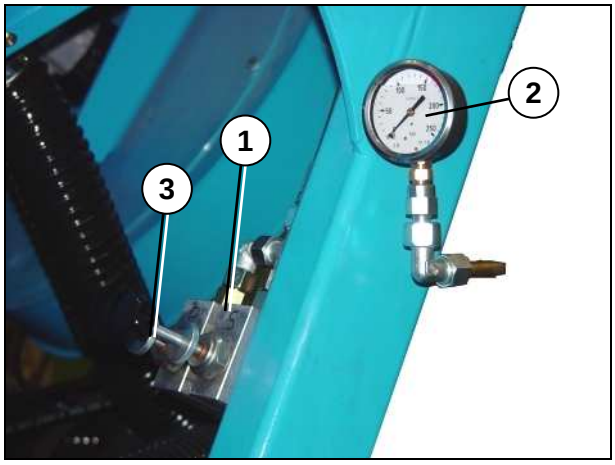
For large settling depths, insert the guide pin (1) into a hole in the upper row of holes A.

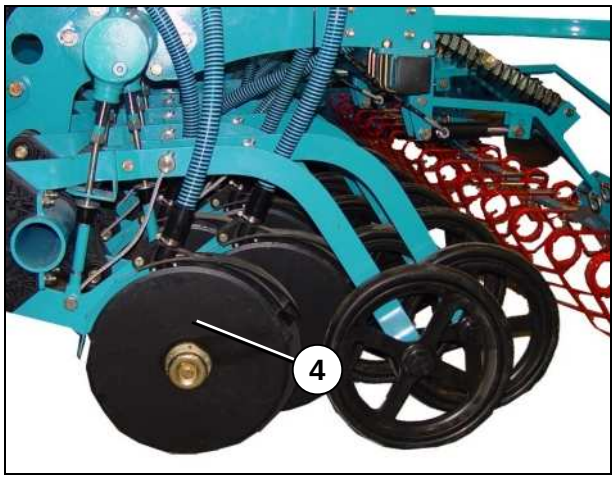
For low settling depths, insert the guide pin (1) into a hole in the upper row of holes B.

Setting guide pin one row to the right	=>	lower settling depth
Setting guide pin one row to the left	=>	larger settling depth

10.1.4 Coulter pressure for seeding coulter

The hydraulic coulter pressure system oil supply is provided by the blower hydraulics. Coulter pressure can only be generated and changed, when the blower is running.





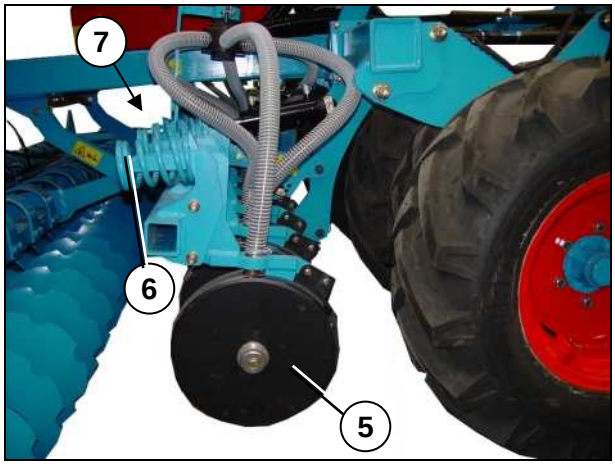
The right pressure reducing valve (1) can be used to set the coulter pressure for the seeding coulter (4).

Turn adjusting knurl (3) to the right => increases coulter pressure

Turn adjusting knurl (3) to the left => reduces coulter pressure

The configured coulter pressure can be read off on the pressure gauge (2).

10.1.5 Coulter pressure of fertiliser coulters



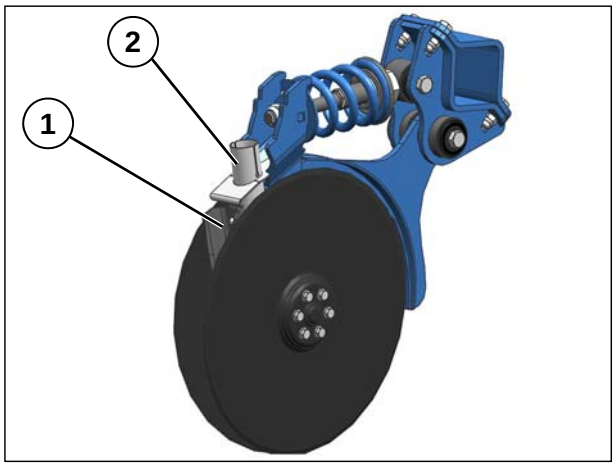
The coulter pressure for the fertiliser coulters (5) cannot be adjusted. The coulter pressure is determined by the overload protection (7) spring (6).

SUPPLEMENTARY INFORMATION

1.1 Fertiliser coulters

The working depth of the fertiliser coulters must be shallower than the working depth of the soil working implement operating ahead of them.

1.1.1 Replacing the scraper



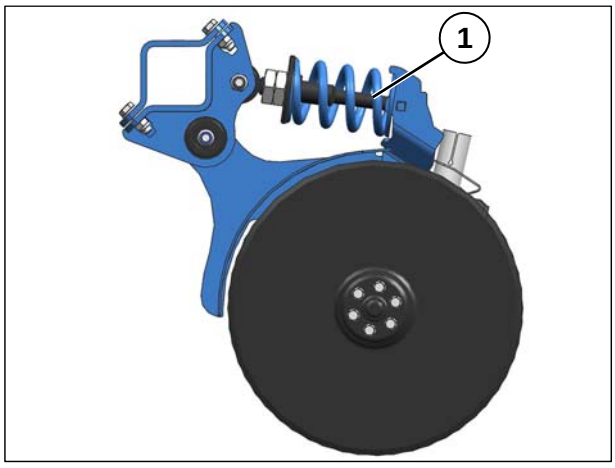
The double disc coulter is fitted with a self-adjusting hard metal scraper.

The scraper is attached to the outlet (2).

Replace the scraper if it shows signs of wear:

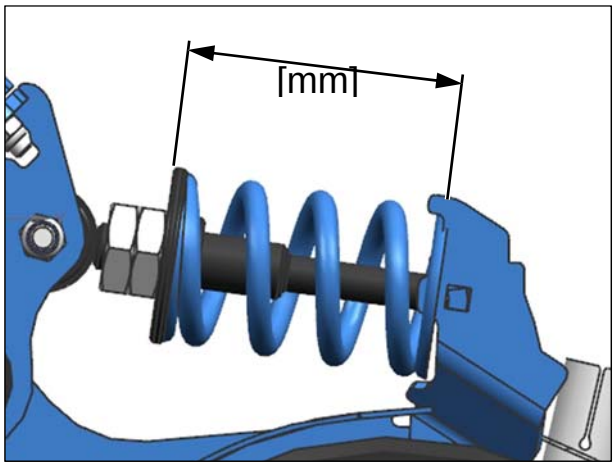
- Remove the scraper (1) from the holder using a screwdriver or pliers.
- Fit a new scraper (1) in the holder.

1.1.2 Setting the coulter pressure



The coulter pressure can be increased or reduced by increasing or reducing the tension of the compression spring (1).

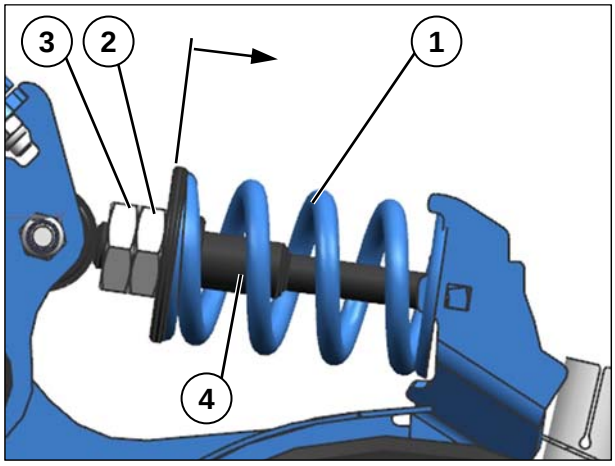
Compression spring tension



Compression spring length [mm]	Coulter pressure [kg]
140	15
130	60
120	100
110	140
100	185
Max. 97	197

Increasing the coulter pressure reduces the trip height of the coulter.

- Increasing the coulter pressure

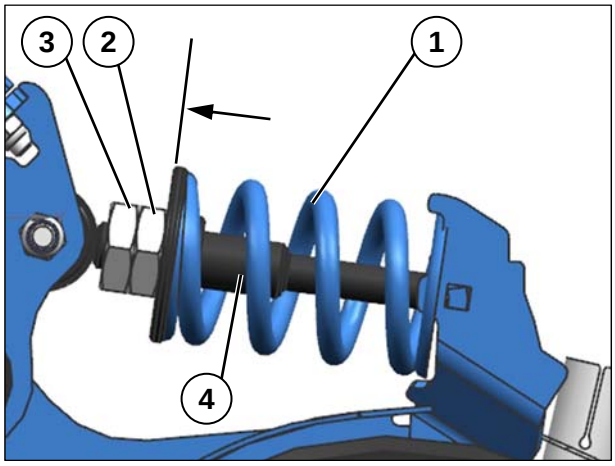


To increase the coulter pressure, tighten the compression spring (1):

– Turn the nuts (2)+(3) on the threaded rod (4) towards the compression spring (1).

– Tighten the lock nut (3) to hold them in position.

- Reducing the coulter pressure

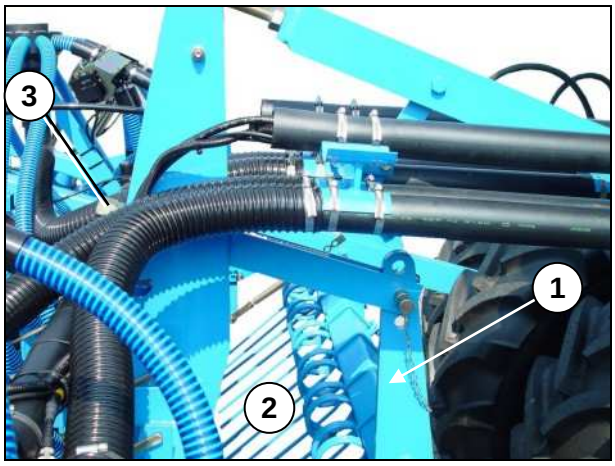


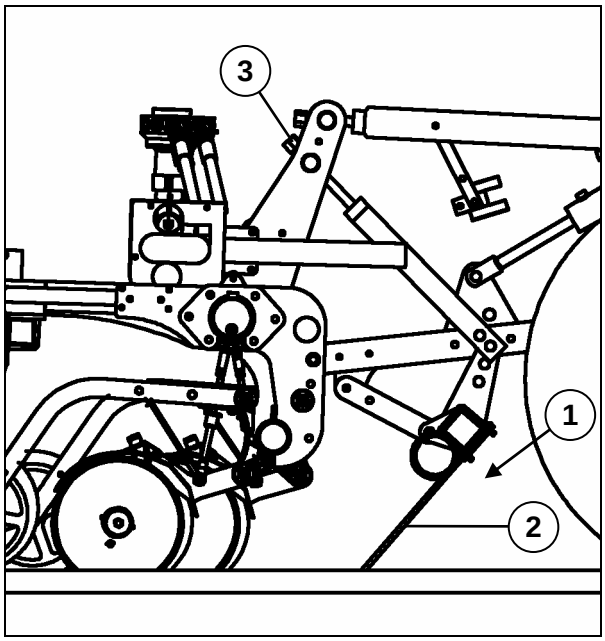
To reduce the coulter pressure, release the compression spring tension:

– Turn the nuts (2)+(3) on the threaded rod away from the compression spring (4).

