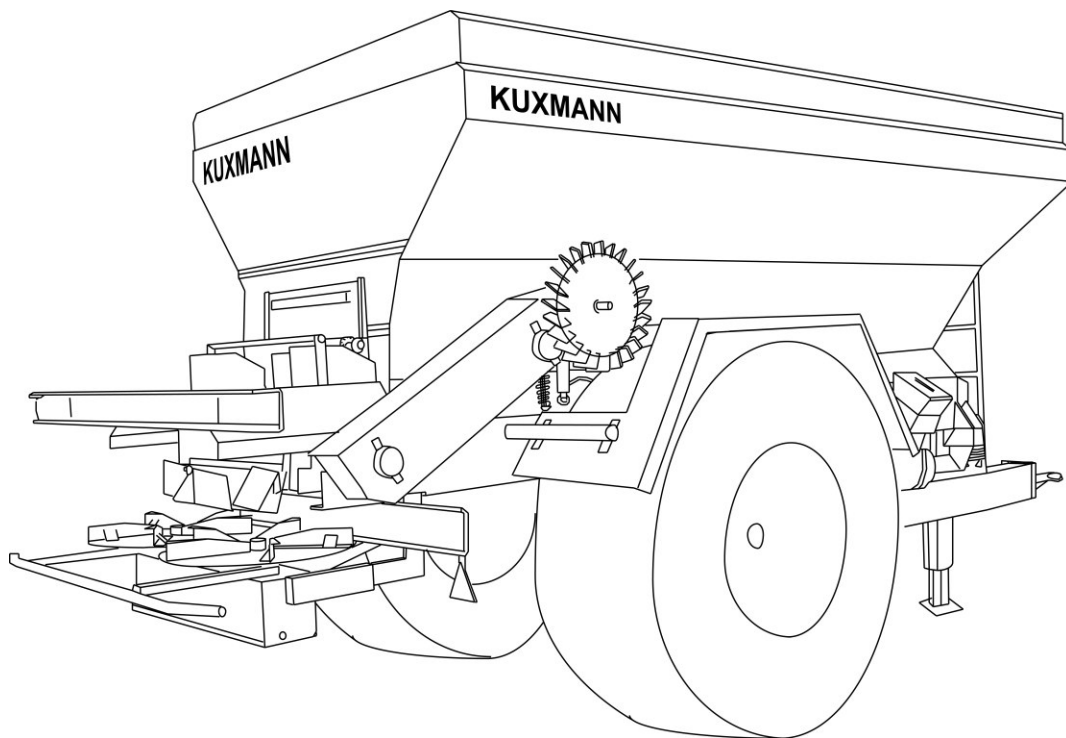


# KUXMANN

## KURIER

Operating instructions for machine type: 418 – 419



Rainer KUXMANN Landmaschinen GmbH  
Am Sportplatz 30  
33619 Bielefeld Germany  
[www.kuxmann.de](http://www.kuxmann.de)

Phone: + 49 (0) 521 314 33  
Fax: + 49 (0) 521 314 03  
E-Mail: [info@kuxmann.de](mailto:info@kuxmann.de)

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## 1. General

### Dear client,

before you start operating your KUXMANN KURIER, you should read these instructions, carefully.

### A proper observance of these instructions guarantees you a defect-free operation of the machine.

Please note the completeness of the machine, at acceptance. Possible defects, for example due to transportation, shall be immediately reported, mentioning also the machine identification number. The machine identification number is imprinted on the connecting plate to the drawbar.

The KUXMANN spreader type K8000 - K18000 serves for applying dry, granular material without dust content, to agricultural areas. The operator has the obligation to use the machine exclusively for the spreading of materials that can, under no circumstance, pose a risk to the health or cause a damage to the property of a third party.

The Spreader shall be used only by persons who are adequately informed about the potential risks of the machine, and have understood this information in a proper manner. The machine identification plate contains information on the type of the machine (K8000-K18000), the manufacturer's serial number of the machine (Machine ident. no.) and the manufacturing year. In addition, the maximum total weight as well as the permissible load on the front and the permissible load on the axle are indicated on the plate. The maximum load results from adding the front and axle load data. For K8000-K18000, the gross weight for the tire type can be found in the corresponding table in this operating manual. With the factory-supplied tires, a safe use of the machine is ensured. If the tires are changed or other wheels are mounted, the user is responsible for their ability to withstand the load on the machine's gross weight.

This manual provides basic settings for spreading normally commercially available fertilizers. The fertilizer quality is not a constant value. It changes from year to year and from lot to lot. The Rainer Kuxmann GmbH Company can therefore not assume any responsibility for the spreading quality. This applies to the fertilizer as well as to the spare parts and the assembly thereof. The user is fully responsible for ensuring that the machines work to achieve satisfactory results. Rainer Kuxmann GmbH is constantly conducting tests with the fertilizer types available on the market. If you are in doubt about the spread ability of a fertilizer type, please contact us. A simple method for controlling the spreading quality is a sample application on the field (see Section 7).

**To consider:** Each fertilizer spreader produces a multiple of its own value each year. The effects of a poorly executed work due to lack of maintenance, poor fertilizer quality or an operational error can lead to losses in earnings that considerably exceed your investment in the machine. Consider this when buying fertilizer and buying a spreader as well as its maintenance and care.

## 2. Specifications and declaration of conformity

### 2.1. Manufacturer, type

Manufacturer: Kuxmann Bulk-Fertiliser Spreader **Kurier**

Type: \_\_\_\_\_

### 2.2. EC - Declaration of Conformity

According to the Machinery Directive 2006/42/EC, Annex II, No. 1.A., we,

**Rainer KUXMANN LANDMASCHINEN GMBH**  
**Am Sportplatz 30, D - 33619 BIELEFELD, Germany**

declare that the product:

Kuxmann Bulk-Fertiliser Spreader KURIER \_\_\_\_\_

Machine ident. no. \_\_\_\_\_

is in accordance with all relevant provisions of the EC - Machinery Directive 2006/42/EC.

#### **Compilation of technical documentation by:**

Rainer Kuxmann Landmaschinen GmbH, Am Sportplatz 30, D - 33619 Bielefeld, Germany

The machine complies with the requirements of the EMC - Directive 2004/108/EC.

The following standard (s) and/or technical specification(s) have been used for the proper implementation of the safety and health requirements specified in the EC Directives:

- EN ISO 12100:2010
- Safety and health requirements: VSG 3.1

Bielefeld, 28.11.2016

.....  
Rainer Kuxmann

### 3. Technical specifications

#### 3.1. Technical specifications fertiliser spreader Kurier

Type 408 / 418 : K8000

Type 409 / 419 : K12000, K12000 Tandem, K18000

	Bereifung	Behälter	Gewicht	Länge / cm	Breite / cm	Höhe / cm	Spur / cm	Zulässiges Gesamtgewicht	Stützlast	Achslast
<b>K 8 000</b>	550 / 60 x 22.5	5.3 m <sup>3</sup>	1950 kg	600	250	235	190	10000 kg	2000 kg	10000 kg
	700 / 50 x 22.5		1980 kg	600	265	238	190	10000 kg	2000 kg	10000 kg
<b>K 12 000</b>	700 / 50 x 22.5	8 m <sup>3</sup>	2980 kg	700	270	253	205	12000 kg	2000 kg	10000 kg
		10 m <sup>3</sup>	3120 kg	700	270	272	205	12000 kg	2000 kg	10000 kg
<b>K 12 000</b>	700 / 50 x 26.5	8 m <sup>3</sup>	3040 kg	700	265	257	205	12000 kg	2000 kg	10000 kg
		10 m <sup>3</sup>	3160 kg	700	265	276	205	12000 kg	2000 kg	10000 kg
<b>K 12 000 Tandem</b>	550 / 60 x 22.5	10 m <sup>3</sup>	3900 kg	700	250	250	205	18000 kg	2000 kg	16000 kg
<b>K 18 000</b>	700 / 50 x 22.5	14 m <sup>3</sup>	5400 kg	880	290	260	205	22000 kg	4000 kg	20000 kg

#### 3.2. Name and Address of the producer:

**Rainer Kuxmann Landmaschinen GmbH**

**Am Sportplatz 30, D - 33619 BIELEFELD, Germany**

#### 3.3. Minimum and maximum PTO speed in normal use.

PTO rotations per min.: 400 – 1200 rpm

The values shown vary from the spreading material to another. Please refer to the recommended values for the material to be spread, which is indicated in the spreading table contained in this operating manual.

#### 3.4. Tire pressure for the machine tires

The tire pressure for the supplied tires can vary from 0.8 bar to 2.5 bar. To determine the correct pressure for you, please take the recommended values from the table in section 3.5.



## 4. Functional Description and General Safety Guide

All large spreaders with a two-disc spreading module distribute granulated, dusty and moist fertilizers. The wide conveyor belt feeds the spreading material to the spreader discs. They are driven by V-belts, which in turn are driven by the PTO shaft. This V-belt drive prevents large damages on the spreader in the case of foreign bodies in the spreading material. The conveyor belt is driven by a ground wheel drive. In this case, a drive wheel, which is connected to a transmission, runs on the tire of the spreader. (Dosage dependent on the way of driving.)

