

Operating Instructions

Seed Drills

Solitair 9, Solitair 9 K, Solitair 9 KA

with electronic seed drill control LEMKEN Solitronic

- EN -

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SAFETY IS OUR CONCERN!

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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 <u>before</u> 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

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:	
Fabrication 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 additional maintenance.

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





DEFINED USE



•Please familiarise yourself with the LEMKEN Solitair 9 and its operations before putting the implement to work. Therefore use this instruction book with the "General Health- and Safety precautions"!

- The LEMKEN Solitair 9 has 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 Solitair 9 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 advice as well as the generally accepted safety technical, working, medical and road traffic rules should be adhered to!

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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!
- 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!
- 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 security!
- 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 that 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!

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.

Attached implements

- Before mounting or dismounting implements on/from the three-point linkage, move the raise / lower control to the position at which accidental raising or lowering cannot take place!
- In the case of three-point linkage mounting, ensure that the tractor balls and the mounting pins of the implement are of the same category!
- There is the risk of injury from pinch and shear points in the three-point linkage area!
- When operating the external lift controls for the three-point linkage, do not stand between the tractor and implement!
- Always ensure sufficient lateral limitation for the three-point linkage of the tractor in the transport position of the implement!

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• When driving on roads with the implement raised, the raise/lower control must be locked to prevent lowering!

Mounted implements

- Mount implements as advised and only to the advised devices!
- When mounting or detaching the implement bring the supporting devices into the corresponding position (standing safety)!
- Fit and check transport devices like traffic lights, warning guards and protection devices!
- On all pivoting parts actuated by various power sources (e.g. hydraulics) exists danger of injury by bruising and crushing!
- Before mounting or detaching the implement the lifting control lever should be locked against unintentional lowering or lifting!
- Special care should be taken when the implement is mounted or detached from the tractor.

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 equipment 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!



<u>Tyres</u>

- 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!
- Repairwork 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!

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!

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2 WARNING STICKERS

2.1 General Instructions

The LEMKEN Solitair 9 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 numbers are used as order numbers.

2.2 Understanding 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!



WARNING! Before maintenance and repair work, stop tractor engine and remove ignition key!





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



WARNING! Pinch Points!



WARNING! Danger due to moving parts!



WARNING! Keep well clear of the folding area of the implement!



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

2.3 Positions of the warning stickers





3 PREPARATION OF TRACTOR

3.1 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)!



3.2 Lift Rods

Adjust lift rods to equal length by means of the adjuster device !

3.3 Check chains or sway blocks

It is essential that the check chains or sway blocks are adjusted so that the lower links are fixed sideways when in working position.

3.4 Tractor drawbar

For fitting a Solitair with pole and chassis the tractor must be equipped with a double lashing drawbar.

3.5 Axle load



The attachment of implements to the front- and rear-three point linkage must not lead to exceeding the allowed total weight, the allowed axle load and the allowed tyre load of the tractor.

The tractor front axle must always be loaded with 20 % of the tractor dead weight at minimum.

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How to calculate the minimum front ballast and the increasing of the rear axle load, is described in detail as follows:



G_V = Weight of front ballast (front implement)

 T_V = Front axle load of the tractor without mounted implement

T_L = Tractor dead weight

 T_{H} = Rear axle load of the tractor without mounted implement

G_H = Weight of the implement combination

3.5.1 Calculation of the minimum front ballast G_V min:

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

3.5.2 Calculation of the increasing of the rear axle load:

Minimum axle load increasing
$$= G_H + \frac{G_H \bullet (c + d)}{b}$$

The calculation of the required minimum front ballast and the increasing of the rear axle load requires that all above mentioned measurements and weights are known. If they are unknown and cannot be found out, there will be only one way to avoid overloads:

Please weigh your tractor with mounted and lifted implement to find out the actual rear axle loading and front axle unloading and that in comparison with the axle loads of the tractor without implement!



3.6 Hydraulics

3.6.1 Required spool valves / Hose marking

For the hydraulic devices of the Solitair 9 the following spool valves must be available:

Use	sing acting double acting		oolour	code	
	spool valves	spool valves	coloui	coue	
Hydraulic motor for fan	with pressureless return connec- tion	-	pressure = yellow return = white	P6 T6	
Track marker operation	х	-	black		
Hydr. coulter lifting device (with DS-version with hydr. coulter pressure adjust- ment)	-	х	blue	Р3 Т3	
Hydr. coulter pressure ad- justment (DS-version)	-	х	blue	Р3 Т3	
Hydr. coulter pressure ad- justment (ES- and S-Version)	-	х	-	-	
Hydr. switch off width sec- tions	-	-	-	-	
Coulter bar folding device	-	х	red	P1 T1	
Hydr. pre-emergence mark- er, double acting	-	-	-	-	
Hydr. pre-emergence mark- er, single acting	-	-	-	-	
Hydr. harrow lifting device	Х	-	green	-	

3.6.2 Hydraulic motor of the fan

The pressure pipe of the hydraulic motor must be connected to a single acting tractor spool valve and the return pipe to a pressureless return connection of the tractor. It must be ensured that the return of the oil out of the return pipe occurs without pressure in all working situations.

3.7 Electric

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

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

For the connection to the tracfor battery the battery mounting set with 40 A fuse (AS) and plug connection (SK) with lock (BU) 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 front left side of the Solitair the coupling box (KB) and the job computer are fitted. After attachment and detachment of the implement, the electric pipes will be connected as follows:

- Connect 8-wires cable (Z8) of the electronic seed drill control to the operation terminal (Z9).







- Connect cable with plug (KS) 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 op-

eration terminal (Z9) must also be kept in a dry place or in the tractor cabin.

3.8 Required sockets

For the electric devices of the Solitair 9 the following power sources must be available with the tractor.