– Tighten the lock nut (3) to hold them in position.

10.2 Harrow





The harrow (1) should flatten the ground. It has a free-swivelling connection to the seeding bar, enable it to easily adjust to the contours of the ground. It is limited in depth by a stopper.

10.2.1 Angular position

The angular position of the harrow tines (2) can be adjusted using the spindle (3).

Turn the spindle (3) in clockwise direction = steeper angular position

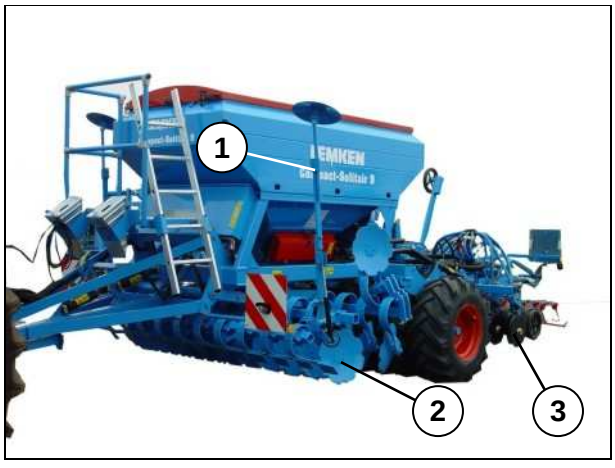
Turn the spindle (3) in anti-clockwise direction = flatter angular position

10.2.2 Tractor bar

A tractor bar can be bolted onto the harrow tines (2), which serves to improve the flattening effect of the harrow.

10.3 Track markers

10.3.1 General information

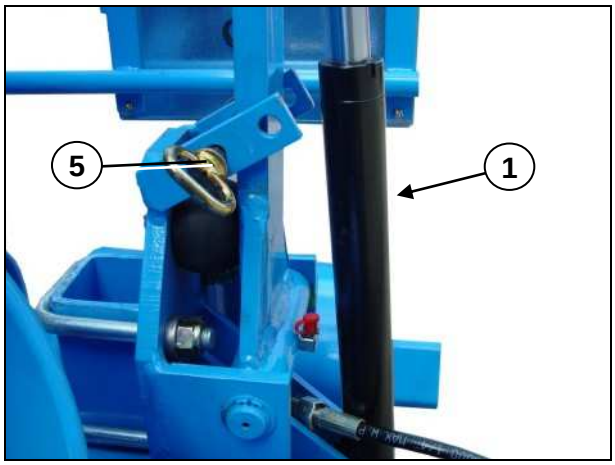


Once unlocked the track markers (1) are folded in and out when the control unit DW1 is actuated, if they were previously activated in the operating menu for the electronic seed drill control system. The control unit DW1 can also be used to simultaneously lower and raise the heliodor section (2) and - slightly delayed - the seeding rail (3) and fertiliser bar.

If the track markers (1) or the Heliodor section (2) or seeding rail (3) or fertiliser bar are to be actuated for maintenance or adjusting work, the functions are all conducted at the same time in activated condition.

DANGER 	When control unit DW1 is actuated, the track markers are folded and the heliodor section, and the seeding rail are raised or lowered! Ensure a sufficient safety distance is given! No-one is to stand within the vicinity of the track marker folding range or in the operating range of the heliodor section and the seeding rail!
WARNING 	Even when the track markers have been deactivated, the will fold in when the control unit DW1 is actuated, if they were folded out beforehand.
DANGER 	The track markers may fold out if the F4 function key on the control terminal is pressed. Depending on the software in question, the track markers may fold in when the F4 function key is pressed again.

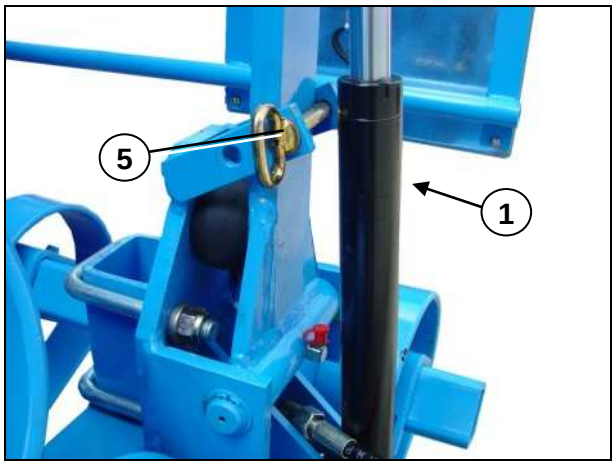
10.3.2 Operation and adjustment of the track markers



Pin (5) in stop position

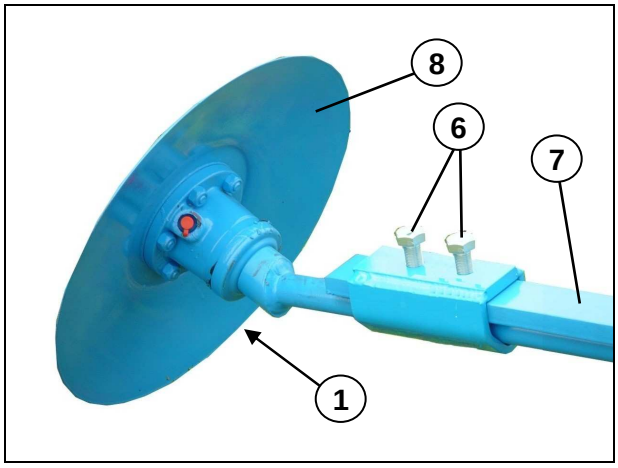
Before operating the track markers (1), they must be activated and released. Therefore the pin (5) must be set to stop position. Before transport and before adjustment and maintenance work, the track markers must be folded-in and secured. Then the pin (5) must be in locking position and secured. The track markers (1) must be adjusted to the middle of the tractor track in accordance to the following table.

The track markers must be adjusted to the middle of the tractor track according to the following table. After loosening the clamp screws (6) the length of the track marker



Pin (5) in locking position

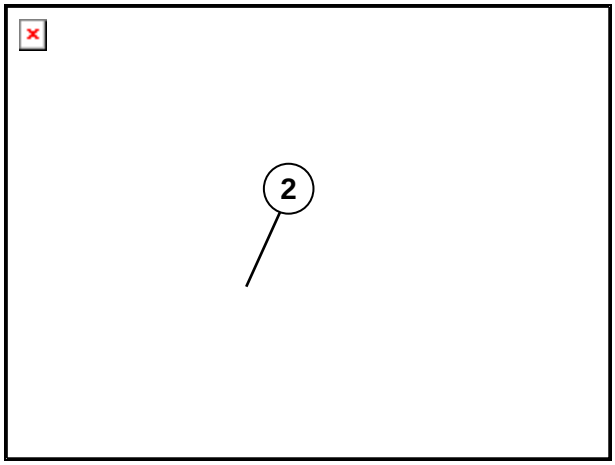
arms (7) and the angle of the track marker discs (8) can be adjusted. After the adjustment the corresponding clamp screw (6) must be tightened again.

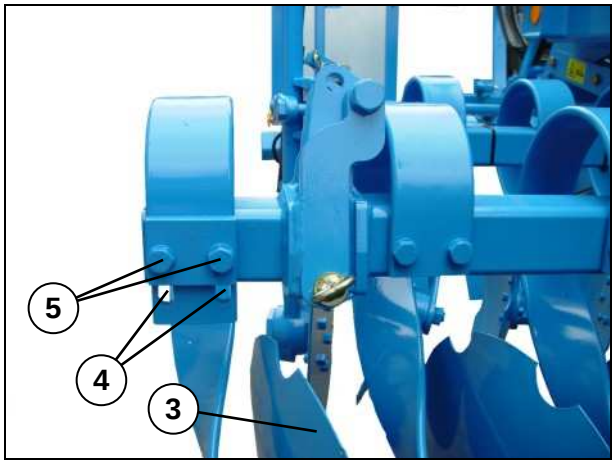


Working width of the implement	Distance from the centre of the seed drill to the track groove	Distance to the outer seed coulter
300 cm	300 cm	150 cm + ½ line distance
400 cm	400 cm	200 cm + ½ line distance

- Read and adhere to the ’general safety instructions’ as well as to the instructions ’maintenance’!
- When the clamp screws are not tightened fix, the track marker disc can be thrown away!

10.4 Working depth of the Heliodor-section





The working depth of the hollow discs (1) will be adjusted by means of a turnbuckle or a hydraulic ram (2).

Range of working depth = 3 cm to 10 cm.

The left rear hollow disc (3) can be adjusted stepless in working depth via slotted holes (4). The working depth of the hollow disc (3) must be adjusted shallow, when on the left side a too deep groove is visible. After the adjustment the clamp screws (5) must be tightened again.

- When the working depth of the Heliodor-section will be changed when lifted, the track markers can fold-out. Therefore, change working depth of the Heliodor-section only, when the Heliodor-section is in working position!