### 4.1. Special notes on safety

- The front axle of the tractor is relieved when the spreader is pulled.
- There is always danger of rotating discs; therefore there is a need to ensure an adequate safety distance. (See the German "Safety and health requirements" VSG 3.1) For more information, see 4.2.
- The machine must be cleaned regularly to ensure a safe and proper operation.
- Cleaning, maintenance and adjustment work on the spreader shall to be carried out only with the PTO shaft switched off.
- The fertilizer spreader is approved only for its intended use.
- The machine must be secured with the handbrake and the wheel chocks when it is parked.
- Check the PTO shaft length before using the machine.
- The function of the brake system and lighting must be checked regularly.
- In the case of road journeys, ensure that all the spreading devices are folded in, properly (check the locking, close the dosing gate)
- When loading the spreader, observe the permissible total weight.
- After receiving the unit, ensure that all parts and special equipment are complete.
- Connect the PTO shaft to the tractor by keeping the two joint shaft halves together. The travel distance of the overrun brake must be considered. (approx. 15 cm) Shorten the joint shaft halves evenly. The wide-angle joint belongs to the tractor's towing shaft
- After receiving the unit, check all screws and nuts!
- Check the V-belt drive of the spreading module. (See page 38.)
- After approx. 15 operating hours, all screws and wheel nuts must be checked, and if necessary tightened.
- The lifting cylinder must be completely relieved for pressing the floor drive wheel.
- A new conveyor belt has work under duty for a while and must be adjusted, if necessary. (See page 39.)



4.2. Symbols

On the machine you will find the following security symbols:



Read and observe the operating instructions and safety instructions before use.



Secure machine before decoupling or parking it with wedges.



Do not open or remove the protective parts, while the engine is running.



Danger by flying off parts while the engine is running - Keep the safety distance. (see section 3.3.)



Disconnect the engine and remove the key before servicing and repairing the engine.

### 4.3. Maximum throw distance to the back and to the side

Never place yourself near the spreader plates of the machine when they rotate. The stump of the PTO shaft of the tractor must be switched-off when people or animals are within a radius of 35 m from the spreading discs of the machine, when driven at 1000 RPM on the PTO shaft, and at least 25 m at 540 RPM.

- At least 35 m at 1000 rpm
- At least 25 m at 540 rpm

Always keep the dosing wheel out of reach when it is activated. When working on the lifting and lowering mechanism of the ground/dosing wheel, it must be ensured that the ground/dosing wheel is engaged to the wagon wheel, and that the hydraulic system is without pressure. Never try to activate the limiter for border spreading while the spreading discs are rotating or to adjust the dosage and the spreading system in any other way. Never attempt to activate the limiter unit as long as the spreading discs rotate. The guards on and at the power transmission shaft must be installed undamaged and in accordance with the regulations. Never stand on the protective plate above the spreading discs of the machine or on the protection bracket, which is attached to the two-disc spreading unit, while the discs rotate. The stay on the machine during its operation, or its transportation on the road is not permitted. Avoid, as far as possible, placing foreign bodies such as metal parts and stones in the container of the machine as these can cause damage to the spreader and are a hazard to the environment.

### 4.4. General safety and accident prevention information

- In addition to these instructions, observe the generally valid national safety and accident prevention regulations!
- The warning signs and other markings attached to the machine provide important information for the safe operation of the machine. Observe these instructions carefully, for your safety!
- Before start-up and before activation, check the close-up area of the machine (children)! Make sure you look at a reasonable area surrounding the machine!
- It is forbidden to drive and transport people on the machine!
- Align the way of driving so that you safely control the tractor with attached or suspended machine, at all times. Take into account your personal abilities, the road, traffic, visual and weather conditions, the tractor's tractability and the influence of the mounted or attached machine.

### Coupling and uncoupling the machine

- Only couple and transport the machine with tractors suitable for this purpose.
- Connect the machine correctly into the required devices!
- The coupling of machines in the front and/or rear attachment of a tractor must not exceeded:
  - The permissible total tractor weight
  - The permissible tractor axle loads
  - The permissible tire bearing capacities of the tractor tires
- Secure the tractor and the machine against unintentional rolling before connecting or disconnecting the machine!
- The stay of persons between the machine to be coupled and the tractor is prohibited; while the tractor approaches the machine.

Any present person in the area may only operate as a signaller near the vehicles and may only enter the space between the vehicles when the vehicle is at a standstill.

- When connecting and disconnecting machines, bring the support devices (if equipped) into the respective position (stability)!
- There is a risk of injury by crushing and scoring when operating support devices!
- Be particularly careful when connecting or disconnecting machines on or from the tractor! Between the tractor and the machine, there are crushing and cutting points in the area of the coupling point!
- The coupled supply lines
  - o must be able to withstand any movements during cornering without tension, buckling or friction.
  - o must not rub on foreign objects.
- Always park uncoupled machines stable!

### Use of the machine

- Make sure you familiarize yourself with all the equipment and actuators of the machine and its functions. It is too late to do this during its working!
- Wear tight-fitting clothing! Loosely worn clothes increase the danger by grasping or winding on drive shafts!
- Only operate the machine when all protective devices are installed and in protective position!
- Observe the maximum load of the mounted/attached machine and the permissible axle and support loads of the tractor! If necessary, drive only with a partially filled hopper.
- The stay of persons in the work area of the machine is prohibited!
- The stay of persons in the rotating and pivoting area of the machine is prohibited!
- There are crushing and shearing forces acting on the pressurized machine parts (for example, hydraulically).
- You are only allowed to operate machine components which are actuated by external power-operated devices when persons have a sufficient safety distance to the machine!
- Secure the tractor against unintentional starting and unintentional rolling before leaving the tractor.

For this, you need:

- o to place the machine on the ground
- o to apply the parking brake
- o to stop the tractor motor
- o to remove the ignition key

## Transport of the machine

- Observe the national road traffic regulations when using public transport routes!
- Check before transports,
  - o the proper connection of the supply lines
  - o the lighting system for damage, function and cleanliness
  - o the brake and hydraulic system, on obvious deficiencies
  - o whether the parking brake is fully released
  - o the function of the brake system
- Always ensure a sufficient steering and braking capacity of the tractor!

Machinery attached to or mounted on a tractor, and front or rear weights, influence the driving behaviour as well as the steering and braking capacity of the tractor.

- If necessary, use front weights!

The tractor front axle must always be loaded with at least 20% of the tractor's empty weight in order to ensure sufficient steering capability.

- Always attach the front or rear weights at the correct fixing points!
- Observe the maximum load of the mounted/attached machine and the permissible axle and support loads of the tractor!
- The tractor must ensure the required braking delay for the loaded train (tractor plus mounted / attached machine)!
- Check braking action before driving!
- When cornering with mounted or attached machine, take into account the wide reach and the inertia of the machine!
- Before transport, bring all swivelling machine parts into transport position!
- Ensure that the machine parts are swivelled in the transport position before transport travels.

Use the transport safety devices provided for this purpose!

- Before carrying out the transport, check that the required transport equipment, such as lighting, warning devices and protective devices, are correctly installed on the machine!
- Adapt your driving speed to the prevailing conditions!
- Turn down in a lower gear before any downhill driving!
- Always disable single wheel brakes before transport (lock pedals)!

#### 4.5. Hydraulic system

- The hydraulic system is under high pressure!
- Ensure that the hydraulic hose lines are connected correctly!
- When connecting the hydraulic hose lines, make sure that the hydraulic system is pressureless on both the tractor and the machine!
- It is forbidden to block the actuators on the tractor which are used for the direct execution of hydraulic or electrical movements of components, e.g. folding, pivoting and sliding. The movement must stop automatically when you release the corresponding control part. This does not apply to movements of facilities which are:
  - o continuous, or
  - o automatically regulated, or
  - o function dependent on a floating position or pressure position
- Before working on the hydraulic system, make sure:
  - o to set the machine off
  - o to depressurize the hydraulic system
  - o to stop the tractor motor
  - o to apply the parking brake
  - o to remove the ignition key
- Have the hydraulic hoses tested for safety at least once a year by a qualified technician!
- Replace hydraulic hose lines in case of damage and aging! Only use KUXMANN original hydraulic hose lines!
- The service life of the hydraulic hose lines should not exceed six years, including a possible storage period of not more than two years. Tubes and hose connections are also subject to natural aging, even during proper storage and allowable stress. Their storage time and service life is therefore limited. Deviating from this, the duration of use can be determined in accordance with the empirical values, in particular taking account of the risk potential. For tubing and hose lines from thermoplastics, other guideline values may be decisive.
- Never attempt to seal leaking hydraulic hose lines by hand or fingers. High-pressure fluid (hydraulic oil) can penetrate into the body through the skin and cause serious injuries! See a doctor immediately for injuries caused by hydraulic oil! Infection risk.
- Use appropriate tools when searching for leakage points, because of the potential for serious risk of infection.

#### 4.6. Electrical system

- When working on the electrical system, always disconnect the battery (negative pole)!
- Use only the specified fuses. When using too strong fuses, the electrical system is destroyed - risk of fire!
- Be sure to connect the battery correctly
  - o First connect the positive terminal and then the negative terminal!
  - o When disconnecting, first disconnect the negative terminal and then the positive terminal!
- Always keep the battery positive with the provided cover. When making the connection to the mass, there is a danger of explosion!
- Danger of explosion! Avoid sparks and open flames near the battery!
- The machine can be equipped with electronic components and components whose function can be influenced by electromagnetic emissions from other devices. Such influence may result in personal injury if the following safety precautions are not followed.
  - o In the case of subsequent installation of electrical devices and/or components on the machine, with connection to the vehicle electrical system, the user has to check on his own responsibility whether the installation causes disturbances of the vehicle electronics or other components.
  - o Ensure that the retrofitted electrical and electronic components comply with the EMC Directive 2004/108/EC as amended, bearing the CE mark.