Function	Voltage	Direct connection to the battery	Socket
Electronic seed drill con- trol	12	X	-
Lighting equipment	12	_	according to DIN-ISO 1724
Working lights	12		
Seeding pipe control sys- tems	12		according to DIN 9680

4 FIRST USE

Before the first use of the Solitair, the following items must be checked:

Disc coulter and pressure roller

The links (D0) and (D1) of the disc coulters should be positioned nearly horizontally in working position. If it is required to increase or decrease the coulter pressure centrally via the hydraulic coulter pressure adjustment, the springs (D2) of the single coulter pressure adjustment must be pre-tensioned correspondingly. Therefore use the spring adjustment (D3).



• Pressure load on the disc coulters and pressure rollers

The pressure load on the disc coulters (D4) and pressure rollers (D5) must be adjusted equally for all seeding rows.

Single Disc Coulters and Suffolk Coulters

The frame of the coulter bar must be adjusted in height so that the distance between the lower edge of the frame and the ground is 35 cm + 5/-5 cm.

Pulse wheel

When the coulter bar is in the lifted position the pulse wheel must be set 0 - 5 cm deeper than the pressure rollers (D5), the single disc coulters or the suffolk coulters.

Stop slides

All stop slides must be opened.

Seeding shaft

The seed wheels of the seeding shaft (S0) must be switched on or off equally in all dosage units.





Bottom flaps

Before filling the hopper, the bottom flaps must be adjusted according to the seed table.

• Track markers

The Track markers must be adjusted to the centre of the tractor track.

Sensors

Check the sensors with regard to their function.

See operating instructions of the seed drill control LEMKEN Solitronic.

• Tramline width

Adjust the tramline width in accordance to the track width of the tractor which is used with the sprayer or fertiliser. If that track width had already been stated when ordering the Solitair, the tramline width of the Solitair had bee already adjusted at the factory.

Fan RPM

The fan RPM must be set to the required RPM by means of the control valve of the tractor. See section "fan"!

Electronic seed drill control LEMKEN Solitronic

By means of the electronic seed drill control Solitronic the Solitair will be adjusted and the calibration test carried through via the operation terminal (Z9)

See operating instructions of the electronic seed drill control Solitronic.



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5 POSSIBILITIES OF USE

The LEMKEN seed drill Solitair can be used as follows:

- a) in combination with chassis fitted to the three point linkage of the tractor or soil cultivation implement,
- b) mounted on the LEMKEN soil cultivation implements Quarz 7, Quarz 7 K, Zirkon 7, Zirkon 9, Zirkon 9 K, Zirkon 10 and Zirkon 10 K
 Attention: The Solitair 9 K must be equipped with a 1850 I hopper (160 cm wide) when it should be mounted on a Zirkon 10 K!

If the Solitair is equipped with a hydraulic coulter lifting device, the soil cultivation implement must be equipped with special coupling parts,

- c) in connection with a hydraulic coulter lifting device additionally to b) mounted on the semi-mounted LEMKEN soil cultivation implements Quarz 7 KA; Zirkon 9 KA, Zirkon 10 KA, Kompaktor KA, System-Kompaktor KA, Smaragd 9 KA, Rubin 9 KÜA, Achat 9 KA, Thorit 9 KA and Thorit 10 KA or
- d) trailed with chassis and pole (in this case the Solitair must be equipped with a hydraulic coulter lifting device).

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6 ATTACHING AND DETACHING

6.1 Attaching and detaching the Solitair with chassis

6.1.1 Attaching to the three point linkage

- For the attaching to a three point linkage the Solitair must be equipped with the chassis (FG0).
- The lower links and the top link of the tractor or of the soil cultivation implement must be connected to the headstock (FG2) of the chassis and secured.
- Lift the Solitair a little and shift the stands (AS3) upwards and secure.



- After attaching the hydraulic pipes and electric pipes must be connected. See section "Hydraulics" and section "Electric".
- The sensor of the tramline mechanism must be fitted to the sensor holder of the pulse wheel.
- When driving on public roads, the lighting equipment with warning boards must be fitted and connected.

6.1.2 Detaching from the three point linkage

The Solitair seed drill with chassis must always be parked on level and firm ground and with empty hopper.

- Before detaching, the stands (AS3) must be set in position and the coulter bar fixed by means of the pins (ZV4) and (ZV5) or the hydraulic rams of the hydraulic coulter lifting device of the hydraulic coulter pressure adjustment.
- With the folding Solitair seed drill the coulter bar (AS2) must be locked in folded-out position by means of the locking pin (AS5) before detaching.
- For detaching the Solitair must be lowered completely, secured against rolling away by means of chocks and after that the headstock of the three point linkage of the tractor or the soil cultivation implement loosened and the hydraulic and electric connection pipes uncoupled. See section "Hydraulics" and section "Electric"!





- If the sensor of the tramline mechanism is not fitted to the sensor holder of the pulse wheel, the sensor with cable must be dismounted and put on the Solitair.



• Read and adhere to the General Safety Instructions as well as to the Instructions 'Attached implements'!



6.2 Mounting and Dismounting

6.2.1 Mounting on a mounted LEMKEN soil cultivation implement

Before mounting, the corresponding coupling parts with catching hook (AS7) and supporting plates (AS8) must be fitted to the soil cultivation implement.

The Solitair parked on the stands will be mounted on the soil cultivation implement as follows:

- Unlock and remove the front pin (AS6).
- With the soil cultivation implement fitted to the tractor drive carefully to the Solitair until the catching hook (AS7) is below the top pin (AS9) and catch it by means of the hooks (AS7) and lift the soil cultivation implement a little.
- Fit front pin (AS6) again and secure.
- Lift soil cultivation implement with mounted Solitair until the stands are unloaded.
- Remove stands (AS1) laterally and move middle stands (AS3) upwards and secure. Unlock the coulter bar (AS2) of the folding seed drills Solitair by means of removing the locking pins (AS5).







- After attaching the hydraulic pipes and electric pipes must be connected. See section "Hydraulics" and "Electric".
- The sensor of the tramline mechanism must be fitted to the sensor holder

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of the pulse wheel.

- When driving on public roads, the lighting equipment with warning boards must be fitted and connected.