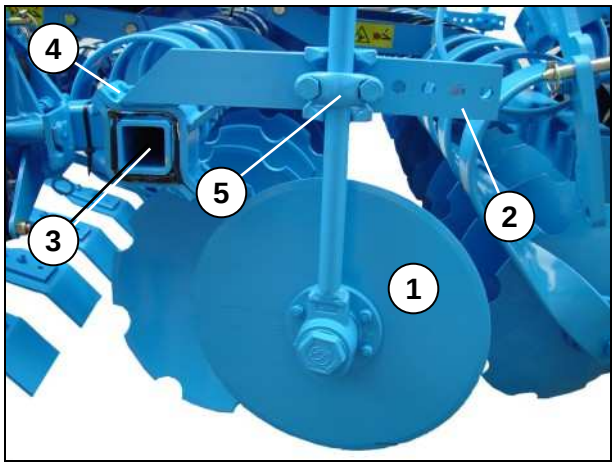
10.5 Lateral draw

The front and the rear inclined hollow discs exert counteracting lateral forces which counterbalance each other. Lateral forces which should occur can be eliminated as follows:

Lateral draw to the right => lift tractor hydraulic slightly

Lateral draw to the left => lower tractor hydraulic slightly

10.6 Lateral limiter

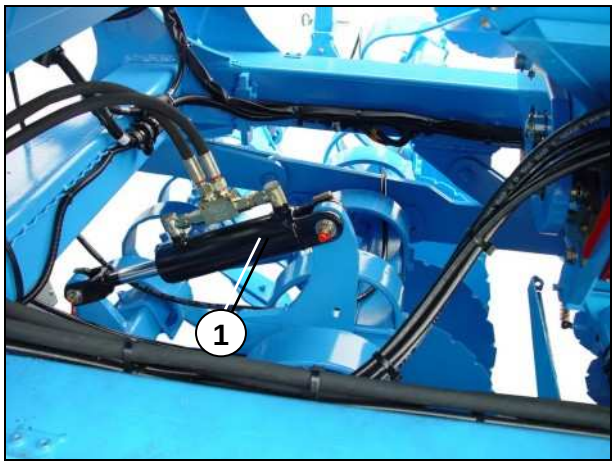


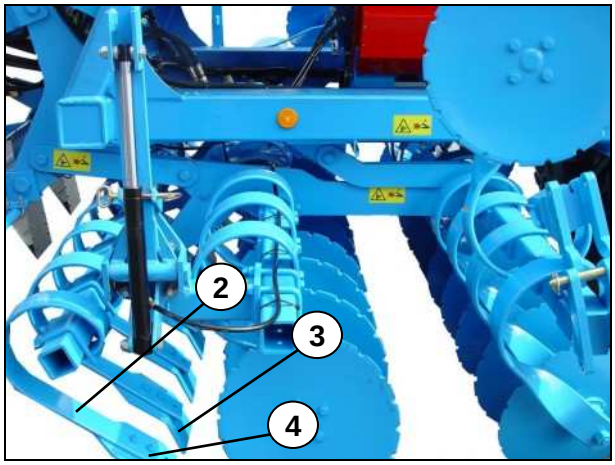
The lateral limiter (1) prevent that the outer right hand rear hollow disc and the left hand front hollow disc leave a groove or that dams will be formed.

They are fitted lateral moveable with each carrier (2) to the frame (3) by means of clamp screws (4). By means of the clamping device (5), they first can be set to front and rear and second adjusted in angle.

During work the left lateral limiter shall be set approximately 12 cm and the right lateral limiter approximately 5 cm above the ground surface.

10.7 Levelling tine section





Via the hydraulic ram (1) the levelling angle (2) can be adjusted as desired.

Open hydraulic ram (1) = shallower levelling angle

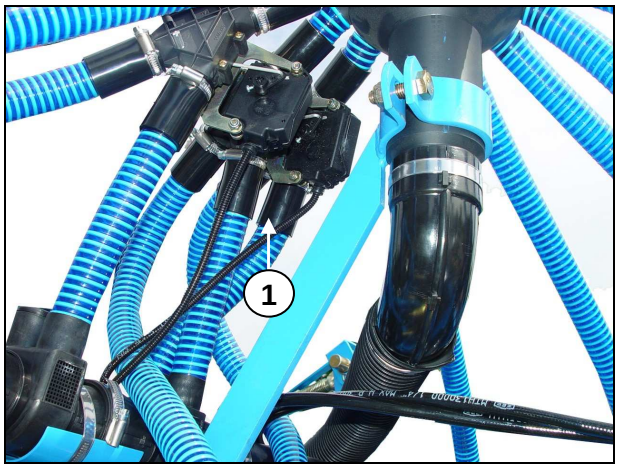
Close hydraulic ram (1) = steeper levelling angle

When worn the levelling shares (3) can be displaced at the tine. Therefore use the additional holes (4).

Additionally the levelling hares can be turned. So either an aggressive or shallow levelling position will be reached.

- Read and adhere to the General Safety Instructions as well as to the Instructions 'Hydraulic Equipment'!

10.8 Tramline mechanism

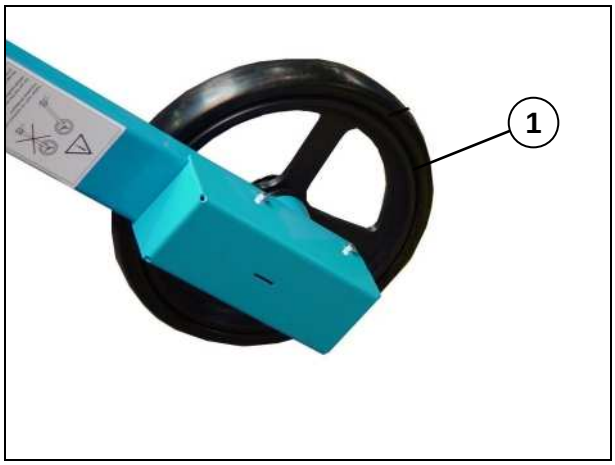


By means of the tramline mechanism (1) seeding rows will be closed, when tramlines are made.

Via the entering menu of the electronic seed drill control LEMKEN Solitronic the working width of the following implement will be entered. The required tramline rhythm will be calculated automatically.

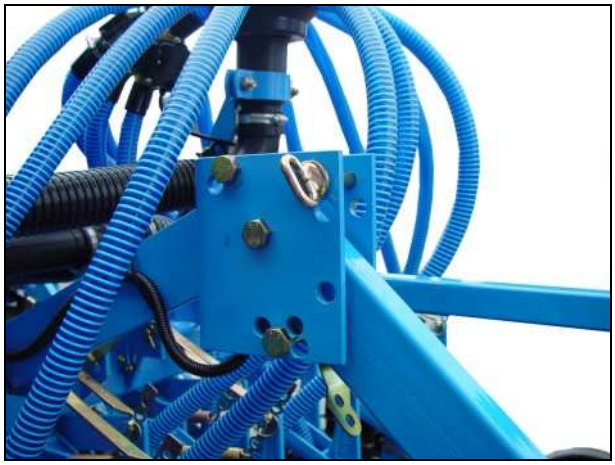
See operating instructions of the electronic seed drill control Solitronic.

10.9 Pulse wheel



With the pulse wheel (1), which must be swung-down before operation in the field, the impulse signals will be transmitted to the electronic seed drill control. See also the operating instructions of the electronic seed drill control Solitronic.

With lifted coulter bar the pulse wheel must only be max. 5 cm deeper than the depth control wheels or the pressure rollers of the double disc coulters.

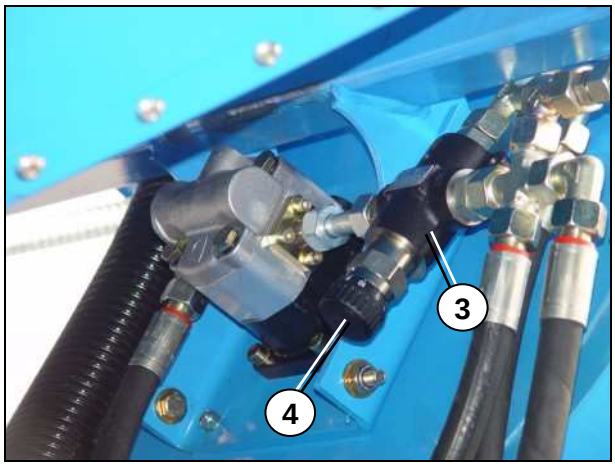


Required adjustments will be done by the stop bolt (2), which will be fitted to one of the holes (3).

For transport action the wheel arm (4) must be swung-upwards and secured by means of pin (5).

- When the pulse wheel will be turned, the seed wheels, the seeding shaft and the agitator shaft turn also! Keep distance!

10.10 Fan



A constant oil supply is required (approx. 35 l/min) in order to ensure a constant fan RPM. If peas or beans are sown, the fan RPM must be increased.

It also has to be increased if the seed drill is equipped with a return pipe (1).

The RPM of the fan (2) must be adjusted by means of the flow control valve of the corresponding tractor spool valve and can be seen on the display of electronic seed drill control. The oil flow control valve (3) of the seed drill must be opened fuly then. See instruction book of the electronic seed drill control Solitronic.

If the tractor is not equipped with an adjustable flow control valve, the fan speed (RPM) has to be adjusted by means of the flow control valve (3) with the adjuster (4) of the seed drill.

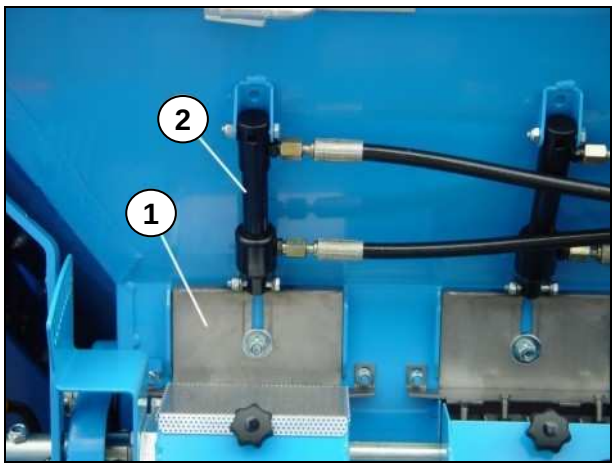
	Compact-Solitair with cyclone	Compact-Solitair with cyclone and two returns
Fine seed	from 3.300 1/min	from 3.600 1/min
Cereals	from 3.300 1/min	from 3.600 1/min
Peas and beans	from 3.500 1/min	from 3.800 1/min

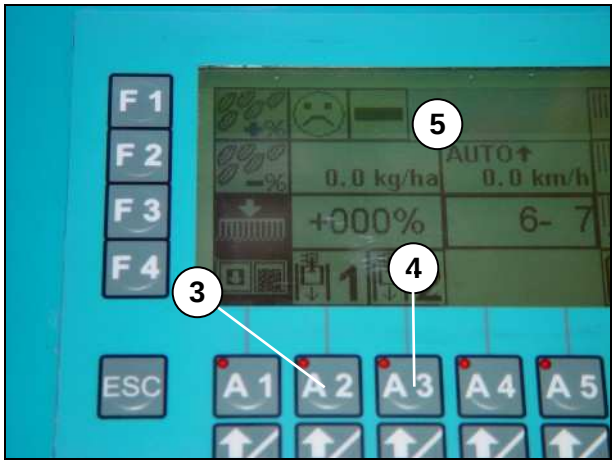
Higher van speeds will improve the longitudinal and the cross distribution.

10.11 Blower for fertiliser spreading

If fertiliser is to be spread in parallel to seed, then the speed of the blower has to be increased. For larger quantities of fertiliser, the blower speed must be increased to approx. 4000 – 4100 rpm.