#### 4.7. Attached equipment

- Observe the permissible combination possibilities of the towing device on the tractor and the pulling device on the machine!

Couple only permitted combinations of vehicles (tractor and attached machine).

- In the case of single-axle machines, observe the maximum permissible support load of the tractor on the trailer hitch.
- Always ensure a sufficient steering and braking capacity of the tractor!

Machinery mounted or attached to a tractor affects the driving behaviour as well as the steering and braking capacity of the tractor, in particular single-axle machines with a supporting load on the tractor.

- Only a specialist workshop is allowed to carry out the adjustment of the drawbar height of the pull-out ditches with a support load.
- Machines without brakes:
  - o The maximum speed is limited to 25 km/h.
  - o The basic weight of the tractor (not the permissible total weight!) plus the support load of the machine must be greater than the maximum axle load of the machine.

#### 4.8. Brake system

- Only specialist workshops or approved brake services may carry out adjustment and repair work on the brake system!
- Have the brake system regularly checked thoroughly!
- Always stop the tractor straightaway when you recognise a problem while braking. Have the malfunction corrected immediately!
- Ensure the machine is standing safely and secure the machine against accidental lowering and unintentional rolling (wheel chocks) before performing any work on the brake system!
- Be particularly careful when welding, burning and drilling near brake lines!
- Always carry out a braking test after all works like adjusting or maintaining the brake system!

##### 4.8.1. Pneumatic brake system

- Before coupling the machine, clean the sealing rings on the coupling heads of the supply and brake lines of possible dirt!
- Drain daily the air tank!
- Close the coupling heads on the tractor before driving without a machine!
- Mount the clutch heads of the supply and brake lines of the machine into the provided brackets!
- When refilling or replacing, use only the specified brake fluid. Observe the appropriate regulations when replacing the brake fluid!
- You must not change the specified settings on the brake valves!
- Replace the air tank when:
  - o the air container can be moved in the tensioning bands
  - o the air container is damaged
  - o the identification plate on the air container is rusted or loose or is missing

##### 4.8.2. Hydraulic brake system for export machines

- Hydraulic brake systems are not permitted in Germany!
- When refilling or replacing, use only the specified hydraulic oils. Observe the appropriate regulations when replacing the hydraulic oils!

#### 4.9. Tires

- Repair work on the tires and wheels may only be carried out by qualified personnel using a suitable mounting tool!
- Regularly check the air pressure!
- Observe the prescribed air pressure! Danger of explosion if there is too much air pressure in the tire!
- Ensure the machine is standing safely and secure the machine against accidental lowering and unintentional rolling (parking brake, wheel chocks) before performing any work on the tires!
- You must tighten all fastening screws and nuts according to the specifications for the KUXMANN Landmaschinen!

#### 4.10. Operating the fertilizer spreader

- Staying in the work area is prohibited! Hazard by fertilizer particles thrown off. Before switching on the spreading discs, send any persons from the spreading zone of the fertilizer spreader away. Do not come near rotating discs.
- Filling the fertilizer spreader only with the tractor motor switched off, the ignition key removed and the dosing gate/s closed.
- Do not put any foreign objects in the hopper!
- While performing a flow control, keep distance to dangerous zones of the rotating machine parts!
- Use Limiter devices for border spreading on field borders, waterways or roads!
- Before each use, ensure that the mounting parts are correctly positioned, in particular at the spreading discs and spreading vanes or auger unit.

#### 4.11. Operation of the PTO drive

- Use only the articulated shafts indicated by KUXMANN Landmaschinen and equipped with proper protective devices! Please contact us if in doubt.
- Also pay attention to the operating instructions of the joint shaft manufacturer!
- The protective tube and the protective funnel of the articulated shaft must be undamaged, and the protective plate of the tractor and engine spigot must be installed and in a proper condition.
- It is forbidden to work with damaged protective devices!
- You are only allowed to install and dismantle the prop shaft:
  - o with the PTO shaft switched off
  - o with tractor motor switched off
  - o with blocked parking brake
  - o with a disconnected ignition key
- Always ensure proper mounting and securing of the prop shaft!
- When using wide angle articulated prop shafts, always place the wide angle joint at the point of rotation between the tractor and the machine!
- Secure the hinge shaft protection by fitting the chain(s) against running!
- Ensure that the shafts are in the transport and working position! (Also pay attention to the operating instructions of the joint shaft manufacturer!)
- Observe the permissible bend and the travel of the prop shaft when cornering!
- Before switching on the PTO shaft,
  - o check whether the selected PTO speed of the tractor matches the permissible drive speed of the machine.
  - o check whether there are persons in the danger area of the machine.
- Expel any person from the danger area of the machine before switching on the PTO shaft.
- No person shall be allowed to be in the region of
  - o the PTO shaft while it is operating.
  - o No person shall be allowed to be in the danger area of the machine.
- Never switch on the PTO shaft while the tractor motor is switched off!
- Always switch off the PTO shaft if excessive bends occur or is not needed!



- WARNING! After the PTO shaft has been switched off, there is a risk of injury from the trailing inertia of rotating machine parts!

Do not go too close to the machine during this time! Only when all machine parts have come to a complete stop, you can work on the machine!

- Secure the tractor and the machine against unintentional start-up and unintentional rolling before cleaning, lubricating or adjusting the shaft-driven machines or articulated shafts.
- Place the uncoupled PTO shaft on the provided mounting chain!
- After removing the articulated shaft, insert the protective sleeve onto the PTO shaft stub!
- When using the travel-dependent PTO shaft, note that the PTO speed is dependent on the speed of the vehicle and that the direction of rotation is reversed when driving backwards!

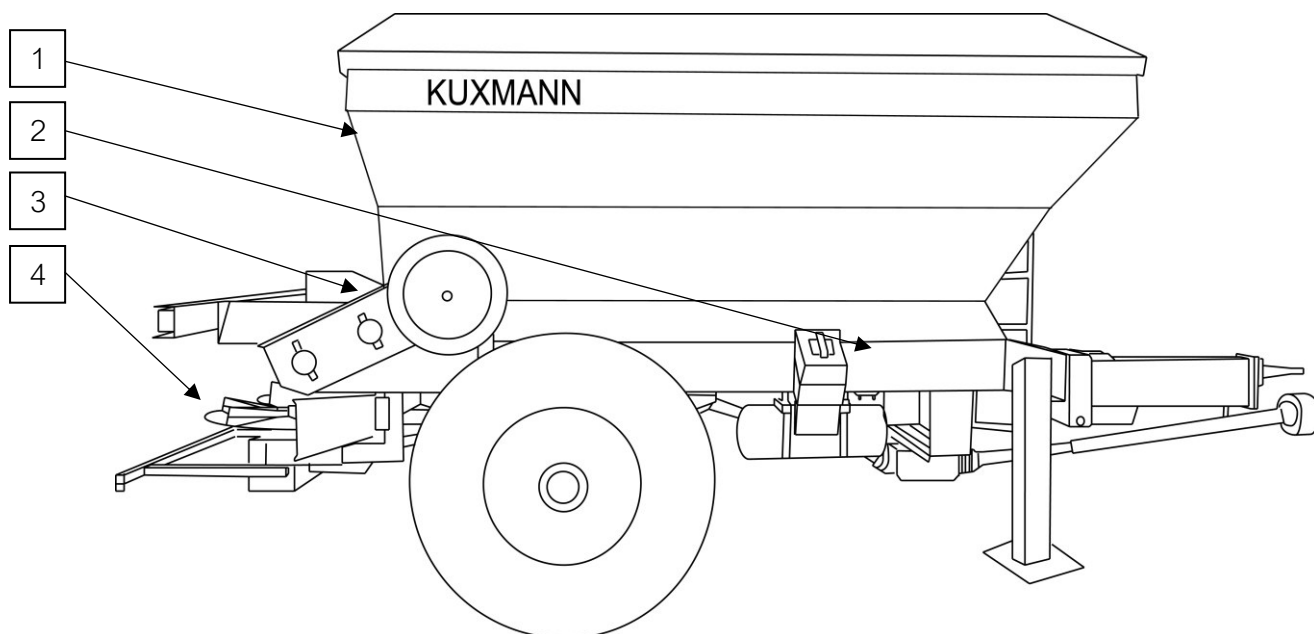
#### 4.12. Cleaning, repair and regular maintenance

- Always carry out maintenance, repair and cleaning work, with:
  - o disabled drive
  - o stationary tractor
  - o disconnected ignition key
  - o disconnected machine plug from the operating terminal
- Check the nuts and bolts regularly for a tight fit and tighten if necessary!
- Secure the lifted machine or raised machine parts against accidental lowering before carrying out maintenance, repair and cleaning work.
- Use suitable tools and gloves when replacing working tools with cutting edges.
- Dispose oil, grease and filters properly.
- Disconnect the cable from the generator and battery of the tractor before carrying out electrical welding on tractor and attached machines!
- Spare parts must meet at least the defined technical requirements of KUXMANN Landmaschinen! This is given when KUXMANN original spare parts are used!