6.2.2 Dismounting from a mounted LEMKEN soil cultivation implement

- Before dismounting, the hopper must always be empty and the coulter bar (AS2) must be fixed by means of the pins (ZV4) and (ZV5) or the hydraulic rams of the hydraulic coulter lifting device of the hydraulic coulter pressure adjustment.
- The top pins (ZV4) and the stops (ZV2) of the central mechanical coulter pressure adjustment (ZV1) must be adjusted to the same height on the



adjusted to the same height on the left side and the right side and secured.

- Unlock and fold-out the coulter bar (AS2) and after that secure by means of the locking pin (AS5).
- Move the stands (AS1) laterally into the frame tube of the coulter bar (AS2) until its stop. Lower the middle stands (AS3) and secure by means of the pins (AS4).
- Lower soil cultivation implement with mounted Solitair until the stands touch the ground, but are not loaded.





- Unsecure and remove front pin (AS6).
- Uncouple hydraulic pipes and electric cables and put them on the machine. See section "Hydraulics" and section "Electric"!
- If the sensor of the tramline mechanism is not fitted to the sensor holder of the pulse wheel, the sensor with cable must be dismounted and put on the Solitair.



- Lower soil cultivation and drive away carefully form the parked Solitair.

6.2.3 Mounting on a semi-mounted LEMKEN soil cultivation implement

Before mounting, the corresponding coupling parts with catching hooks (AS7) and supporting plates (AS8) must be fitted to the soil cultivation implement. The lock valve (A2) of the hydraulic coulter bar lifting device must be opened.

The Solitair parked on the stands (AS1) and (AS3) will be mounted as follows:

- Unsecure and remove the front pin (AS6).
- With the soil cultivation implement fitted to the tractor drive carefully to the Solitair until the catching hook is below the top pin (AS9) and the supporting plates (AS8) are below the rear pins (HS7).
- Connect hydraulic pipes of the hydraulic coulter lifting device.
- Lower the Solitair a little by means of the hydraulic rams (W7) until the hook (AS7) catches the top pin (AS9) and the rear pins (HS7) support on the supporting plates (AS8).
- Fit front pin (AS6) again and secure.
- After that connect the remaining hydraulic pipes and electric cables. See section "Hydraulics" and section "Electric"!







- The sensor of the tramline mechanism must be fitted to the sensor holder



of the pulse wheel.

- When driving on public roads, the lighting equipment with warning boards must be fitted and connected.
- Lift the coulter bar (AS2) and remove outer stands (AS1) laterally and unlock, move upwards and secure the middle stands (AS3).





6.2.4 Dismounting from a semi-mounted LEMKEN soil cultivation implement

The Solitair seed drill must always be parked on level and firm ground.

- Before dismounting, the hopper must always be empty and the lock valve (A2) of the coulter bar lifting device opened.
- Fold-out and lock the coulter bar. Therefore the pivots will be locked by means of the locking pins (AS5).
- By means of the hydraulic rams (W7) of the hydraulic coulter lifting device the coulter bar (AS2) will be lifted. Move the stands (AS1) laterally into the frame tube of the coulter bar (AS2) until its stop and lower and secure the middle stands (AS3).
- Unlock and remove the front pins (AS6).
- After that lower the coulter bar and therewith lift the Solitair until the top pin is some centimetres above the catching hook.
- Lock lock valve (A2)!
- Uncouple the hydraulic hoses and electric cables and put them on the machine. See section "Hydraulics" and section "Electric"!
- Check whether all hydraulic hoses and electric cables are uncoupled and after that drive away from the parked Solitair carefully.







The over flow valve (V1) is an adjustable pressure control valve. Before mounting or dismounting, the adjuster knob (V2) must be screwed in fully, with too low adjustment of the pressure it is not possible to lift the Solitair also the Solitair can sag uncontrolled when operating the corresponding spool valve!





• Read and adhere to the General Safety Instructions as well as to the Instructions 'Mounted Implements' and 'Hydraulic Assembly'!

6.3 Coupling and Uncoupling

6.3.1 Coupling

The Solitair 9 with chassis (FG0) and pole (Z0) may only be coupled to a double lashing drawbar or a suitable drawbar eye.



- Drive with the tractor to the Solitair until the drawbar is in line the drawbar eye (Z1).
- Connect hydraulic pipes and electric pipes. See section "Hydraulics" and section "Electric"!
- The sensor of the tramline mechanism must be fitted to the sensor holder of the pulse wheel. When driving on public roads, the lighting equipment with warning boards must be fitted and connected.
- Operate the hydraulic ram (W6) of the hydraulic coulter lifting device carefully, to adjust the drawbar eye (Z1) in height so that it can be connected to the double lashing drawbar by means of the coupling pins.
- After coupling, secure the coupling pin.
- Lift the coulter bar (AS2) a little to unload the stands (AS3).
- Move stands (AS3) upwards and secure.





6.3.2 Uncoupling

- The Solitair with chassis (FG0) and pole (Z0) may only be uncoupled with lowered and supported coulter bar (AS2), and that only on firm and level ground. Before uncoupling, the hopper must be emptied. By means of chocks the chassis must be secured against rolling away.
- With lifted coulter bar (AS2) pull out the stands (AS3) downwards and secure. They must be in a deeper position than the lower edge of the double disc coulters (D4).
- Lower coulter bar (AS2) until the stands touch the ground. By means of the hydraulic rams (W6) of the coulter lifting device the pole (Z0) with draw-



bar eye will be moved downwards until the drawbar eye is unloaded.

- Unsecure and remove coupling pin.
- Uncouple hydraulic and electric cables. See section "Hydraulics" and "Electric"!
- If the sensor of the tramline mechanism is not fitted to the sensor holder of the pulse wheel, the sensor with cable must be dismounted and put on the Solitair.



• Read and adhere to the General Safety Instructions as well as to the Instructions 'Attached Implements'!

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7 FOLDING-IN AND -OUT THE COULTER BAR

The Solitair 9 K and Solitair 9 KA seed drills are equipped with hydraulic folding coulter bar (AS2). Before folding, both locking pins (AS5) must be unsecured and removed.