10.12 Switch of width sections



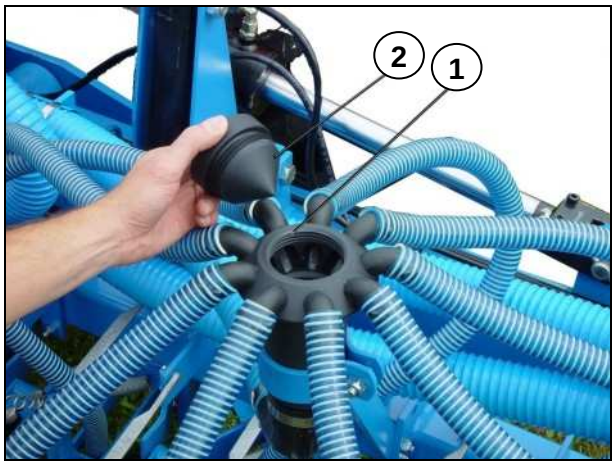


Depending on the working width of the seed drill, dosage units can be switched off by means of closing the stop slides (1).

With the hydraulic width switch off device, hydraulic rams (2) are provided above the stop slide (1). They will be operated by the „A“ keys (3) and (4) of the operation terminal (5).The oil supply occurs via the oil circle of the hydraulic motor of the fan. See also section „Fan Hydraulic“.

See operating instructions of the electronic seed drill control Solitronic.

10.13 Distributor



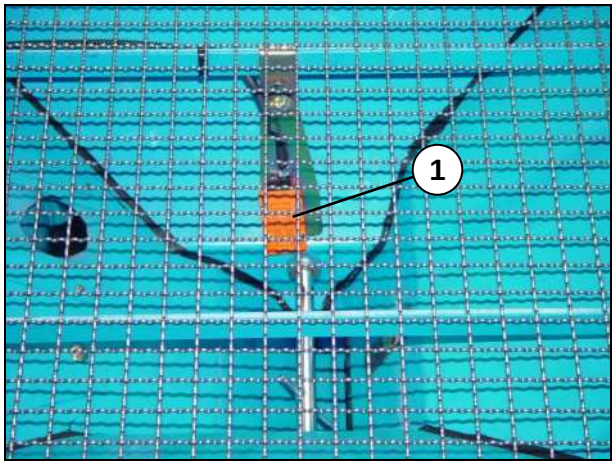
The distributors (1) are provided with distributor heads (2) with thread, which enable a simple check of the distributor.

If required, some exits of the distributor can be closed by means of plugs.

Therefore the distributor heads (2) must be removed and the plugs put in those exits which should be closed.

After that screw on distributor heads again. The plugs must be removed, when all exits should be used again.

10.14 Electronic level monitoring

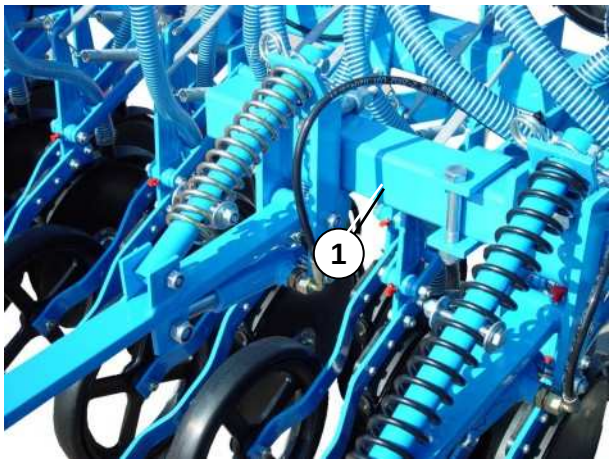


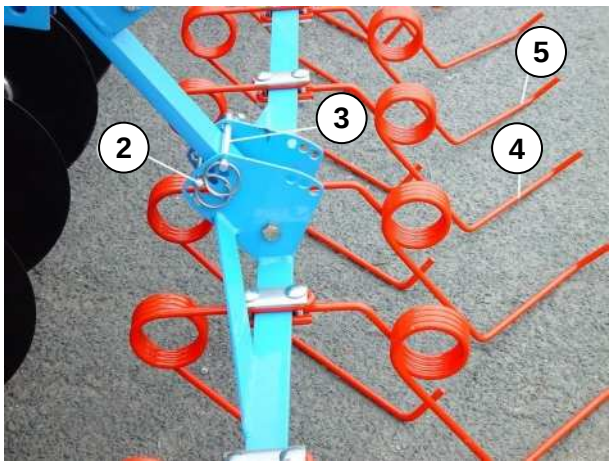
The level is monitored by the sensor (1) and computationally. The sensor (1) triggers an alarm when it no longer has any contact with seed or fertiliser. The height of the sensor can be altered which in turn enables the level height to be changed at which an alarm is to be triggered.

See operating instructions for the Solitronic electronic seed drill control system!

10.15 Harrow

10.15.1 S-harrow





The S-harrow will be screwed to the carrier (1) respectively the coulter bar. The harrow position will be adjusted by means of the pins (2) and (3).

The harrow tines (4) should be set a little bit deeper at the rear than in front during work. Due to that it will be avoided that the harrow tines will wear first in front and the rear tine ends (5) fall off.

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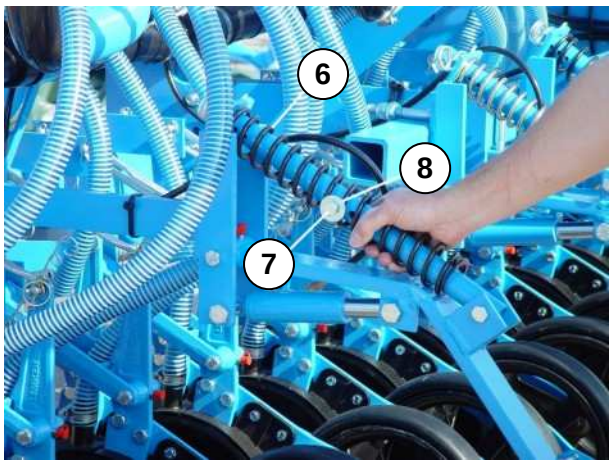


By means of turning the spring (6) the harrow pressure will be adjusted:

Higher harrow pressure => Turn spring clockwise

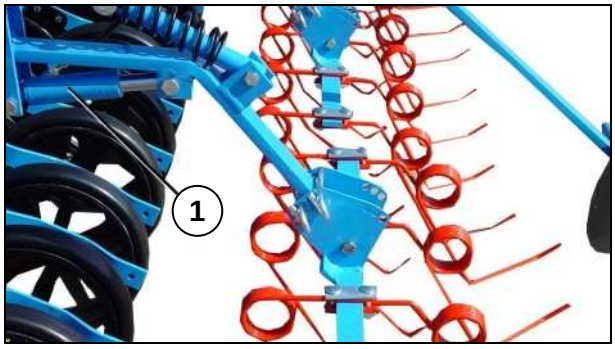
Lower harrow pressure => Turn spring anti-clockwise

The nut (7) of the bolt (8) must be tightened so much that the spring (6) is secured against unintentional adjusting, but a manual adjustment is possible.

IMPORTANT! It must always be ensured that the pulse wheel (9) never touches the harrow during work

Before each transport, the S-harrows must be folded-in and secured, in order to prevent injury. Worn harrow tines, which show sharp points pointing rearwards, only, must be covered by a transport safety device.

10.15.2 Hydraulic lift



If desired a hydraulic harrow lifting device with hydraulic rams (1) is available.

The power supply of the hydraulic rams (1) occurs via the oil circle of the hydraulic motor of the fan.

Via the operation terminal of the electronic seed drill control Solitronic the S-harrow can always be lifted, when it is required to work without harrow (if required also automatically).

See operating instructions of the electric seed drill control Solitronic.

The S-harrows without harrow lifting device can be equipped supplementary with the hydraulic rams (1).

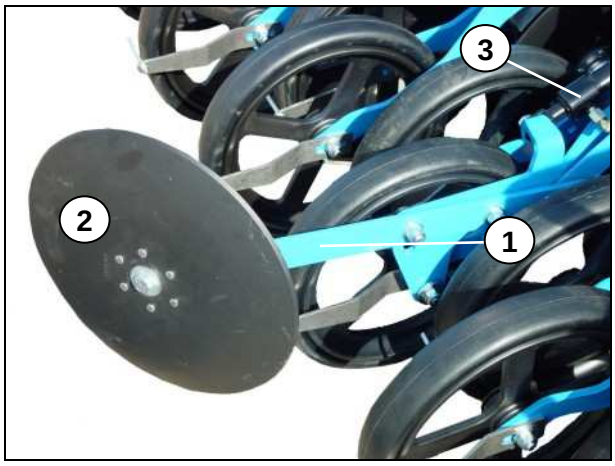
10.16 Pre-emergence markers

10.16.1 General Instructions

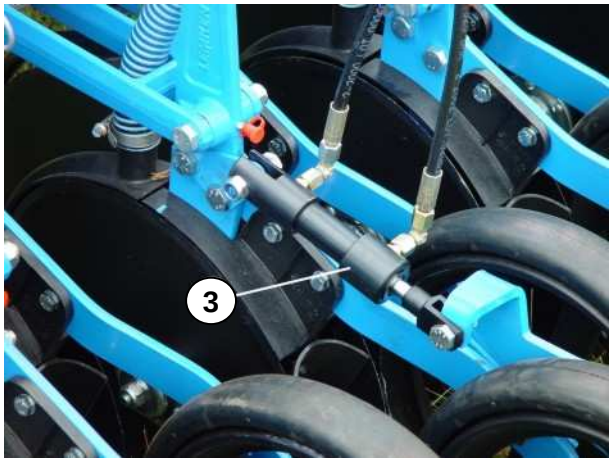
As pre-emergence markers different hollow disc units are available which will be fitted to the wheel arm of the depth control wheel as well as to the frame of the coulter bar.

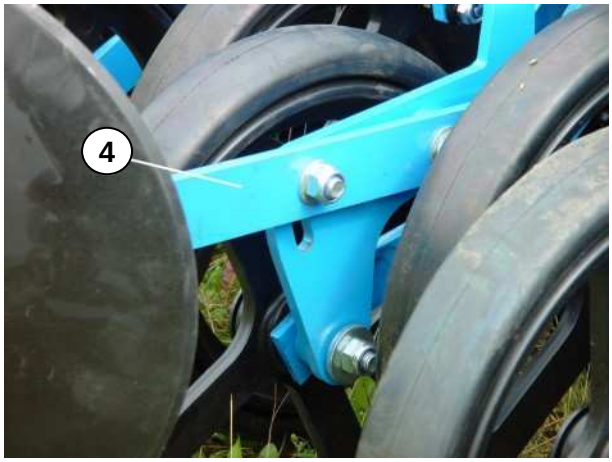
The oil supply to the hydraulic ram takes place via the oil supply to the hydraulic motor of the fan. See section „Fan Hydraulic“.