## 5. Machine description

The following chapter provides information about the structure of the machine and the functions of the various components.

### 5.1. Overview of the structure of the machine



1. Container/Hopper used for the spreading material
2. Frame and conveyor belt carriers
3. Floor drive with two gears transmission
4. Spreading unit with protection against collision

## 5.2. Safety and protection devices

The protective equipment protects your health and your life.

- Before working with the machine, make sure that the protective equipment is functional.
- Operate the machine only with effective protective equipment

Designation	Function
Cover	Prevents loss of the spreading materials during transportation and spreading over the container filling opening
Protective device / illuminant	Prevents retraction and cutting of body parts through the "comb roller"  Prevents the crushing of body parts by the dosing gate  Prevents pulling of body parts through the agitator
Collision protection	Prevents the catch by the rotating discs from behind and from the side.
PTO protection	Prevents body parts and clothing of being pulled into the rotating PTO shaft.
Wheel chock	Prevents the rolling away of the machine
Rear driving camera	Facilitates reversing and prevents accidents due to insufficient visibility from the tractor cab
Collision guard	Prevents persons from getting into the danger zone of the tires.

### 5.3. Supply lines

Supply lines in parking position:

1. Brake hose
2. Electrical cables for lighting
3. Hydraulic hose lines (depending on equipment)
4. ISOBUS or ISOCAN connection cable (special equipment)



### 5.4. Traffic equipment

**General traffic safety equipment:**

The machines are equipped with the following traffic safety technology as standard:

- 2 x rear lights, 2 x brake lights, 2 x direction indicator,
- 1 x license plate holder with illumination (required if the tractor plate is hidden)
- 2 x lighting (optional)
- 4 x warning boards (optional)

**Lateral traffic safety technology:**

**K 8000:** 2 x 3 Spotlight, yellow. Laterally at a distance of max. 3m

(Depending on the road traffic regulations of the country of application, the machines are equipped with white spotlights or LEDs.)

**K 12000, K12000 Tandem and K 18000:** 3 x 3 Spotlight, yellow. Laterally at a distance of max. 3m

(Depending on the road traffic regulations of the country of application, the machines are equipped with white spotlights or LEDs.)

### 5.5. Proper use (See chapter 1.)

The KURIER spreader may only be used in accordance with the instructions given in this manual.

The KURIER large-area-spreader is built according to its intended use and may only be used for the following points:

- The KURIER large-area-spreader is suitable for spreading dry, grainy, crystalline fertilizers, seed materials and screw grains through a KUXMANN spreading-unit.
- The KURIER large-area spreader is equipped with a KUXMANN lime spreading-unit for the application of granulated and powdered lime.

The large-area spreader is referred to as "machine" in the following chapters. Any use beyond this specification is considered to be non-intended. The manufacturer is not liable for any damage resulting from a non-intended use. The risk is borne solely by the operator. The intended use also includes compliance with the operating, maintenance and repair conditions specified by the manufacturer. Only original spare parts of the manufacturer may be used as spare parts. The machine may only be used, maintained and repaired by persons who are familiar with the machine's characteristics and who are aware of the dangers. The instructions for operation, service and safe handling of the machine as described in this manual and in the form of warnings and warning signs on the machine by the manufacturer must be followed when using the machine. The relevant accident prevention regulations as well as other generally recognized safety, occupational medical and road traffic regulations must be observed when using the machine. Unauthorized modifications to the machine are not permitted. The modifications exclude liability of the manufacturer for any resulting damages.

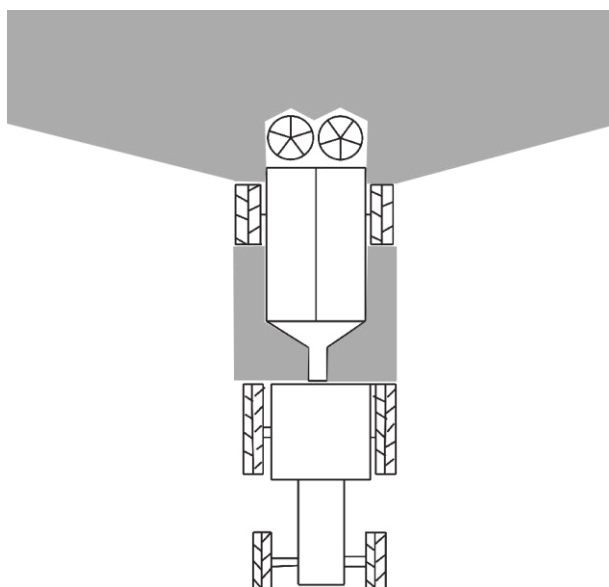
### Foreseeable misuse

The manufacturer points out the foreseeable misuse with the warnings and warning signs on the KURIER spreader. These warnings and warning signs must always be observed in order to avoid the use of the KURIER large-area spreader in a manner not intended in the operating instructions

### 5.6. Hazardous areas

- Material flying of while spreading can lead to serious injuries. (e.g., to the eyes)  
When staying between the tractor and the machine, there is a **high** risk posed by the rolling away of the tractor or by its moving components, which can lead to death.

The following illustration shows the hazards in grey colour:



### 5.7. Required tractor equipment

For safe and correct use of the machine, the tractor must meet the necessary mechanical, hydraulic and electrical requirements.

- Engine power of the tractor: at least 180 HP
- Permissible support load on the bolt or ball-and-socket coupling: 2000 kg (top suspension), 3000 kg (bottom suspension)
- 1 double acting control unit for the support foot
- 1 double acting control unit for the tarpaulin
- Propshaft connection:
  - 1 3/8 inch, 6-piece, 1000 rpm or more
  - 1 3/4 inch, 20-piece,
- Vehicle voltage: 12 V, must also be ensured for several consumers
- ISOBUS connection according to ISO 11 783
- COBO socket according to ISO 12 369 for the lighting system
- Connections for the compressed air braking system (control line and supply line)

## 6. Machine settings

### 6.1. General machine settings and loading

#### 6.1.1. Adjustment of machine inclination

The hitch is mounted at the factory in such a way that the spreader is standing horizontally after the tractor is coupled or tends to lean slightly forward.

The required measuring point is located on the side of the horizontal frame of the machine.

In order to adjust the height of the coupling point, the towing device can be adjusted in height, whereby an adjustment of the height and thus of the necessary horizontal position can be achieved.

#### 6.1.2. Filling the machine

It is recommended to fill the spreader from front to back. Therefore, an even filling is necessary so that the conveyor belt can evenly transport the fertilizer.

#### 6.1.3. Drive-dependent belt drive

When coupling, the hydraulic hose of the spreader are connected to the hydraulic connection of the tractor. The dosing on and off is now done via the hydraulic control of the tractor.

Due to the dependence on dosage to driving, the speed can be adapted to the conditions of the field. The dosage per litre/ha is not affected.

The ground drive wheel rotates, driven by the tire, whereby a meter placed on the field translates directly to the circumference of the ground drive wheel and this is also rotated one meter wide.

The advantage of this dosing method is that, with changing tire sizes, the dosage remains the same.

When driving on the roads, close the ball valve of the hydraulic hose. This measure ensures safety. For various tractors manufacturers, the hydraulic valves on the tractor require a different tightness value. The pressure of the return spring on the floor drive wheel is high, so that different valves do not sufficiently withstand this pressure. By closing the ball valve, you can avoid the accidental loss of spreading material on the road.

#### 6.1.4. Dosing principle

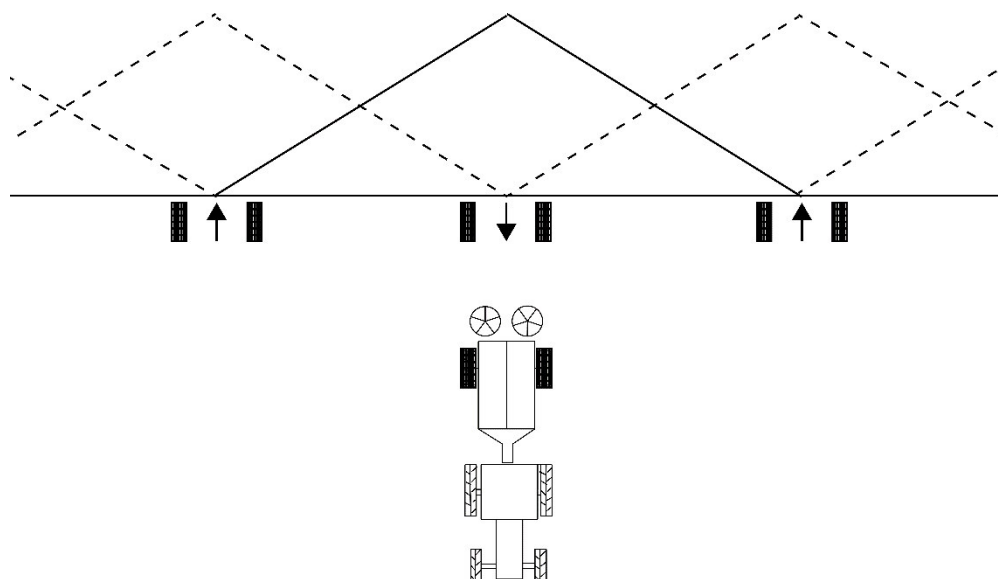
The KUXMANN large-area spreader has a forced dosing system and an adjustable dosing gate (dosing slide/slider) as well as a wide conveyor belt at the bottom of the container through which the forced dosing of the fertilizer takes place.