The hydraulic hoses for the folding device must be connected to a double acting tractor spool valve.

If a Solitair 9 is fitted to or mounted on a LEMKEN soil cultivation im-



plement, the hydraulic hoses of the folding device can be connected to the hose couplings, which are equipped with red protection caps.

By means of operating the corresponding tractor spool valve the coulter bar (AS2) will be folded-in or out. The folded-in coulter bar will be locked automatically.

After folding-in check that the hooks (AT3) of the locking mechanism are secured correctly.

Before folding-out the hooks (AT3) must be unlocked by means of swinging the lever (AT4) upwards and inwards.




8 DOUBLE DISC COULTERS

8.1 Drilling depth

With the two adjuster screws (ZV9) the seeding depth is adjusted. It is important that both screws (ZV9) are adjusted by the same amount, in order to reach an even seeding depth.

8.2 Coulter pressure

8.2.1 Single coulter pressure adjustment

Each coulter row can be adjusted individually with regard to the coulter pressure by means of the single pressure adjustment.

If a reduced coulter pressure is required, a rearer hole of the spring adjustment (D3) will be connected with the fixing stud. The maximum coulter pressure (ca. 40 daN) will be reached when the front hole of





the spring adjustment (D3) is connected with the fixing stud. In total five coulter pressure adjustments are possible.

8.2.2 Central coulter pressure adjustment

a) Central mechanic coulter pressure adjustment

For a good soil adaption of the disc coulters it is important, that the links (D0) and (D1) are nearly parallel to the ground. Required adjustment changes can be carried out by means of the central coulter pressure adjustment (ZV1).

The lower the pins (ZV4) with stop (ZV2) are positioned in the hole plate, the higher the coulter pres-



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sure.

The higher the pins (ZV4) with stop (ZV2) are positioned in the hole plate, the less the coulter pressure.

It is important that both sides are adjusted equally.

The adjustment range of the central coulter pressure adjustment is limited. In total each disc coulter with pressure roller can swing through a range of approximately 30 cm. It must be ensured that the disc coulter with pressure roller can always swing 10 cm up and down during work.

b) Central hydraulic coulter pressure adjustment

With the hydraulic coulter pressure adjustment the coulter pressure will be adjusted hydraulically from the tractor seat. Therewith the coulter bar frame will be adjusted in height, so that the springs of the double disc coulters will be tensioned more or less in working position.

By means of the single pressure adjustment each spring adjustment will be adjusted so that the required coulter pressure will be reached and that with horizontally positioned links (D0) and (D1). During work the coulter pressure can be decreased or increased by means of moving the coulter bar frame up and down if required. It must be en-



sured that the disc coulters can move at least 10 cm up and down during work with maximum coulter pressure as well as with minimum coulter pressure.

The disc coulters cannot move upwards with the required coulter pressure

=> adjust spring adjustment (D3) shorter and position coulter bar frame in a higher position correspondingly.

The disc coulters cannot move downwards with the required coulter pressure

=> adjust spring adjustment (D3) longer and position coulter bar frame in a deeper position correspondingly.



c) Central hydraulic coulter pressure adjustment with coulter lifting device

In connection with a hydraulic coulter lifting device the coulter pressure will be adjusted centrally via the over flow valve (V1).

Adjust knob (V2) clockwise => higher coulter pressure

Adjust knob (V2) anti-clockwise => lower coulter pressure



After reversing on the headlands

the corresponding double acting tractor spool valve or the lever of the control valve of the soil cultivation implement for the coulter bar lifting device is set to lowering for approximately 5 seconds.

Therewith the coulter bar lowers and the springs (D2) of each coulter row with double disc coulters (D4) and pressure rollers (D5) will be preloaded.

It must be ensured that the links (D0) and (D1) are nearly parallel to the ground, so that the coulters can move at least 10 cm up and down during work.



If after the central coulter pressure adjustment the working position is too deep or too shallow, the link position must be corrected by means of each spring adjustment (D3).

8.3 Hydraulic coulter lifting device

Before driving on headlands and before transport the coulter bar (AS2) must be lifted completely by means of the hydraulic rams (W7).

After reversing on headlands the coulter bar must be lowered again.

Therefore the corresponding spool valve or the lever (B) of the electro magnetic hydraulic control must be set to the lowering position for approximately 5 seconds.



If the soil cultivation implement is equipped with an electronic hydraulic control, all lifting and lowering functions of the coulter bar will be carried through automatically by means of a key pressure.

The lock valve (A2) must be opened during work and closed during transport.



9 SINGLE DISC COULTERS AND SUFFOLK COULTERS

9.1 Height adjustment of the coulter bar frame

By means of the pins (ZV4) and (ZV5) the frame of the coulter bar must be adjusted in height so that the distance between frame and ground amounts 35 cm +/- 5 cm in working position.

9.2 Drilling depth

The working depth of the single disc coulters (ES) and the suffolk coulters will be adjusted by means of increasing or decreasing the coulter pressure.

The coulter pressure will either be adjusted by means of the adjuster screw (ZV9) or the hydraulic ram.





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10 ADJUSTMENTS / OPERATION

10.1 Seeding shafts

The seeding shafts (S8) are equipped with 6 seed wheels for each dosage unit (S0), and that with one fine seed wheel (S1), two narrow seed wheels (S2) and three wide seed wheels (S3).

Between each seed wheel a separation plate is provided. They ensure that each seed wheel works independently from each other. Between the fine seed wheels no separation plate is fitted.

The seed wheels can be switched on or off separately.

Before the calibration test the seeding shaft must be adjusted in accordance to the seed table by switching on or off the seed wheels.



Switching on or off the seed wheels

Switching the seed wheels on or off will be carried through by means of the stop screws (S4) being inside the seed wheels.

After the protection cover has been removed and each seeding shaft (S8) has been turned until the stop screw can be reached easily, they can be screwed in or -out either by a 8 mm spanner or a 3 mm hexagon socket..