10.16.2 Pre-emergence marker – hydraulic, double acting

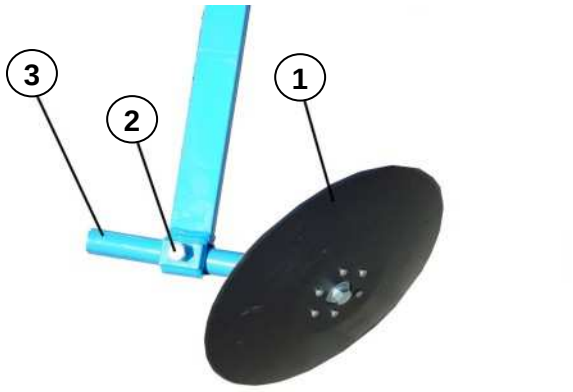


The carriers (1) of the hollow discs (2) will be fitted to the wheel stalk of the depth control wheels. The hollow discs will be lowered by means of the hydraulic rams (3), when a tramline should be made. Via the electronic seed drill control the desired rhythm and via the clamp screw (4) the desired depth of the marking grooves will be adjusted.





10.16.3 Pre-emergence marker – hydraulic, single acting

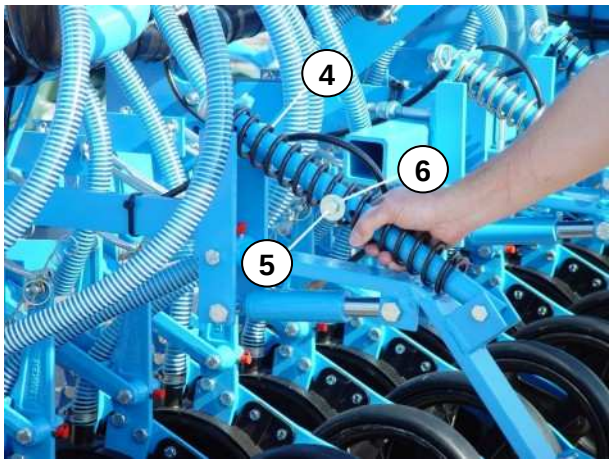


The hollow discs (1) can exactly be adjusted to the track measurement of the following tractor. Therefore the brackets of the units will be moved to the desired track measurement.

Also after loosening the clamp screw (2), the hollow discs can be adjusted to the desired track measurement.

By means of turning the axle (3) the angle of the hollow discs (1) can be adjusted as desired. After the adjustment, tighten clamp screw (2) carefully again.

10.16.4 Depth of the marking groove



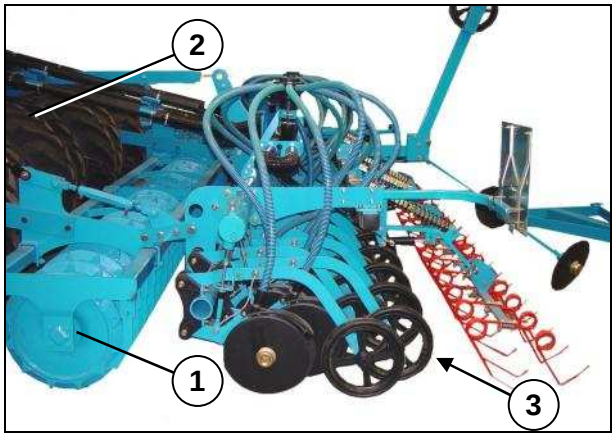
By means of turning the spring (4) the depth of the marking groove can be pre-adjusted.

Turning the spring clockwise => deeper marking grooves

Turning the spring anti-clockwise => shallower marking groove

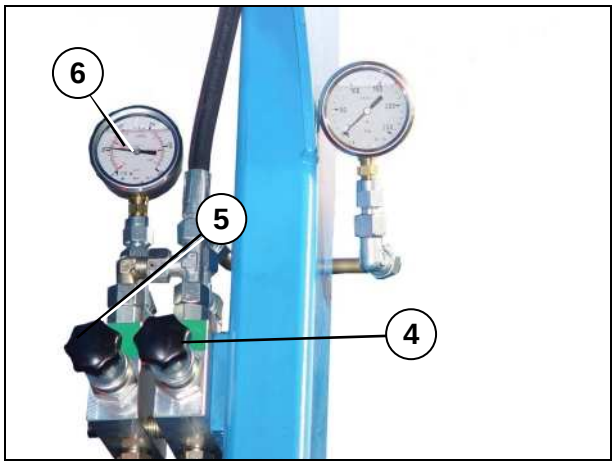
By means of the bolt (5) the brake discs (6) will be pressed against the spring, so that the position of the spring cannot change unintentionally, but still can be adjusted manually.

10.17 Leading roller



The leading roller (1) is located behind the chassis and suspension (2). The seeding bar (3) is mounted to the leading roller (1) and can only be raised or lowered together with the leading roller.

The leading roller's (1) pressure on the ground is adjusted using the left pressure reduction valve (4).



Turn adjusting knob (5) to right => increases ground pressure

Turn adjusting knob (5) to left => => reduces ground pressure

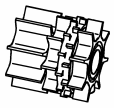
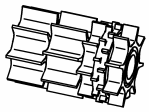
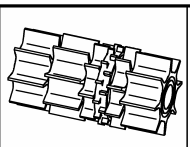
The configured coulter pressure can be read off on the left pressure gauge (6).

This ground pressure adjustment version is superseded by a version, in which the control terminal of the Solitronic electronic seed drill control system can be used to gradually adjust the ground pressure.

See operating instructions for Solitronic electronic seed drill control system as of version 1.51.

11 SEEDTABLE

Sätabelle - Seedtable - Tableau de réglage - Таблица высевов

Saatgut Seed Graine de semence Посевная култура	Arbeits-breite Working width Largeur de travail Ширина посева								
		kg/ha							
Getreide	5/10 m			35 - 100	100 - 220	220 - 300		1	1
Grain	4,5/9 m			40 - 110	110 - 240	240 - 300		1	1
Blé-orge	4/8 m			45 - 120	120 - 260	260 - 300		1	1
Зерновые	3/6/12 m			30 - 80	80 - 180	180 - 260	260 - 300	1	1
Erbsen	5/10 m			50 - 110	110 - 220	220 - 300	300 - 400	2	2
Peas *	4,5/9 m			55 - 120	120 - 240	240 - 330	330 - 400	2	2
Pois **	4/8 m			60 - 135	135 - 270	270 - 375	375 - 400	2	2
Горох	3/6/12 m			40 - 90	90 - 180	180 - 250	250 - 380	2	2
Bohnen	5/10 m			40 - 95	95 - 180	180 - 290	290 - 400	2	3
Beans *	4,5/9 m			45 - 100	100 - 200	200 - 320	320 - 400	2	3
Haricots **	4/8 m			50 - 120	120 - 240	240 - 360	360 - 400	2	3
Бобовые	3/6/12 m			35 - 80	80 - 160	160 - 240	240 - 370	2	3
Raps	5/10 m	2,8 -11	11 - 44	44 - 90				1	4
Rape ***	4,5/9 m	3 -12	12 - 48	48 - 100				1	4
Colza	4/8 m	3,5 -14	14 - 55	55 - 110				1	4
Рапс	3/6/12 m	2,3 - 9	9 - 36	36 - 75				1	4
Gras	5/10 m	1,4 - 6	6 - 24	24 - 55	55 - 110			1	5
Grass	4,5/9 m	1,6 - 7	7 - 27	27 - 60	60 - 120			1	5
Graminèe	4/8 m	1,8 - 8	8 - 30	30 - 70	70 - 135			1	5
Трава	3/6/12 m	1,2 - 5	5 - 20	20 - 45	45 - 90			1	5

* Feinsäräder abschalten
** Schmale Säräder abschalten, wenn Erbsen oder Bohnen sich darin festsetzen können
*** Rührwelle abschalten

* Switch off fine seed wheels
** Switch off the half seed wheels, when peas or beans can squeeze inside
*** Switch off agitator shaft

* Débrayer les galets semeurs pour le semis des petites graines
** Débrayer les demi galets semeurs afin que des pois ou des haricots ne puissent pas les bloquer
*** Débrayer l´arbre d´agitateur

* Высевные катушки для мелких семян отключить
** Узкие высевные катушки отключить, если горох или бобы в них остались
*** Ворошильный вал отключить

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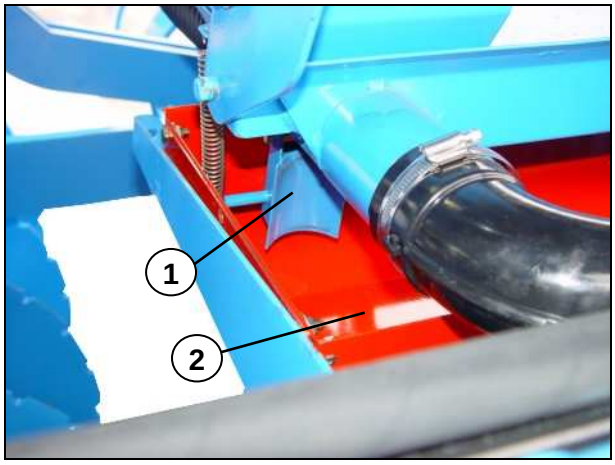
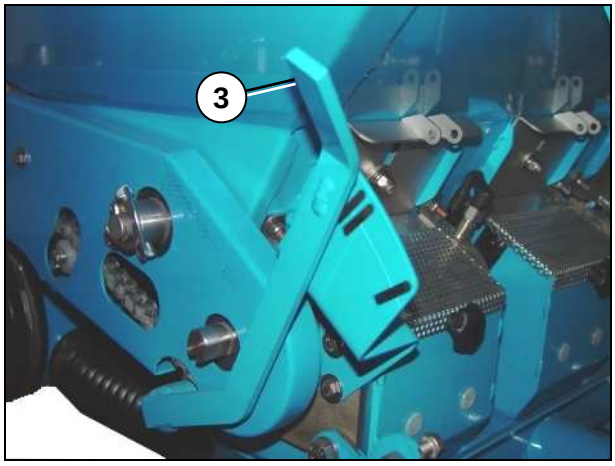
12 EMPTYING THE SEED CONTAINER

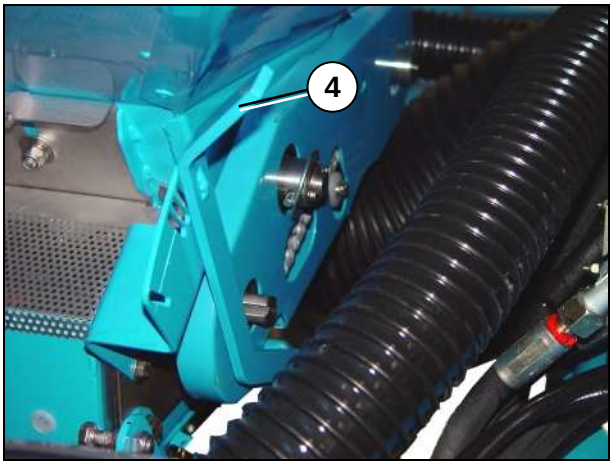
The seed container can be emptied easily; small residual quantities are emptied into the calibration tray (1), larger residual quantities can be emptied through the spreaders.