The speed of the belt (dosing) is directly dependent on the driving mode and is determined in the standard version by a floor drive wheel. This ground drive wheel is lowered onto the spreader's tires. The driven speed can be freely selected. Therefore, the forced dosing results in that only the dosing gate, relative to the spreading material weight, has to be adjusted.

A KUXMANN large-area spreader is equipped with two large spreading discs which have an 11% higher speed than the PTO shaft. This ejects the fertilizer at high speed.

At a speed of 540 rpm, the ejection speed is about 140 km/h, and about 250 km/h at 1000 rpm. In order that the fertilizer can withstand this load, it must be at least one pressure of 0,5 - 1 kg at 540 rpm, at least one pressure of 2 kg at 800 rpm and at least one pressure of 3 - 4 at Kg at 1000 rpm.

### 6.1.5. Principle of double overlapping



The high speed means that in the case of ordinary fertilizer types, that the spreading width must always be at least twice as large as the working width used. This is referred to as a double overlap. The spreading pattern covers an area of 1000-1200m<sup>2</sup>, which means that the concentration of fertilizer per square meter is low.

A triangular shaped spreader with double overlapping always allows a high flexibility with regard to the variation of the working width, the number of revolutions, etc. The high speed of the fertilizer (up to 250 km/h) ensures a low wind sensitivity. For comparison, a strong wind has a speed of approx. 40 km/h.

### 6.2. Spreading settings

The settings of the spreading volume are determined according to the spreading chart, next to the dosing gate and in the operating instructions. In this case, the gate is moved until the upper edge of the slider and, resp., the number on the scale correspond to each other. The exact data can be found in the spreading table.

Your KUXMANN KURIER is equipped as standard with two belt speeds. For grained fertilizers and smaller quantities, the speed I is selected. Thus, granular fertilizer is mixed with small lumps and is evenly distributed. With speed II are applied moist fertilizers and large quantities. (over 10t/ha)



## 6.2.1. Spreading table (example granulated N-NPK), driving speed

Fertiliser type grained N-NPK						
Normal spreading vanes		Angled spreading vanes				
PTO shaft 540 rpm		PTO shaft 750 rpm			1000 rpm	
Spreading width	12m	15m	18m	21m	24m	27m
Scale adjustment	<i>spreading quantity in kg / ha</i>					
200	2000	1600	1554	1160	1000	880
195	1950	1560	1515	1131	975	858
190	1900	1520	1476	1102	950	836
185	1850	1480	1437	1073	925	814
180	1800	1440	1398	1044	900	792
175	1750	1400	1359	1015	875	770
170	1700	1360	1320	986	850	748
165	1650	1320	1281	957	825	726
160	1600	1280	1242	928	800	704
155	1550	1240	1203	899	775	682
150	1500	1200	1164	870	750	660
145	1450	1160	1125	841	725	638
140	1400	1120	1086	812	700	616
135	1350	1080	1047	783	675	594
130	1300	1040	1008	754	650	572
125	1250	1000	969	725	625	550
120	1200	960	930	696	600	528
115	1150	920	891	667	575	506
110	1100	880	852	638	550	484
105	1050	840	813	609	525	462
100	1000	800	774	580	500	440
95	950	760	735	551	475	418
90	900	720	696	522	450	396
85	850	680	657	493	425	374
80	800	640	618	464	400	352
75	750	600	579	435	375	330
70	700	560	540	406	350	308
65	650	520	501	377	325	286
60	600	480	462	348	300	264
55	550	440	423	319	275	242
50	500	400	384	290	250	220
45	450	360	345	261	225	198
40	400	320	306	232	200	176
35	350	280	267	203	175	154
30	300	240	228	174	150	132
25	250	200	189	145	125	110
20	200	160	150	116	100	88
15	150	120	111	87	75	66
10	100	80	72	58	50	44
5	50	40	33	29	25	22

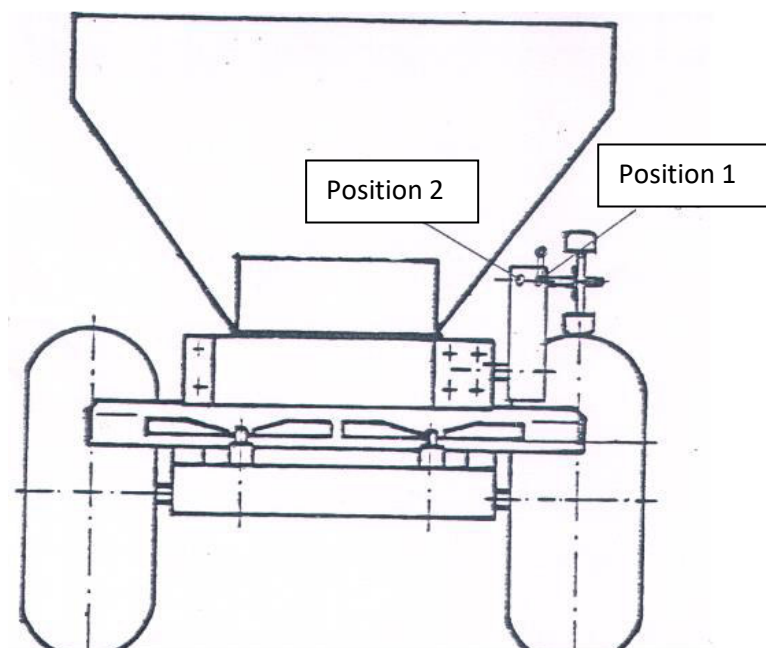
5m<sup>3</sup> and 8m<sup>3</sup> machine - 1 belt speed

### 6.2.2. Machine settings

The following section describes the different settings for different application rates, fertilizer types and other factors that influence the output result.

#### 6.2.2.1. Gear positions

By loosening the nut on the adjusting lever and shifting the gears, the transmission position 1 or 2 is adjusted.

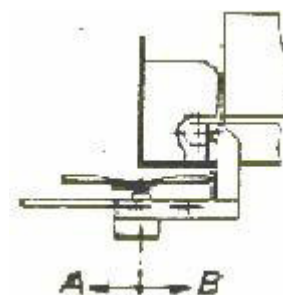


#### 6.2.3. Adjustment of the spreading pattern

By displacing the spreader, the spreading image can be changed.

Moving the spreader backwards (direction A), the spreading occurs more externally.

Moving the spreader forwards (direction B), the spreading occurs more centrally.



## 6.2.4. Adjustment of working width

### 6.2.4.1. Adjustment of spreading width for granulated materials - earth moist and granulated fertilizers

Due to different types of fertilizer, it is necessary to adjust the drop point accordingly.

The width B can be adjusted with the aid of the hexagonal nut C.

For normal-grained fertilizer, the width B is of 200 mm (15 and 18m working width), while with carbo lime and similarly earth-moist fertilizer the width is  $B = 275\text{mm}$ .

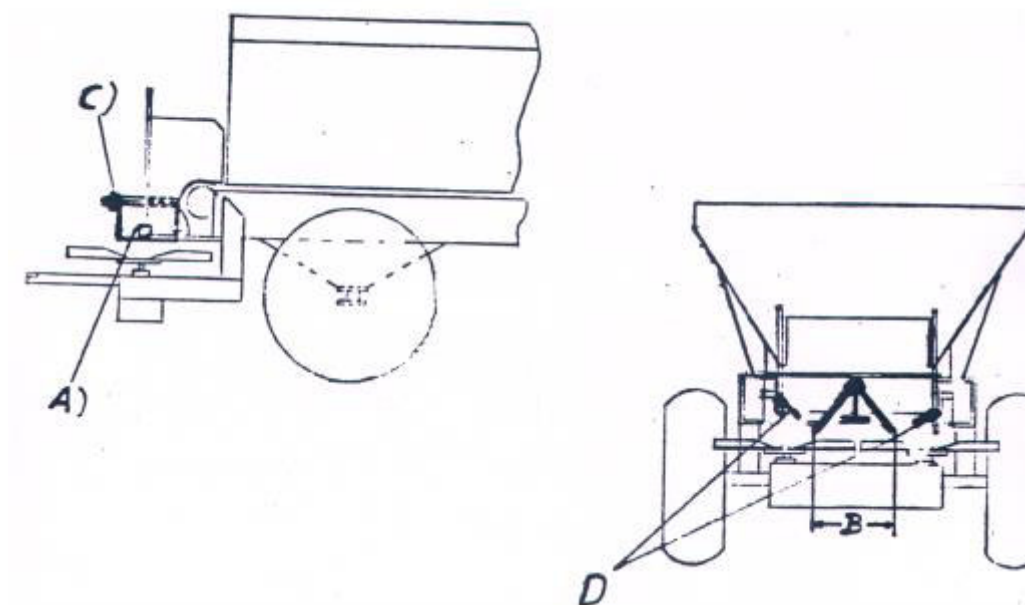
**By increasing the width B, outside is more material spread.**

The baffles D are screwed to fix the fertilizer dispensing point with granulated material.

**Special equipment "Angled vanes till 2016":** The angled spreading buckets for grained fertilizers are screwed on like dusty fertilizer buckets.