The seeding shaft can be turned by a 17 mm spanner. Therefore the free ends of the seeding shafts are equipped with a corresponding profile.



a) Switching on the seed wheels

Switching on the seed wheels is done by means of screwing in the stop screw (S4).

When screwing in the stop screws (S4) it must be ensured that they engage exactly in the groove (S7) of the seeding shaft axle (S8) and that the screws are within the seed wheel circumference.

WARNING! The hexagon screw must be screwed in so that it is within the seed wheel circumference, but is not forced to the seed wheel axle (S8). Too much force causes a deforming of the seed wheel and therefore inaccuracy when seeding or damage of the seed wheels.

Seed wheel switched on!



S6 <u>S</u>4 <u>S5</u>

Seed wheel switched off!



e) Switching off the seed wheel

Switching off the seed wheels is done by means of screwing out the stop screw (S4) until the screw touches the stop plate (S6).

WARNING! The stop screw should not be screwed too far out of the base (S5), otherwise it can fall out.

After each switching on or off of the seed wheels a new calibration test must be carried through. All dosage units must be adjusted identically.

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10.2 Seed table

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Contraut	Arbeits-								
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Seed	Working		EA	FER				in	
Graine de	Largeur		E	HH.				Ì	
semence	de travail		-	- -		- Server		ער	
култура	Ширина посева				kg/ha	1			
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 									
*** Déb * Выс ** Узки *** Воре	rayer l´arbr евные кат е высевны ошильный	re d´agiti ушки дл ые катуц вал отк	ateur ія мелкі ики откл ключить	іх семян іючить, е	отключить сли горох	, или бобы в н	их остались		11 2006
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Sätabelle - Seedtable - Tableau de réglage - Таблица высевов

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10.3 Stop slides

During operation all slide plates (S10) 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 (S10).

As an option the slide plates can be operated via hydraulic rams (T5) from the tractor seat via the operation terminal of the electronic seed drill control if required.



10.4 **Bottom flaps**

The flaps (S14) bottom are adjusted with the lever (S13) in relation to the seed table.



Emptying the hopper 10.5

The hopper can be emptied easily: small residues are emptied into the calibration tray (UT2), bigger quantities can be emptied via the distributors.





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10.5.1 Emptying into the calibration tray

- Remove the calibration tray (UT2) from the holder.
- Pull the lever (UT3) rearward and press the bottom part (UT1) down.
- Hook the calibration tray (UT2) in the holder (UT4) below the dosage units.
- Then open the bottom flap lever (S13) completely.

The seed runs now into the calibration tray (UT2).

- To empty the calibration tray, close the bottom flap lever, remove the calibration tray from the holder (UT4) and empty the calibration tray.
- Then fold the bottom part (UT1) up
- and press the lever (UT3) forward to lock the bottom part in its position.
- Push the calibration tray (UT2) back into the holder.







10.5.2 Emptying via the distributor

After removing the threaded cover (X0) an adapter (X8) with hose (X9) can be connected to the distributor (X1). Via this adaptor the hopper can be emptied pneumatically by the air fan. If required the hopper can be emptied via one or more distributors as follows:

- Remove the calibration tray from the holder
- Close the stop slide of the dosage units that are not used for emptying.
- Fold the bottom part of the dosage unit down and position the calibration tray.
- Open the bottom flaps completely by turning the bottom flap lever (S13).
- Remove the calibration tray and fold the bottom part of the dosage unit up.



- Fold the bottom part of the dosage unit down and position the calibration tray.
- Open the closed stop slides and collect the remaining seed in the calibration tray.

Then empty the calibration tray, fold the bottom part of the dosage unit up and push the calibration tray into the holder.

ATTENTION!After that set the bottom flaps into the required position, disconnect the connection pipe disconnected and fit the threaded cover (X0) again afterwards.





• Read and adhere to the General Safety Instructions as well as to the Instructions 'Maintenance'!

10.6 Cleaning the dosage units

The dosage units (S0) must be cleaned regularly, with rape seed at least once a day.

Therefore the slide plates (S10) must be closed, the calibration tray moved out of the fixture and the lower part of the dosage folded down.

Remove protection covers (S12) and open bottom flap shaft completely by means of the lever (S13).

Now the dosage units can be cleaned.

Following this set the bottom flap shaft into the previous position, remove calibration tray, fold upwards the lower part of the dosage, open the slide plates, fit protection covers and finally empty and move calibration tray into the fixture again.







10.7 Tramline mechanism

By means of the tramline mechanism (F1) 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 requied tramline rhythm will be calcucalted automatically.

See operating instructions of the electronic seed drill control Solitronic.



10.8 Calibration test

After the seed wheels and the bottom flaps have been adjusted according to the seed table, the calibration test can be carried through. Therefore see operating instructions of the electronic seed drill control Solitronic

The calibration test must alway be carried through, when

- seed wheels have been switched on,
- seed wheels have been switched off,
- seed has been changed,
- the bottom flap lever has been adjusted or
- other important adjustments have been changed at the dosage units (S0) or other adjustment parameters of the electronic seed drill control.

11 PULSE WHEEL

The pulse wheel (A0), 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



(D5) of the double disc coulters (D4), the single disc coulters or the suffolk coulters.

Required adjustments will be done by the stop bolt (A1), which will be fitted to one of the holes (A2). With this bolt also the sensor holder (A3) with sensor (A4) will be fixed. After an adjustment, the distance of the sensor to the wheel arm (A5) must be 1 mm to 3 mm. The wheel arm must never touch the sensor (A4)!





12 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 two returns (RF).

The RPM of the fan (A8) must be adjusted by means of the control valve of the corresponding tractor spool valve and can be seen on the display of electronic seed drill control.

See operating instructions of the electronic seed drill control LEMKEN Solitronic.



	Solitair without cyclone	Solitair with cyclone	Solitair with cyclone and two returns
Fine seed	3.000 1/min	3,300 1/min	3,360 1/min
Cereals	3,000 1/min	3,300 1/min	3,600 1/min
Peas and beans	3,200-3,500 1/min	3,500-3,800 1/min	3,800-4,100 1/min

If the tractor has no adjustable flow control valve, the fan RPM will be adjusted by means of the flow control valve (GB1) with wheel (GB2) of the Solitair.