12.1 Emptying in the calibration tray



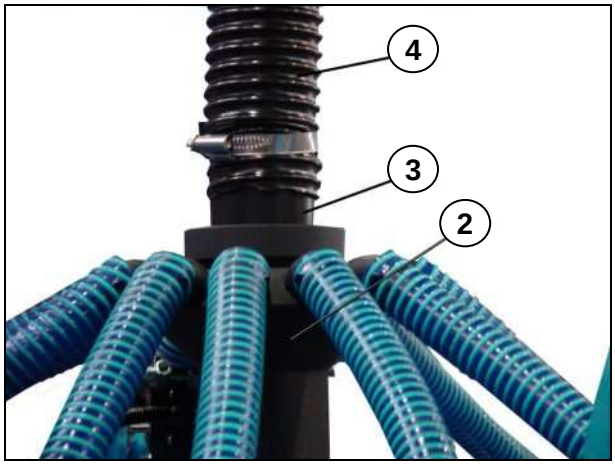
The seed container and the fertiliser container can be emptied by simply swivelling the drainage gates (1) and opening the bottom gates using the lever (3) or (4). Before opening the drainage gates, the calibration tray (2) has to be slid under the feeder unit.





The seed and fertiliser have to be emptied after each other to ensure that the seed and fertiliser is not mixed up with each other.

12.2 Emptying with the spreaders



After unscrewing the spreader heads (1) a connecting sleeve (3) with hose (4) can be screwed onto a spreader (2), which then enables the seed container to be emptied pneumatically using a blower. The seed container or fertiliser container can be emptied either through one or two spreaders as follows.

– Remove calibration tray from holder.
– Close shutter not required for emptying the deployed feeder units.
– Completely open the bottom gates by swivelling the bottom gate lever.
– Screw connecting sleeve (3) with hose (4) onto spreader.
– Route hose (4) into container.
– Switch on blower and leave switched on until the seed container is empty.
– Open the closed shutter again and collect remaining seed in the calibration tray.

Then empty the calibration tray and slide calibration tray back into the holder.

- To prevent the seed and fertiliser from being mixed up, the seed and fertiliser are to be blown in separate containers.
- After the emptying process has been completed, move the bottom gates back into the desired position, unscrew connecting sleeve with hose and screw spreader head (1) back into place.

13 TYRES

The minimum and maximum allowed operation pressure of the tyres can be found in the following table:

IMPORTANT! The air pressure must be checked regularly!

Description	Profile	min. allowed air pressure (bar)	max. allowed air pressure (bar)
420/65 R 20	XM 108	0,4	1,8
405/70-20	AS 504	2,0	3,4

Carrying capacity (kg) per wheel with different air pressures (bar), a speed of 10 km/h and 30 km/h:

420/65 R20	0,4 bar	0,5 bar	0,6 bar	0,8 bar	1,0 bar	1,2 bar	1,4 bar
30 km/h	770 kg	920 kg	1.080 kg	1.250 kg	1.420 kg	1.590 kg	1.770 kg

405/70-20	2,0 bar	2,4 bar	2,8 bar	3,2 bar
30 km/h	1.600 kg	2.000 kg	2.400 kg	2.800 kg

The stated maximum allowed air pressure value must never be exceeded! The minimum allowed air pressure value must never be lower, in order to prevent overloads and damage at the tyres!

- Read and adhere to the general safety instructions as well as to the instructions „Tyres“!

14 WORKING SPOT LIGHTS

The working spot lights (1) will be switched on and off in the entering menu via the operation terminal of the electronic seed drill control.

See also operation instructions of the electronic seed drill control Solitronic.

15 TIPS FOR DRIVING ON PUBLIC ROADS

15.1 General information

A proper lighting system, identification and equipment must be on the implement, if it is to be transported on public roads. The country-specific valid laws and regulations pertaining to driving on public roads must be observed.

15.2 Braking system

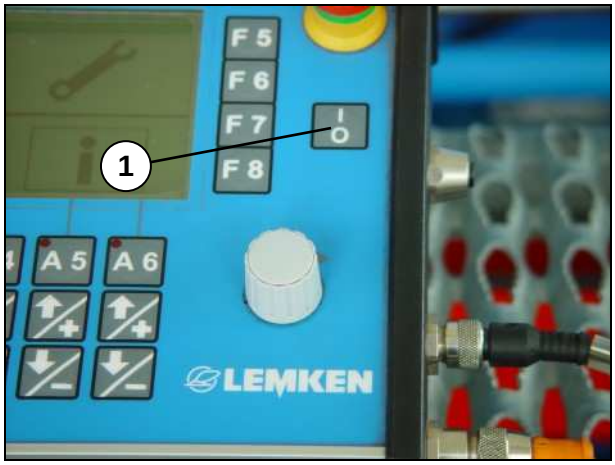
It must be ensured that the tractor with an implement (with or without braking system) is always capable of achieving the prescribed braking deceleration.

- For an axle weight rating up to 3 t the tractor's curb weight in combination with an attached implement without braking system, must be twice as high as the implement's axle weight rating.
- For an axle weight rating in excess of 3 t, an implement without braking system is not allowed to be transported on public roads.

15.3 Transport speed

The maximum permissible transport speed is 30 km/h. Depending on the braking system version and the tyres on the implement, a transport speed of up to 40 km/h may also be permissible.

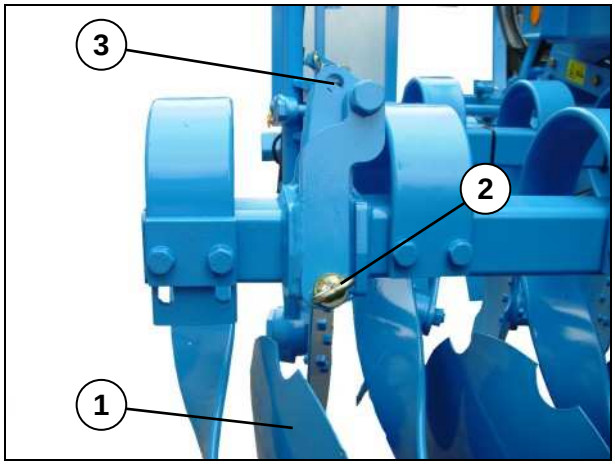
15.4 Operation terminal

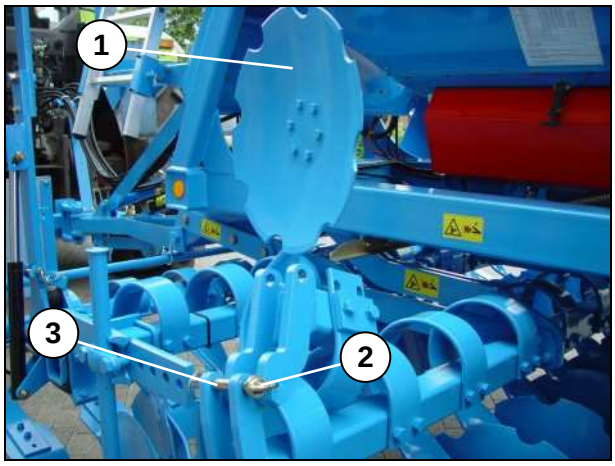


Before transport action, the implement must be brought to transport position. After that the electronic seed drill control must be switched off by means of the switch (1) of the operation terminal. Transport implement only with switched off operation terminal!

16 FOLDING-IN AND –OUT THE OUTER HOLLOW DISCS

16.1 Folding-in the outer hollow discs





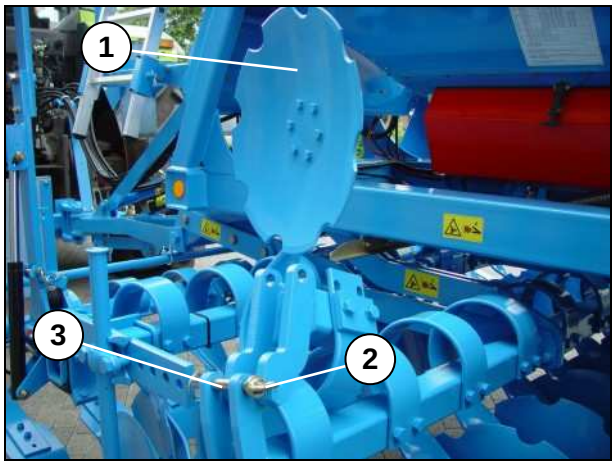
For transport the outer hollow discs (1) must be folded-in as follows:

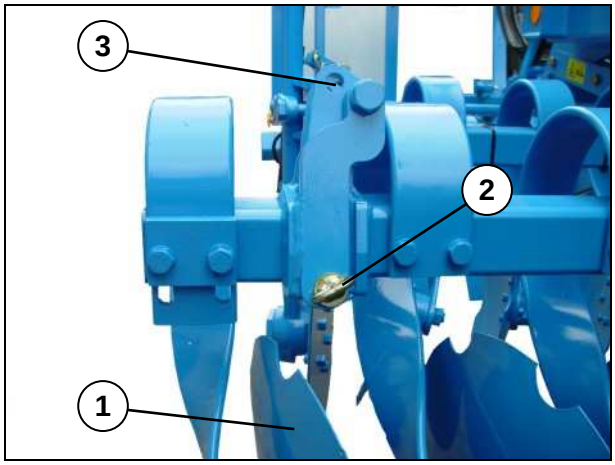
– Release the locking pin (2) and detach.

– Now fold-in the outer hollow disc (1) concerned manually.

– After that fit locking pin into the free hole (3) to avoid an unintentional folding-out of the outer hollow discs!

16.2 Folding-out the outer hollow discs





For work the outer hollow discs (1) must be folded-out as follows:

– Release locking pin (2) and remove it out of hole (3).

– Now the outer hollow disc concerned can be folded-out.

– Finally the locking pin (2) must be fitted again and secured.

ATTENTION! In working position the Compact-Solitair is wider than 3 m! It may only be transported on public roads with folded-in outer hollow discs!

17 TECHNICAL DATA

Compact-Solitair HD		9/300	9/400
Number of seeding coulters with 167 mm row spacing		18	24
Number of fertiliser coulters with 334 mm row spacing		9	12
Seed container / fertiliser container		2,100 l / 1,400 l	2,100 l / 1,400 l
Weight approx.		4,970 kg	5,790 kg
Number of hollow discs, dia. 465 mm		24	32
Tyres	420/65 R20	6 x	8 x
	405/70-20	6 x	8 x
Length with advance marking approx.		8,150 mm	8,150 mm
Length with advance marking and leading roller		Approx. 8,850 mm	Approx. 8,850 mm
Length with harrow		8,030 mm	8,030 mm
Width approx.		3,000 mm	4,000 mm
Height approx.		2,760 mm	3,060 mm
Max. speed on level road		30 km/h	**
Max. speed on uneven terrain		*	*
Gross weight rating		8,000 kg	8,700 kg
Permissible axle weight		6,500 kg	7,500 kg
Permissible drawbar load		1,600 kg	1,600 kg
Max. tractor pulling power with mounting studs, Cat. II		92 KW / 125 HP	92 KW / 125 HP
Max. tractor pulling power with mounting studs Cat. III and III N		185 KW / 250 HP	185 KW / 250 HP

* Adapted reduced speed!