In this order: 1x long - 1x short - 1x long - 1x short - 1x long

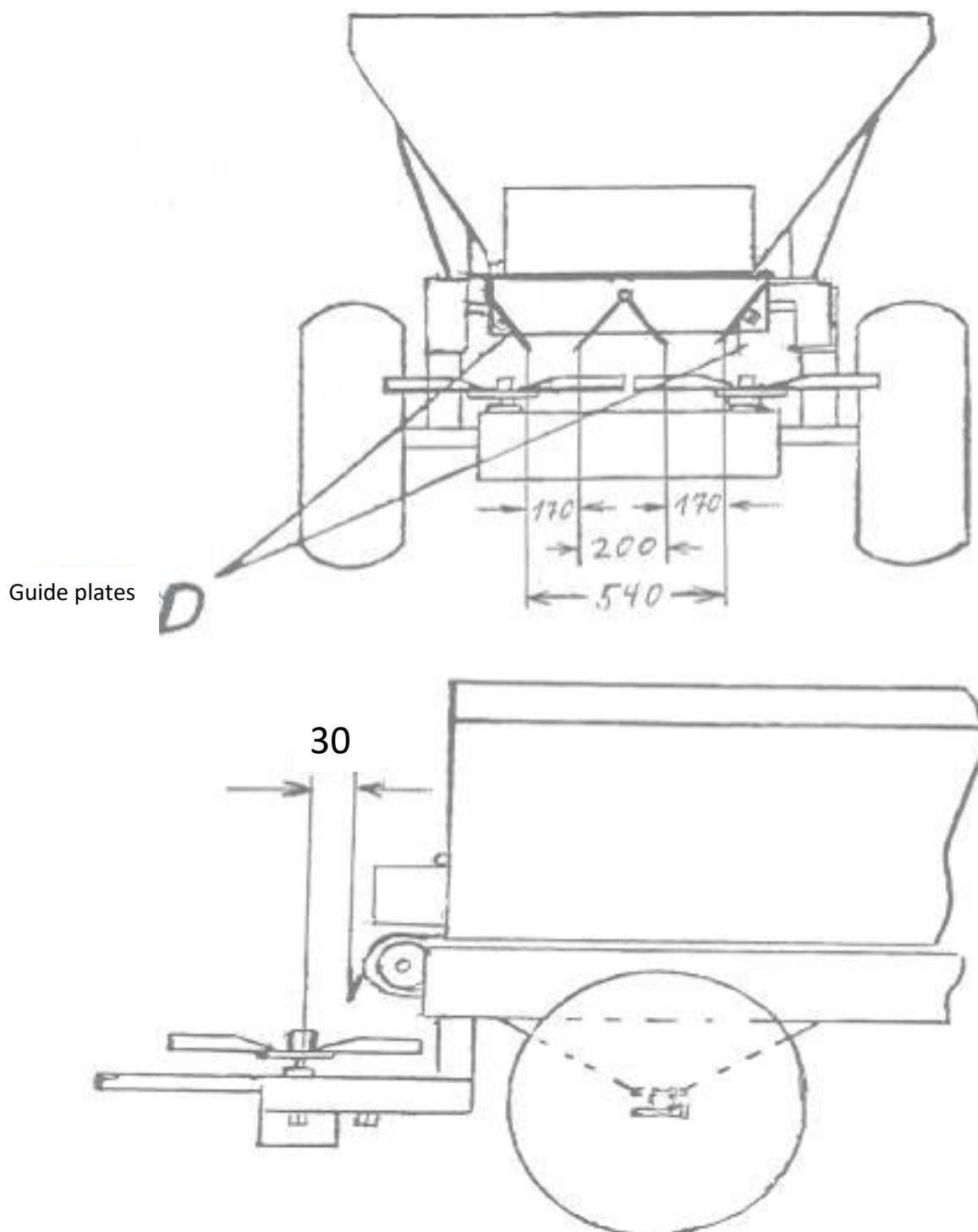
These angled vanes and the plates D should only be used for grained fertilizers.



## 6.2.4.2. Adjustment of the guide plates for the fertilizer application point

Spreading vanes for Lime working width up to approx. 12m and working width up to 15m for granulated goods – 540 PTO rot/min.

Angled spreading vanes for granulated fertilizer - Working widths 15/18/21 / 24m - 750 PTO rotation / Min.



Shovel type      U-1      Roof / gable      Side plates      Delivery point

Lime vanes	750	250	185	30
Lime vanes	900	250	185	30
C vanes	1000	250	195	30

## 7. Functional check of the spreader

### 7.1. Check the settings for the selected output

#### *Calibration test:*

The values in the spreading table are guideline values; they can only serve as indications. Depending on the type and nature of the fertilizer, deviations may occur.

For this reason it is recommended to carry out a calibration test.

#### **Example with PTO drive:**

It should be spread with a two-disc spreader with 15m working width 320kg/ha potash at 10km/h.

- a. Remove the PTO shaft from the spreader on the stepped gear.
- b. Place the collecting bucket on the spreading discs.
- c. Rotate the PTO at a speed of 540 rpm for 1/2 minute.

#### **Calculation formula:**

$$\frac{\text{Amount caught (kg)} \times 600}{\text{Travel speed (km/h)} \times \text{Spreading width} \times \text{Tested time (min)}} = \text{kg/ha}$$

#### **For our example, this means:**

$$\frac{40\text{kg} \times 600}{10\text{km/h} \times 15\text{m} \times 0.5 \text{ min}} = 320\text{kg/ha}$$

#### **Example with floor drive:**

It should be spread with a two-disc spreader with 15m working width 400kg/ha potash.

- a. Remove the PTO shaft from the spreader on the stepped gear.
- b. Place the collecting bucket on the spreading discs.
- c. Drive 50m with the ground wheel drive switched on.

#### **Calculation formula:**

$$\frac{\text{Amount caught (kg)} \times 10000}{\text{driven distance (m)} \times \text{working width}} = \text{kg/ha}$$

#### **For our example, this means:**

$$\frac{30\text{kg} \times 10000}{50\text{m} \times 15\text{m}} = 400\text{kg/ha}$$

## 7.2. Field test to check the application rate

The working width is influenced by the spreading properties of the fertilizer.

The most important influencing variables of the spreading properties are known:

- grain size,
- bulk density,
- surface texture and
- humidity.

The setting values of the spreading table are therefore only to be regarded as guideline values, as the spreading properties of the fertilizer varieties can change.

It is recommended to check the working width of the machine with a mobile test bench.

## 7.3. Use of special equipment in field tests for cross-distribution

In order to be able to carry out field tests, collecting trays must be placed on a line in the width of the desired spreading width. For further information please contact KUXMANN Landmaschinen or visit [Kuxmann.de](http://Kuxmann.de).

## 7.4. Check the rotation speed

The rotation speed can be determined by means of the PTO shaft revolutions.

The translation rate is 1.1.

**900 rpm on the PTO = 1000 rpm on the spreading disc**

## 7.5. Check the machine inclination and its height above the ground.

The KUXMANN spreader is horizontally aligned in the horizontal position. The machine inclination can be checked by stopping a water weighing unit on frames

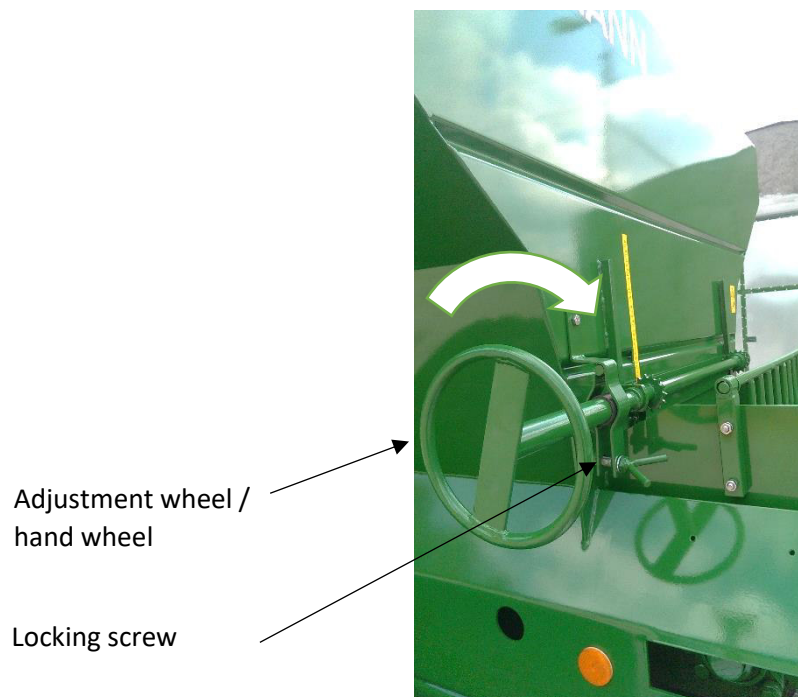
In the case of a deviation, the hitch device can be adjusted in height. To do this, loosen the hexagon bolts on the drawbar eye, place the towing eye in the correct position and screw it back.

**Make sure that the hexagon bolts are tight!**

## 8. Notes on driving technique

### 8.1. Avoid spills during transport

The leakage of the fertilizer is to be prevented by closing the dosing gate. The adjusting wheel on the rear left side must be turned until the slide rests firmly on the conveyor belt. The locking screw must then be tightened.