13 CYCLONE

The cyclone (LK3) separates the dust of the suck in air by 85 % and throws out the dust automatically. The function of the cyclone must be checked regularly as follows:

Throw dust into the aspirating hole of the cyclone (LK3). If no dust is thrown out of the automatic dust ejection (LK5), the cyclone must be cleaned. Therefore the cover (LK6) with hose (LK7) must



be removed after loosening the clams (LK8). After cleaning the cover must be fixed again by mean of the clams (LK8).



14 SWITCH OFF WIDTH SECTIONS

Depending on the working width of the Solitair, dosage units can be switched off by means of closing the slides plates (S10).

With the hydraulic width switch off device, electric motors are provided above the slide plates (S10). They will be operated by the the "A" keys of the operation terminal (Z9).The oil supply occurs via the oil circle of the hydraulic motor of the fan. See also section "Fan Hyraulic".

See operating instructions of the electronic seed drill control Solitronic.





15 Scraper

The double disc coulters (D4) are equipped with self-adjustable scrapers (D7).

As an option to these standard scrapers (D7) made of plastic hard metal scrapers are available, which are equipped with hard metal plates at the margin.

The single scraper (D7) is put onto the holder (D8).

(DS1) The scrapers that are delivered as accessories are recommended when too much earth collects on the pressure rollers (D5). After loosening the nut (DS2) the scraper (DS1) can be set at the space desired of the pressure roller. The distance should be 1-2cm. Tighten the nut (DS2) again after having set the distance.





16 DISTRIBUTOR

The distributors (X1) are provided with distributor heads (X0) 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 (X0) 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.





17 HOPPER

For filling the hopper the cover must be swung up forwards. In total depending on the type and working width up to 1.100, 1.500, 1.850 or 2.300 I can be filled in.

For closing the cover it must be folded-down manually and secured by means of the rubber fixing.

WARNING! The folding power harrows Zirkon 10 K may only be used with a 160 cm wide hopper with a capacity of 1850 I. When using wider hoppers, they will be damaged when folding in the power harrow.

18 AGITATOR SHAFT

In some instances, for example rape, the agitator shaft (R1) must be disconnected by means of pulling out the securing pin (R2) out of the drive gear wheel (R3).



19 ELECTRONIC SEED LEVEL CONTROL

The seed level will be controlled via the sensor (FS2) and via the electronic seed drill control. The alarm will trigger off an alarm, as far as it has no contact to the seed. The sensor can be adjusted in height, so that the filling level which creates a trigging off of the alarm can be chosen variably.

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

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20 TRACK MARKERS

20.1 General Instructions

The track markers (SP1) are equipped to the soil cultivation implement as standard.

In connection with a chassis (FG0) or a chassis with pole the track markers will be fitted to the chassis.





20.2 Track marker operation

Before operating the track markers, they must be unlocked and adjusted.



Track marker locked. The pin (SP3) is fitted to the hole (SP4)

Track marker unlocked. The pin (SP3) is fitted to the hole (SP2).

The track markers must be adjusted to the middle of the tractor track and that according to the following table.

After loosening the clamp screw (SP6) the length of the track marker arm (SP7) and the angle of the track marker discs (SP8) can be adjusted.

After the adjustment the corresponding clamp screw (SP6) will be tightened again carefully.

For transport, the track marker arms (SP7) must be folded-in by



means of the hydraulic rams (SP5) and secured.

Solitair	Distance from the centre of the seed drill to the track groove	Distance from the outer seeding coulter
9/300	300 cm	150 cm + 1/2 row distance
9/400	400 cm	200 cm + 1/2 row distance
9/450	450 cm	225 cm + 1/2 row distance
9/500	500 cm	250 cm + 1/2 row distance
9/600	600 cm	300 cm + 1/2 row distance

The track markers are protected against overload by means of a shear bolts (SP0).



• Read and adhere to the General Safety Instructions as well as to the Instructions "Hydraulic Assembly"!



21 SENSORS

For the control of the Solitair sensors are provided. They are positioned at the E-motor for the RPM control, at the pulse wheel axle for the way measuring, at the bracket for tramlining, at the seeding shaft for its control and at the fan for the control of the fan RPM.

The sensor at the electric motor, at the fan, at the seeding shaft and for the tramline switch are identical and interchangeable (sensor M12x1.5x45-3P-IFS204).

The sensors must be adjusted in a distance of 2 mm to the pulse wheel or the pulse generator and that with a tolerance of +/-1 mm.

One further sensor is provided inside the hopper for controlling the seed level (seed level sensor KN5107 part No.: 573 4382).

The signals for the way measuring will be produced by means of the sensor of the pulse wheel (shaf encoder of the pulse wheel, part No. 573 6130).



22 HARROWS

22.1 Single harrows

The single harrows (E1) will be fitted to the wheel stalks of the rear depth control wheels.

After loosening the bolts (E2), the working depth can be adjusted separately. They should be adjusted so deep that the seed will be covered with soil sufficiently.



22.2 S-harrow

The S-harrow will be screwed to the carrier (E3) respectively the coulter bar. The harrow position will be adjusted by means of the pins (E4) and (E5).

The harrow tines (E6) 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 (E7) fall off.





By means of turning the spring (E8) the harrow pressure will be adjusted:

Higher harrow pressure => Turn spring clockwise

Lower harrow pressure => Turn spring anti-clockwise



The nut (E9) must be tightened so much that the spring (E8) is secured against unintentional adjusting, but a manual adjustment is possible.

ATTENTION! Before each transport, the S-harrows must be folded-in and secured, in order to prevent injury. Worn harrow tines, which show sharp points poin-



ting rearwards, only, must be covered by a transport safety device.

22.3 Hydraulic harrow lifting device

If desired a hydraulic harrow lifting device with hydraulic rams (E10) is available.