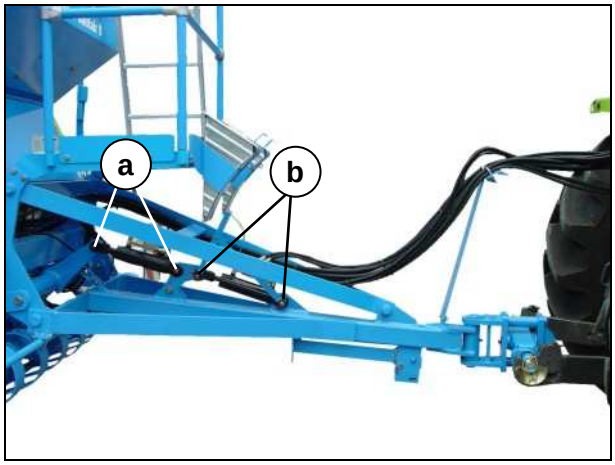
** The implement is wider than 3m and may only be transported on public roads with exceptional permission or with special requirements or - depending on service country - not at all!

18 MAINTENANCE

18.1 Lubrication chart

All lubricating points must be greased in accordance with the lubrication chart:

Lubrication chart	Every 50 service hours	Every 100 service hours	Before a winter break	After a winter break
a) Hydraulic cylinder for raising Heliodor section (2x)	x		x	x
b) Hydraulic cylinder for Heliodor section working depth (2x)		x	x	x
c) Hydraulic cylinder and joints for raising seeding bar (6x)	x		x	X
d) Track marker disk bearings (2x)		x	x	
e) Ladder pintle (1x)				x
f) Track marker flap hinges (2x)			x	
g) Hydraulic cylinder for fertiliser coulters (4x)			x	
h) Joints of advance marking (1x each)			x	
i) Sowing harrow-S joints (1x each)			x	
i) Sowing harrow-S harrow section (1x each)		x	x	
a) Hydraulic cylinder for levelling work tines section (2x)		x	x	x
l) Universal joint (3x)	x			
m) Wheel bearing (max. 10cm³ grease)		x	x	
Grease piston rods using acid-free grease			x	
Grease guide pins			x	x
Grease surfaces of hollow discs, rimmed discs, disc coulters and levelling work tines			x	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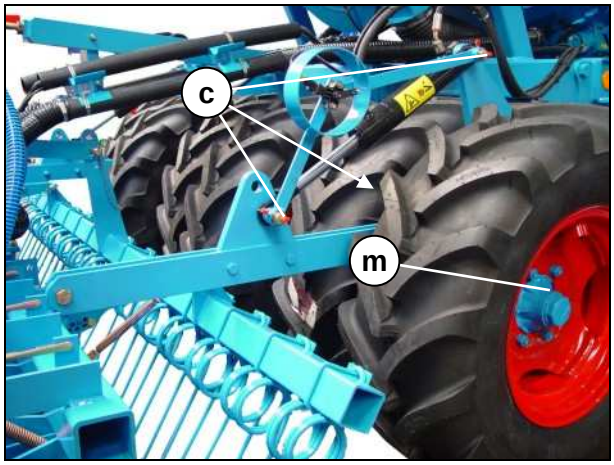
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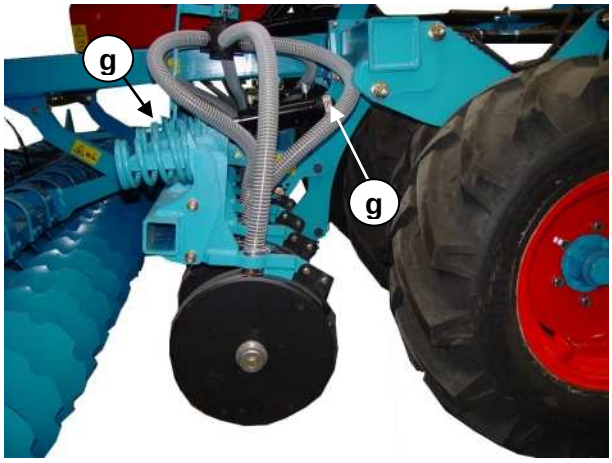
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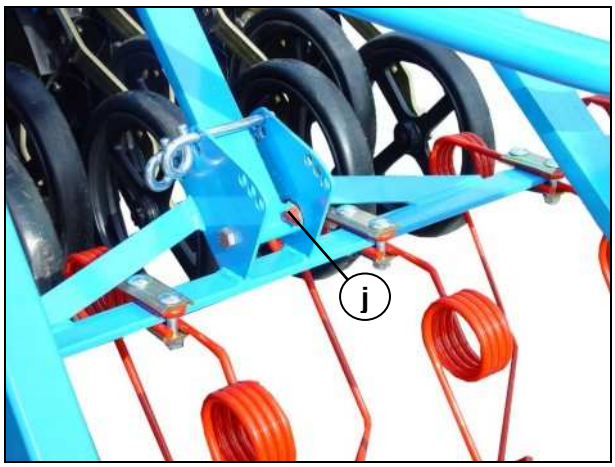
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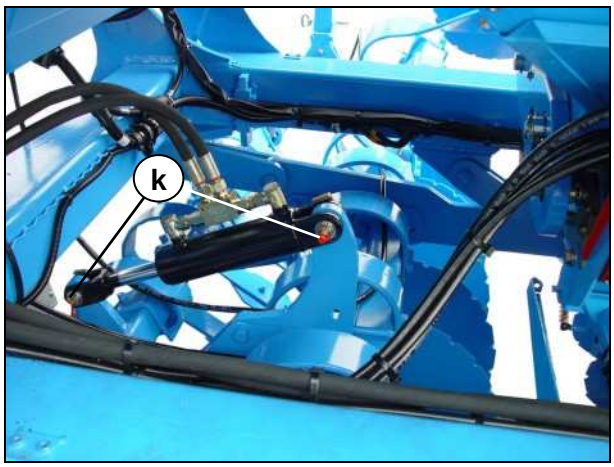
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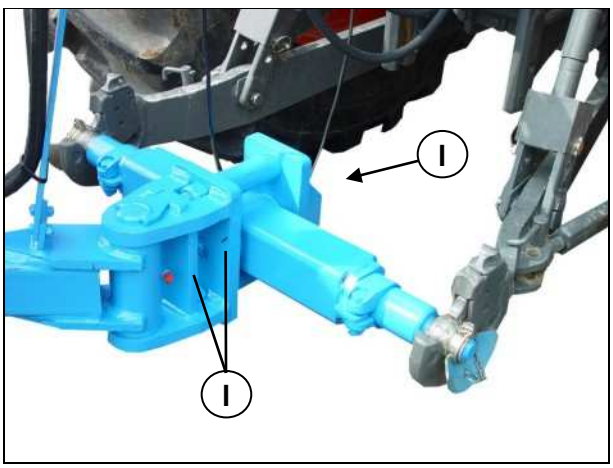
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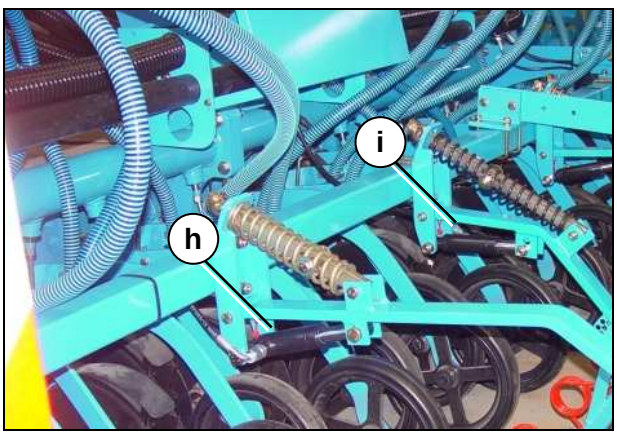
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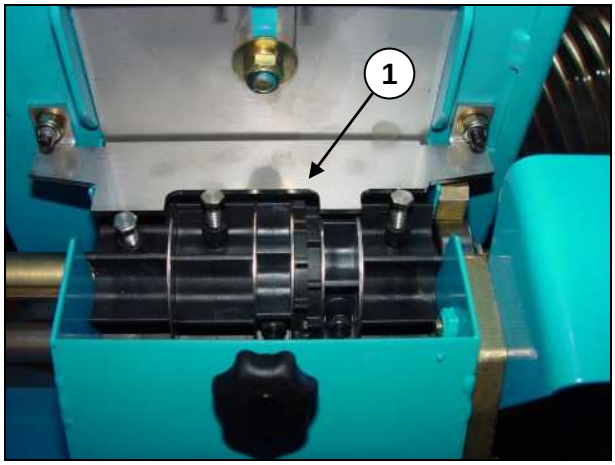
18.2 Bolts

All nuts and bolts must be tightened after the first few hours of use, at least within the first 8 hours and checked, and tightened if necessary. At least every 50 hours all bolts and nuts must be checked for tight fit and tightened if necessary and secured with Loctite.

The tightening torques of the different bolts are listed in the following table.

	8.8	**10.9**	**12.9**
Diameter / thread	Tightening torque	Tightening torque	Tightening torque
	[Nm]	[Nm]	[Nm]
M6	9.7	13,6	16,3
M8 / M8x1	23.4	32,9	39,6
M10 / M10x1.25	46.2	64,8	77,8
M12 / M12x1.25	80.0	113	135
M14	127	178	213
M16 / M16x1.5	197	276	333
M20	382	538	648
M24 / M24x2	659	926	1112
M30 / M30x2	1314	1850	2217

18.3 Cleaning the dosage units

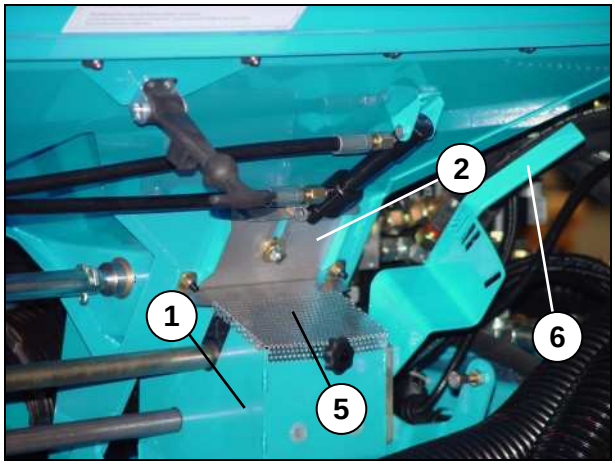


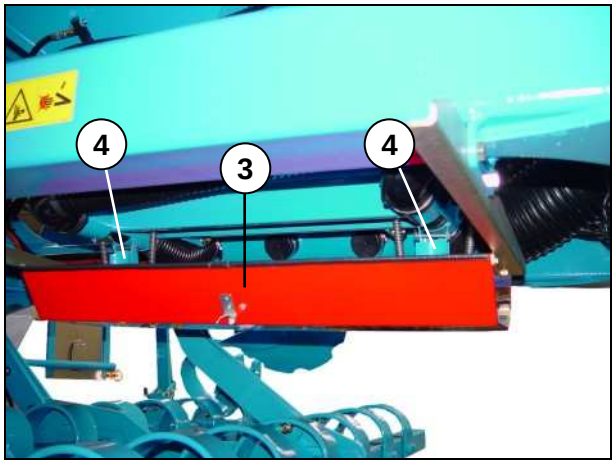
The dosage units (1) must be cleaned regularly, with rape seed at least once a day. Therefore the slide plates (2) must be closed, the calibration tray (3) put in calibration position and the emptying flaps (4) opened.