The spreading operation must be stopped at wind speeds of more than 30 km/h. Close the dosing gate and stop the conveyor belt.

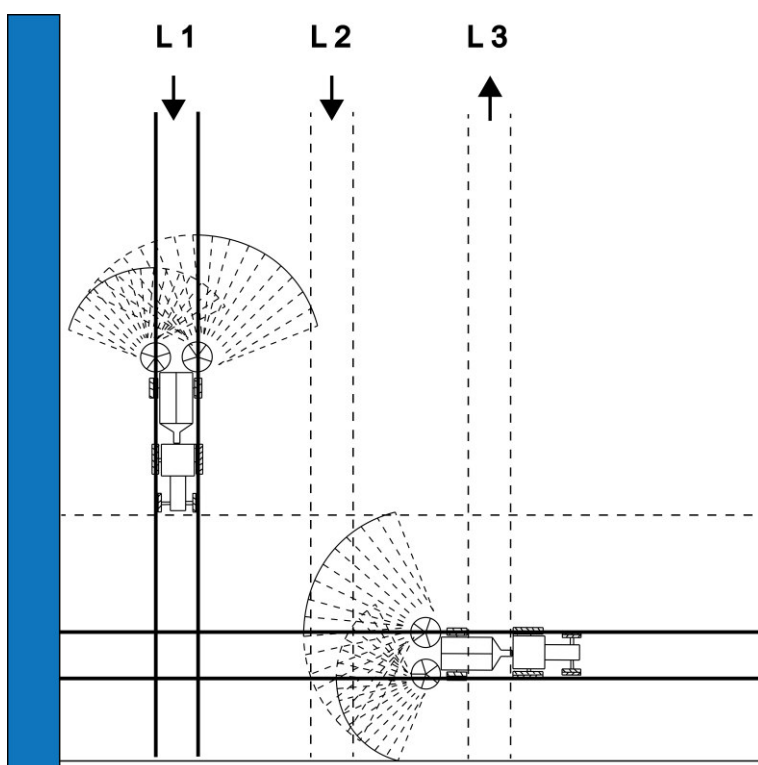
The use of the permanent driving lanes/tracks or other procedures to maintain a constant distance to adjacent surfaces is recommended!



## 8.2. Driving technique on the field and headland

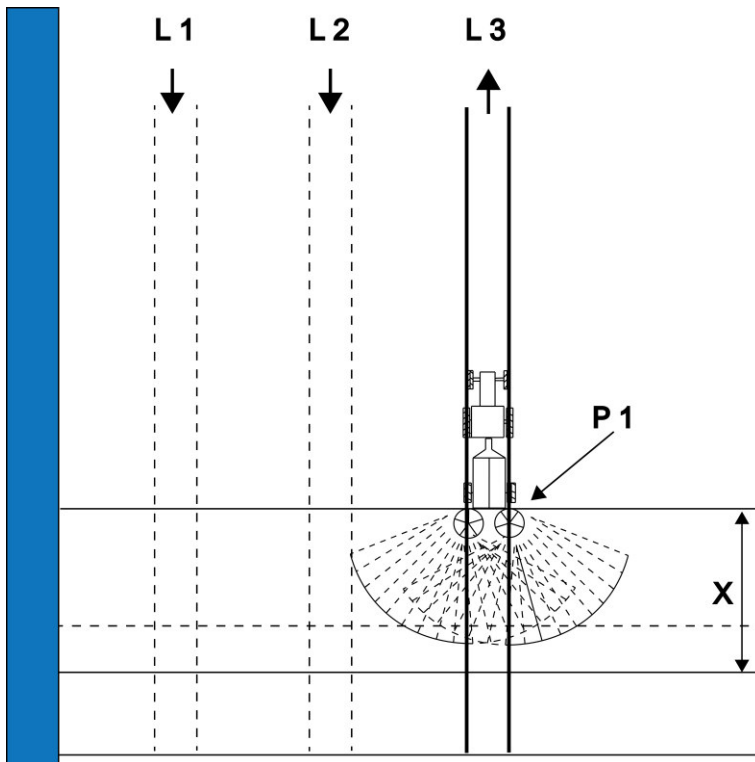
The following section explains the requirements for driving on field boundaries or field edges.

The first driving track is usually placed at half the driving track distance to the edge of the field. The same rule is also applied when driving towards the headland. First, the field should be bypassed with the limiter switched on.

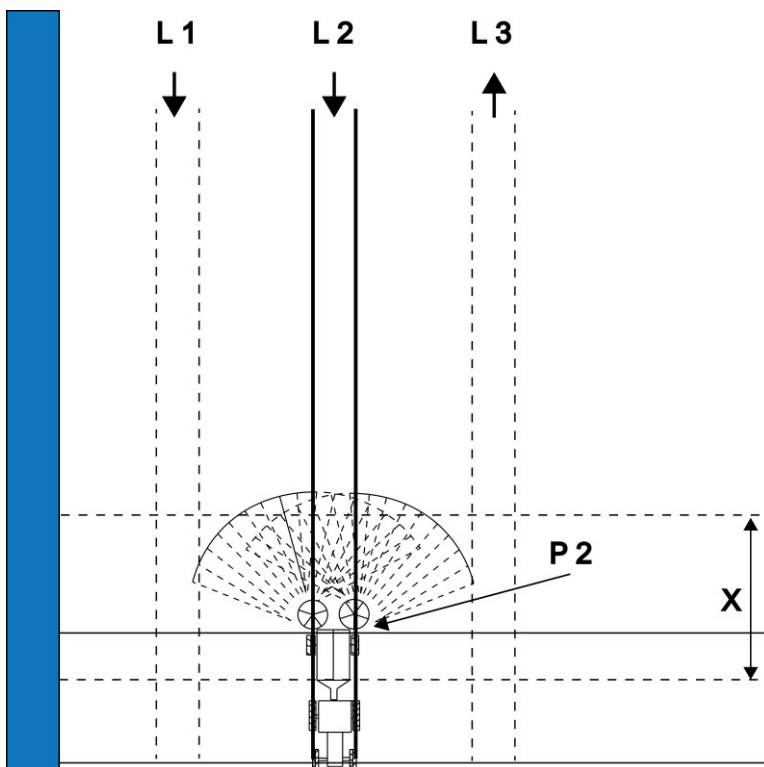


It should be noted that due to the spreading to the rear, the following must be observed for the exact distribution:

The conveyor belt for reciprocation (L 1 + L 2 towards the headland and L 3 away from the headland) at different distances to the field edge must be switched on and/or off.



- Starting the conveyor belt after entering the lane at point P 1 when the spreading discs are at distance X from the lane of the headland.
  - o X = 1 Working width for working widths > 18m.
  - o X = 1.5 Working width for working widths < 18m.



- The conveyor belt must be stopped when the point P 2 is reached as soon as the spreading discs are at the height of the first track of the headland.

## 9. Operation and maintenance

### 9.1. Cleaning the machine on inside and outside

We recommend the washing of the machine with a water hose only and not using a high pressure cleaner.

The screws on the hitch, spreader and tyres should be inspected regularly and re-tightened. This is especially important immediately after commissioning. The tyre pressure must be correct so that none of the tyres is not overloaded (see the following tire pressure chart).

The cleaning of the spreading vanes and the filling chute must be carried out daily. Particularly in the morning and in damp weather, the filling chutes and the spreading vanes should be checked for fertilizer deposits. Lack of cleaning can lead to poor spreading results.

If you are using a high-pressure cleaner, always be careful when cleaning with a high-pressure cleaner and do not spray directly into the bearing, sensor, etc.

Keep a minimum distance of 500 mm from the nozzle to the machine so that the machine, its sensors and so on will not be damaged!

Before the winter storage, the spreader should be thoroughly cleaned and oiled for rust protection. Be careful not to get oil on the rubber band, as this will dissolve the rubber. For example, a layer of chips, cat litter, or the like may be used, placed on the conveyor to cover it and to allow the collection of any leakage of oil. However, remember to use the ground wheel to remove the material 4-5 days after the spreader is oiled.

In order to achieve a correct spreading, it is important that the spreading discs and the spreading vanes are not damaged. It is not allowed to mount any spreading vanes, which are not original parts, since small changes in the shape produce large deviations during the spreading. If spreading of commercial fertilizer and lime is alternating, it is recommended to have a set of spreading discs for the respective purpose.