The power supply of the hydraulic rams (E10) occurs via the oil circle of the hydraulic motor of the fan.

Via the opertion 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 (E10). For fitting the hydraulic rams use holes (E11).

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23 PRE-EMERGENCE MARKERS

23.1 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".

23.2 Pre-emergence markers - hydraulic, double acting

The carriers (M1) of the hollow discs (M2) will be fitted to the wheel stalk of the depth control wheels. The hollow discs will be lowered by means of the hydraulic rams (M3), when a tramline should be made. Via the electronic seed drill control the desired rhythm and via the clamp screw the desired depth of the marking grooves will be adjusted.







23.3 Pre-emergence markers - hydraulic, single acting

The hollow discs (M7) 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 (M8), the hollow discs can be adjusted to the desired track measurement. By means of turning the axle (M9) the angle of the hollow discs (M7) can be adjusted



as desired. After the adjustment, tighten clamp screw (M8) carefully again.

23.4 Depth of the marking groove

By means of turning the spring (M11) 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 (M12) the brake discs (M13) will be pressed against the spring, so that the position of the spring cannot change unintentionally, but still can be adjusted manually.



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24 CHASSIS

If it is required to fit the Solitair 9 to a three point linkage, the seed drill must be equipped with a chassis (FG0).

Before fitting, the chassis must be connected to the three point linkage of the tractor or the soil cultivation implement or to the drawbar of the tractor.



The stands (FG1) will be required,

when the chassis will be parked without mounted Solitair. When the chassis with pole without mounted Solitair should be parked, the pole must be supported (e.g. by means of a block), so that the wheel of the chassis cannot lift. When the Solitair is mounted on the chassis, the rear stand must be set in position, before the chassis will be detached or uncoupled. See sections "Attaching and Detaching".

25 TRACK LOOSENER

Track looseners (L1) are available, which loosen the track without moving the soil laterally.

They are bolted to the coulter bar or at the front of the chassis (FG0).

The working depth adjustment will be done by means of a pin adjustment (L2).





- Read and adhere to the 'General Safety Instructions'!
- Before transport, the track looseners must be dismounted and put in the hopper or in the tractor cabin!



26 SEEDING PIPE CONTROL SYSTEMS

By means of the seeding pipe control systems, either the seeding pipes (seeding pipe control, complete), the seeding pipes of the tramlines (tramline control) or one seeding pipe per distributor (distributor control) will be controlled by sensor units during work. If there is a clogging or no seed will be supplied through the pipe, an alarm will be indicated at an indication box concerned.

Further information can be learned from the corresponding operating instructions of the seeding pipe control KFÜ.

27 TYRES

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

WARNING! THE AIR PRESSURE MUST BE CHECKED REGULARLY!

Description	Profile	Ply-rating (PR)	min. allowed air pressure (bar)	max. allowed air pressure (bar)
550/60-22.5	T 404	12	2,0	2,9
400/60-15.5	T 404	8	2,2	2,9
11.5/80-15.3	AW	10	2,0	4,6

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'!



28 WORKING SPOT LIGHTS

The working spot lights (EL) 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.

F1	F 5
F 2	F 6
F 3	F 7
F 4	F 8



29 FAN HYDRAULIC

Via the hydraulic assembly of the fan with pressure pipe (PD) and return pipe (TR) as well as via the magnet valve (MV) the hydraulic rams of the optional equipment like the switch off width section device, the S-harrow and the preemergence marker will be supplied with pressure and operated manually and/ or automatically via the opertion terminal.



Each magnet valve (MV) is screwed in row to a entrance plate (EP). First the magnet valves (MV) for the hydraulic rams of the S-harrow and the pre-emergence marker will be screwed to the entrance plate (EP).

If fitted subsequently the pressure pipe (PD) will be connected in front of the entrance plate (EP) and with the upper cross union at the fan. The return pipe (TR) will be connected behind the pressure pipe to the entrance plate (EP and with the lower cross union at the fan. The pipes must be connected to the cross unions where the plugs (ST) are fitted.

If the seed drill is equipped with a hydraulic switch off width section device a pressure reducing valve (DM) follows and directly attaached to it the magnet valve (MV) for the hydraulic rams of the switch off width section device.

If the seed drill is equipped with a hydraulic switch off width section device only and not with a hydraulic harrow operation or pre-emergence marker, the pressure reducing valve will be screwed directly to the entrance plate (EP).

30 DRIVING ON PUBLIC ROADS

The transport height and width regulations must be adhered to. The regulations and laws concerned must be abided by. If it is required to drive on public roads with this implement, warning boards and lighting equipment must be fitted to this machine.

Before transport, it must be checked, whether the locking device of the soil cultivation implement and the coulter bar are in locking position and all protection devices are fitted.

31 TECHNICAL DATA

(without chassis / with standard equipment with double disc coulters and 12,5 cm row distance)

Solitair 9	300	400	450	
Number of coulters / row distance ca. cm	24 / 12,5	32 / 12,5	36 / 12,5	
Hopper capacity ca. I	1.100	1.500	1.850	
Distributor / Exits per dis- tributor	2 / 12	4 / 8	4/9	
Tramline width in cm	37,5	37,5	37,5	
Weight in kg	1.050	1.150	1.230	

Solitair 9	400 K	450 K	500 K	600 K
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Number of coulters / row distance ca. cm	32 / 12,5	36 / 12,5	40 / 12,5	48 /12,5
Hopper capacity ca. I	1.500 (1.850)*	1.850	1.850	1.850
Fan RPM 1/min	3.300	3.300	3.300	3.300
Fan RPM 1/min with peas and beans	3.500	3.500	3.500	3.500
Distributor / Exits per dis- tributor	4 / 8	4/9	4 / 10	4 / 12
Tramline width in cm	37,5	37,5	37,5	37,5
Weight in kg	1.200	1.280	1.360	1.520

* in combination with a Zirkon 10 K, the 1850 I capacity hopper must be fitted.