Remove protection covers (5) and open bottom flap shaft completely by means of the lever (6).

Now the dosage units can be cleaned.

Following this set the bottom flap shaft into the previous position, remove calibration tray, close the emtying flaps, open the





slide plates, fit protection covers and finally fit calibration tray.

When removing the calibration tray the emptying flaps will be closed automatically. The closing of the emptying flaps is clearly audible.

18.4 Cleaning the seed drill

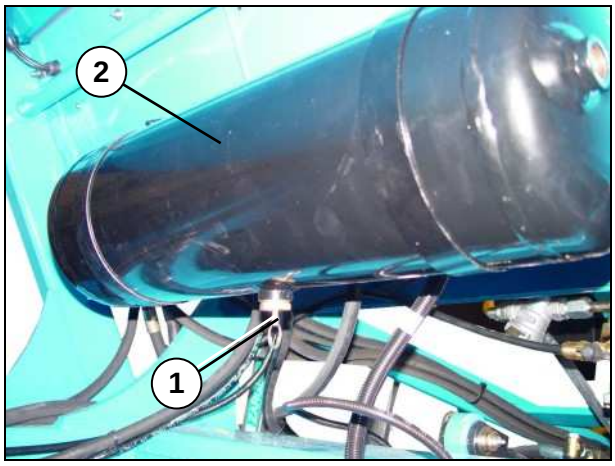
The seed drill must always be cleaned with compressed air after each operation, in particular, after spreading fertiliser.

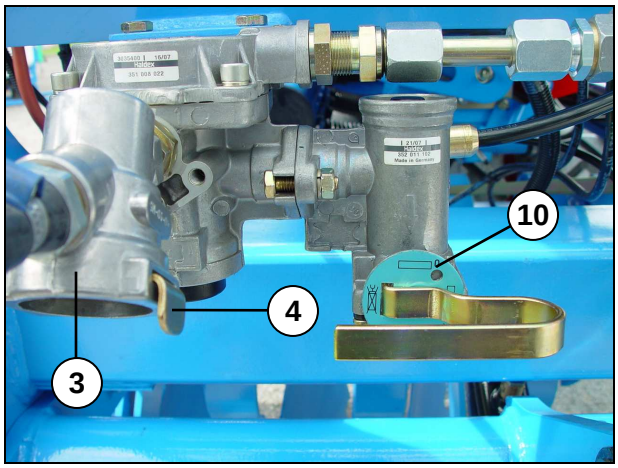
Removing fertiliser residue

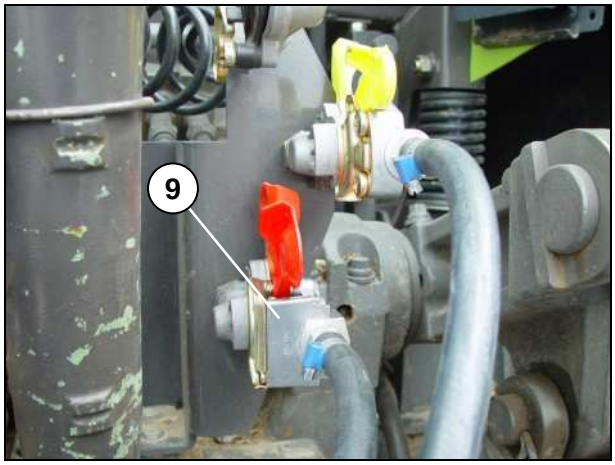
Always remove any residue from the container after use and clean it with compressed air.

Store the seed drill in a dry location after each use.

18.5 Brake system







18.5.1 Drain valve

Operate drain valve (1) regularly, in order to drain the air tank (2).

18.5.2 Brake lining

Worn brake linings must be replaced.

18.5.3 Cleaning filter

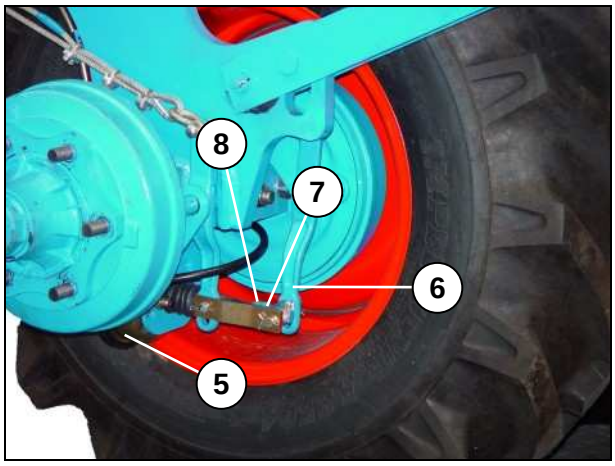
The cleaning filters (3) must be cleaned every 50 working hours. Therefore the securing bar (4) must be removed.

After cleaning (by air pressure) the filter, the filter can be fitted again and secured by the securing bar.

18.5.4 Disconnecting the brake hoses

After disconnection of the red connection coupling (9) (store pipe) the braking procedure starts = automatic braking. If required the brake can be released by operating the braking power regulator (10).

18.5.5 Re-adjusting the brake



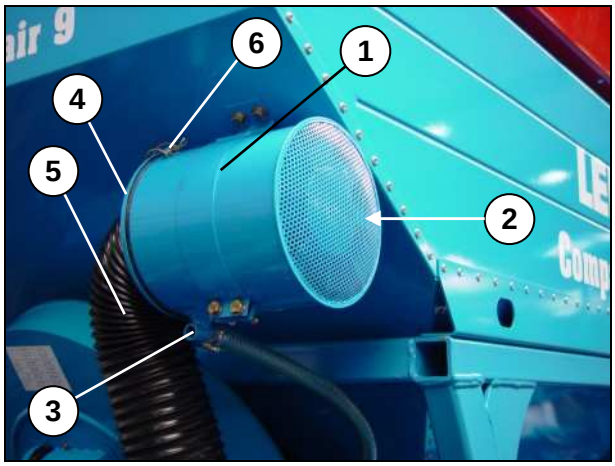
The brake cylinder (5) shows a stroke of 80 mm. When with a braking the brake levers (6) open more than 60 mm after a long time of use, the brake must be re-adjusted.

Therefore use the adjuster nuts (7). Adjust nuts (7) so that the brake levers can open only 40 mm. After the adjustment secure nuts (7) by means of counternuts (8).

If after a longer time of using the brake levers (6) open more than 60 mm again when braking, then the brake linings are worn. The brake linings must be replaced then.

- Read and adhere to the general safety instructions as well as to the instructions „Brakes“!

18.6 Dust filter



The dust filter (1) separates the dust of the suck in air by 85 % and throws out the dust automatically. The function of the dust filter must be checked regularly as follows:

Throw dust into the induction side (2) of the dust filter (1). If no dust is thrown out of the automatic dust ejection (3), the dust filter must be cleaned.

Therefore the cover (4) with tube (5) must be removed after loosening the clams (6). After cleaning the cover must be fixed again by mean of the clamps (6).

18.7 Wheel bolts

All wheel nuts and bolts must be tightened after the first few hours of use, at least within the first 8 hours of use. Then all nuts and bolts are to be checked for tight fit every 50 hours and tightened if necessary. A visual check of the wheel nuts and bolts should be carried out before starting work. The tightening torques of the different bolts and nuts are listed in the following table.

Thread	Tightening torque
M12x1.5	80 Nm
M14x1.5	125 Nm
M18x1.5	290 Nm
M20x1.5	380 Nm
M22x1.5	510 Nm

18.8 Hydraulic hoses

Check hydraulic hoses regularly. At least 6 years after the date stated on the hydraulic hoses they must be changed. Porouse or defective hydraulic hoses must be changed immediately. Use hydraulic hoses only, which are accepted by Lemken!

18.9 Discs

Worn hollow discs, outer discs a.s.o. must be replaced in time, so that the carrying parts will not be damaged or worn!

18.10 Disc coulters and pressure rollers

Worn disc coulters and scrapers must be replaced in time, so that the carrying parts will not be damaged. Use only genuine LEMKEN spare parts!

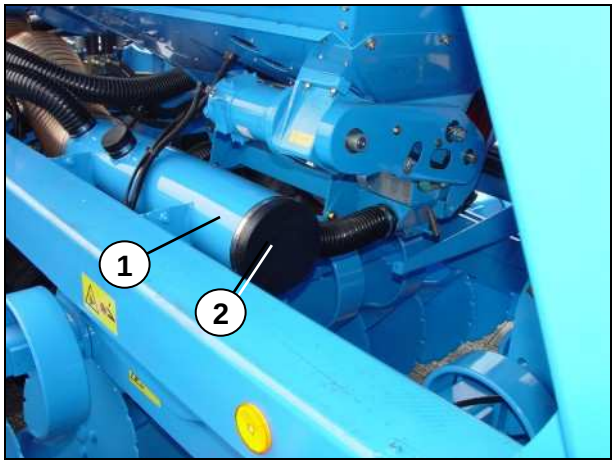
18.11 Seed wheels and bottom flaps

Before the winter break or before longer parking times, the seed drill must be emptied, cleaned and the bottom flaps completely opened, to avoid damage by mice.

18.12 Cleaning with pressure washer

When cleaning the implement with a pressure washer, it must be ensured that no water runs into the electronic parts. Also it must be avoided that the nozzle is directed on to the pivot points of the coulter bar, the bearings of the coulters and rollers.

18.13 Air tube



The air tube (1) must be checked and cleaned before and after the season. Therefore the cover (2) must be removed and the interior room of the air tube cleaned. Afterwards fit the cover (2) again

- Read and adhere to the General Safety Instructions as well as to the instructions ‘Maintenance‘!

19 NOISE, AIRBORNE SOUND

The noise level of the implement does not exceed 90 dB (A) during work.

20 DISPOSAL

After useful life of the implement, it must be disposed of environment-friendly by a specialist.

21 NOTES

As the version of equipment is depending from the order, the equipment of your implement and its description concerned may deviate in some cases. To ensure a continuously updating of the technical features, we reserve the right to modify the design, equipment and technique.

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