Solitair 9	400 KA	450 KA	500 KA	600 KA
Number of coulters / row distance ca. cm	32 / 12,5	36 / 12,5	40 / 12,5	48 /12,5
Hopper capacity ca. I	2.300	2.300	2.300	2.300
Fan RPM 1/min	3.300	3.300	3.300	3.300
Fan RPM 1/min with peas and beans	3.500	3.500	3.500	3.500
Distributor / Exits per dis- tributor	4 / 8	4/9	4 / 10	4 / 12
Tramline width in cm	37,5	37,5	37,5	37,5
Weight in kg	1.280	1.370	1.510	1.690

32 SPARE PARTS

Doppelscheibenschar mit Rolle, Double Disc Coulter with Roller, Soc double disque avec rouleau



Pos.	Bezeichnung		ArtNr.
1	Scheibe, Washer, Rondelle	D 13/40 x 0,5 VA	305 8578
2	Kunststoffabstreifer, Synthetic scraper, Racleur synthétique	100 x 3 x 125,5 1 x 40 - 2 x D 9	349 2026
3	Hartmetallabstreifer, Hard metal scraper, Racleur en métal dur	105 x 3 x 115	349 2031
4	Stützrolle kpl., Pressure roller cpl., Rouleau de pression cpl.	D 340/13 x 50	357 6001
5	Sechscheibe kpl., Disc cpl., Disque cpl.	D 350/70/34 x 3 AA	582 6028
6	Rillenkugellager, Ball bearing, Palier à billes	D 40/13 x 18,3	319 8563

Einscheibenschar, Single Disc Coulter, Soc monodisques



Pos.	Bezeichnung		ArtNr.
1	Schutzkappe, Protection cap, Capuchon de protection	D 90/87/12	319 1130
2	Scheibenhalter mit Kufe, Disc holder with skid, Support des disques ave	RE LI c patin	481 8029 481 8030
3	Klappe, Flap, Volet	ES-RE D 8,4/14 x 27 ES-LI D 8,4/14 x 27	481 8528 481 8538
4	Hohlscheibe kpl., Hollow disc cpl., Disque concave cpl.	D 325/70/34 x 3	582 2603
5	Kufe, Skid, Patin	ESP-RE ESP-LI	481 8032 481 8033
6	Rillenkugellager, Ball bearing, Palier à billes	D 40/13 x 18,3	319 8563

Saatstriegel-S, Levelling S-Harrow, Herse niveleuse-S



Pos.	Bezeichnung		ArtNr.
1	Striegelzinken-S, S-harrow tine, Dent de herse-S	H-D 9/4 x 75	353 7056
2	Striegelzinken-S, S-harrow tine,	V-D 9/4 x 75	353 7057

Stiefelschar, Suffolk Coulter, Soc standard



Pos.	Bezeichnung		ArtNr.
1	Scharspitze, Point, Pointe	187 x 34 x 59 45°	337 8099
2	Klappe, Flap, Volet	S 19 x 5 x 139,7	481 8527
3	Stiefelschar, Suffolk coulter		482 6042

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Einzelstriegel – Rad (Saphir), Single Harrow – Wheel (Saphir), Dent de herse – Roue (Saphir)



	303 0033	2 Dogo Ogg	301 3224
Pos.	Bezeichnung		ArtNr.
1	Hohlscheibe, Hollow disc, Disque concave	D 380/100	349 0460
2	Lagerung, Bearing, Palier		547 8883
3	Schutzkappe, Protection cap, Capuchon de protection	D 81/77/44	323 0410

Vorauflaufmarkierung, Pre-emergency Marker, Marqueur de pré-émergence



Spurlockerer mit Halter, Track Scraper with Holder, Efface-traces avec Support



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33 MAINTENANCE

33.1 Lubrication

All lubrication points must be greased according to the following table:

Lubrication table	Every 50 hours of use	Every 100 hours of use	After each cleaning with a high pressure washer	Before the win- ter bra- ke	After the winter brake
Pivots of the links of the double disc coulters			х	х	
Pivots of the single disc and suffolk coulters			х	х	
Pivot of the S-harrow (1x each)			х	х	
Pivot of the pre-emer- gence marker (1x each)			х	х	
Folding pivots of the coulter bar (2x)		х	х	х	х
Folding pivots of the markers (4x)	х		х	х	х
Bearings of the marker discs (2x)	х			х	
Coulter lifting device, hydraulic rams (4x)	х			x	х

The chains of the seeding shaft- and agitator shaft drives must be oiled every 50 hours of use.

33.2 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 must be checked and tightened if necessary and secured with Loctite.

33.3 Hydraulic hoses

Regularly check the hydraulic hoses with regard to damage and leaks. Replace any that are defective. All hydraulic hoses must be exchanged after 6 years. Use genuine replacement parts, only.


33.4 Seed wheels and bottom flaps

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

33.5 Disc coulters and pressure rollers

All bright areas of the disc coulters must be greased, in order to avoid rust formation.

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!

33.6 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 bearings of the folding device of the coulter bar, the coulters and rollers.

33.7 Cyclone

The cyclone separates the dust from the in taken air by 85 % automatically. The function of the cyclone must be checked regularly. (see section "Cyclone").

33.8 Air tube

The air tube must be checked and cleaned before and after the season. Therefore the cover (X5) must be removed and the interior space of the air tube cleaned. Afterwards fit the cover (X5) again.

33.9 End stop

The end stops (X7) of a Solitair being mounted on a folding and



mounted soil cultivation implement must be checked regularly with regard to their function. The bolts (X8) must be checked and tightened if necessary.



IMPORTANT: Do not clean this implement with a Pressure Washer during the first 6 weeks. After this time a minimum nozzle distance of 60 cm must be observed with a maximum 100 bar pressure and 50° C temperature.



Read and adhere to the General Safety Instructions as well as to the Instructions 'Maintenance'!

34 NOISE, AIRBORNE SOUND

The noise level of the LEMKEN Solitair 12 K is between 90 and 95 dBA during work. Close the tractor cabin or use ear defenders during work.

35 DISPOSAL

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

36 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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