9.2. Lubrication, grease and oil change

**Lubrication plan for KURIER type 408/418/409/419**

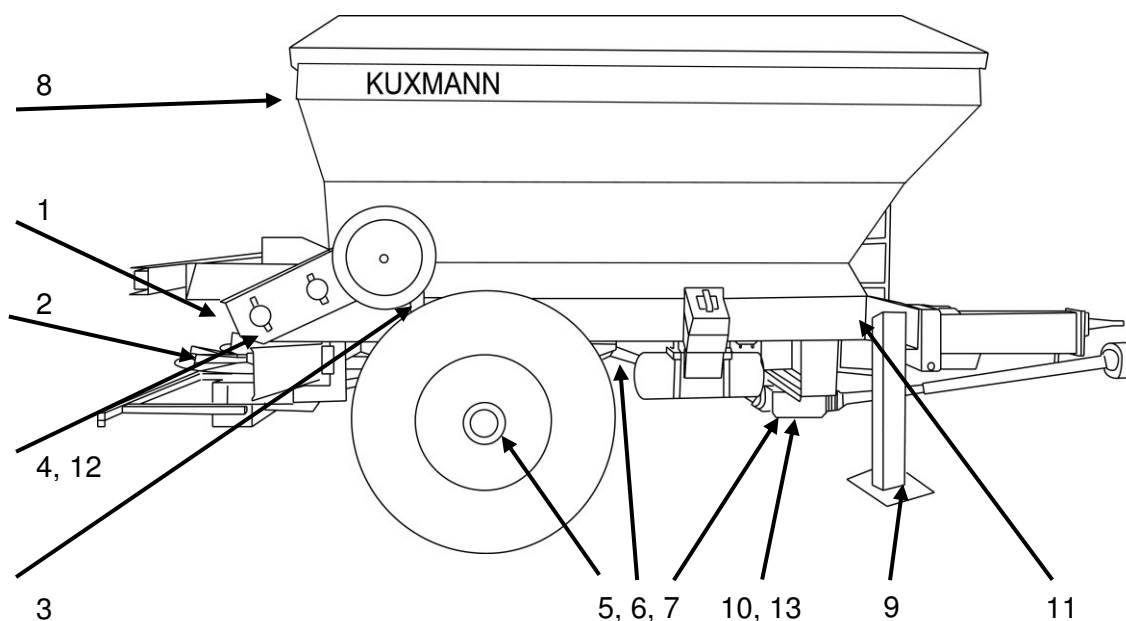
All lubrication points are filled with grease or fluid grease. However, it is advisable to lubricate all bearings and lubrication points before commissioning the machine

**Lubrication nipples are located, for KURIER machines, at the following locations:**

- |   |     |
|---|-----|
| 1. Flange bearing conveyor drive:                                   | 2 x |
| 2. Spreader discs - triangular bearing, on and behind the spreader: | 3 x |
| 3. Ground wheel - lifting cylinder:                                 | 1 x |
| 4. Bearings on the gearbox of the ground wheel drive: min.          | 4 x |
| 5. Axis: min  | 2 x |
| 6. PTO shaft (see additional instructions for PTO shaft)            |     |
| 7. Drive shaft (under the machine):                                 | 1 x |
| 8. Hydraulic cylinder - folding cover (additional equipment):       | 4 x |
| 9. Support:   | 1 x |
| 10. Automatic reverse drive:  | 1 x |

**Lubricate the following lubrication points or check the grease level:**

- |   |     |
|---|-----|
| 11. Tensioning nut (below the front frame):                     | 2 x |
| 12. Gear box (check grease level):                              | 1 x |
| 13. Changeover gear (additional equipment! Check grease level): | 1 x |



### 9.3. Corrosion resistance

The machine must be treated with corrosion protection regularly, at the latest after each cleaning.

### 9.4. Necessary check for wear and corrosion

When cleaning and storing the machine, pay attention to the condition of the wear parts.

Check regularly

- The brake system: every 1000 operating hours, at least quarterly: check for wear. If necessary, refit the brakes.
- Spreading vanes
- V-belts
- Conveyor belt and bands
- Bearings
- Brake hoses
- Hydraulic lines.

**Replace wearing parts at an early stage.**

Other wear parts are:

The scraper at the Kurier dosing gate, the conveyor seal (rubber) in the container and all plastic parts.

- Check wear parts.

If these parts have recognizable wear, deformation, or holes, replace them.

The service life of the wearing parts depends, among other things, on the material used.

- All connecting elements from the drawn large-area spreader to the tractor are also subject to wear. This relates in particular to the traction shell of the ball-and-socket coupling or the drawbar eye of the bolt coupling.
- We recommend that you check the condition of the pulled large-area spreader, in particular the attachments, the hydraulic system, and the hoses after each season. Let it done by your specialist dealer.
- Spare parts must meet at least the technical requirements defined by the manufacturer. This is given, for example, when replacing with new original spare parts.

## 9.5. Repair and replace worn parts

**PTO shaft:** Also pay attention to the operating instructions of the PTO shaft manufacturer!

**Spreading module and spreading discs:** Regularly check the spreading module, spreading discs, and spreading vanes for wear. Immediately replace the worn parts. There is a risk of injury!

**Spreading module:** Loosen the four screws that secure the spreading module to the brackets.

**Spreading disc:** Loosen the five screws on the inside of each disc and remove the spreading discs.

**Spreading vanes:** Loosen the mounting screws. When disassembling and installing new blades, pay attention to the alignment of the hole patterns. If you are unsure, contact KUXMANN Landmaschinen immediately.

**Every screwed connection must be checked for tightness!**

**Conveyor belt:** To replace the conveyor belt, loosen the screw connections of the floor at the front and rear of the machine. Remove the control rollers (Part No. 408394083) on the right and left of the machine.

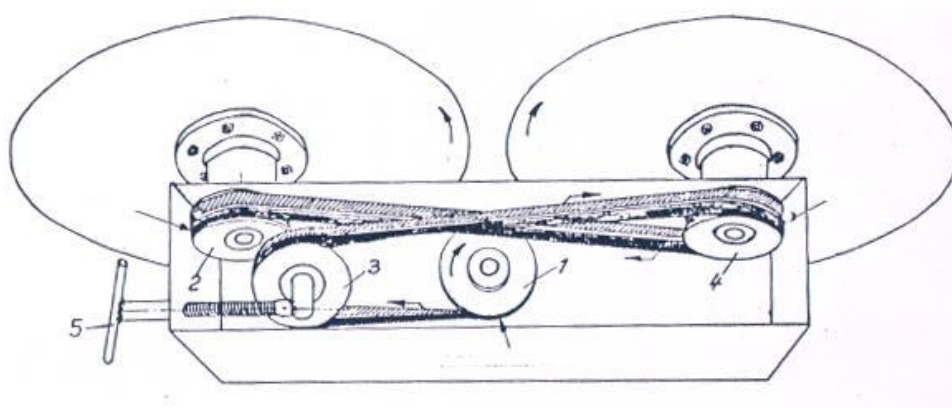
Pull the roll floor out of the machine with a suitable tool (for example a forklift). Then loosen the deflection pulley (Part No. 408360093)

Pull the rubber conveyor to the side of the floor rollers.

Position the new conveyor belt to the side of the roller, observing the orientation and the direction of travel of the conveyor belt.

Pull the conveyor belt onto the floor and secure the deflector pulley with the wiper back inside the belt. Attach all other components and push the conveyor back into the spreader. Reattach the floor to the screw connections and reinsert the control rollers.

## 9.5.1. Working sequence when installing V-belts



**Important:** Always put both straps together on the reels!

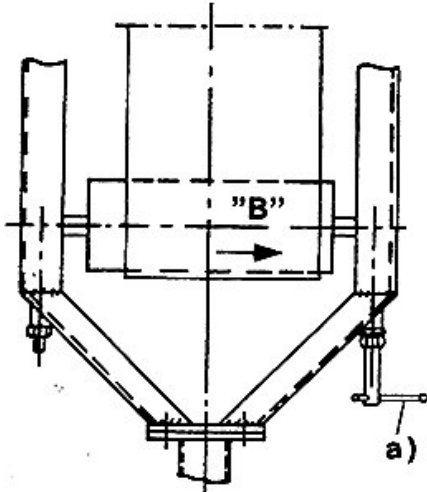
1. Both V - belts on roller 1
2. With both belts to the roller 2
3. The two lower belts from roller 1 to roller 3
4. The belts turned on roller 4
5. Check the direction of the rotation

**Please note:**

- The belts must not cross
- Re-tension V-belt with toggle bolt 5

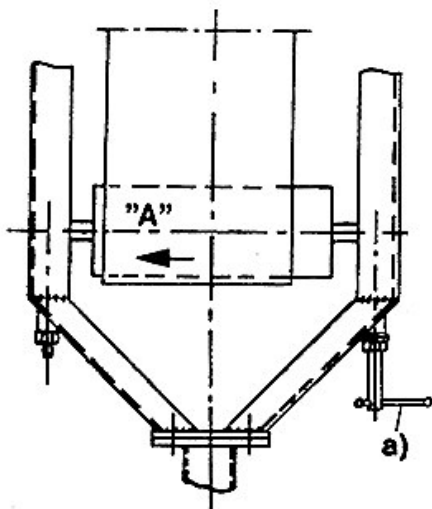
## 9.5.2. Straight line correction of the conveyor belt

The conveyor follows the stress reduction, i.e.. It runs to the drum edge, which has been decreased by letting the spindle down.



If the conveyor belt runs in the "B" direction, then use the adjusting screw a) to tension the belt.

- At max. every 1/4 turn, until the straight needle is reached.



If the conveyor belt runs in the "A" direction, then use the adjusting screw a) to relax the belt.

- At max. every 1/4 turn, until the straight needle is reached.

On different models of the KURIER spreader you may have to adjust nuts instead of a spindle. The nuts are located at the same position as the spindles. If YOUR model has nuts instead of a spindle, please follow the instructions below:

- In order to stabilize the running direction of the conveyor belt, turn the corresponding nut by max. 1/6 turn.



9.6. Indicate which repairs are to be carried out by the manufacturer / dealer.

The KUXMANN spreader is designed in such a way that most wear parts can be purchased freely, on the market. Contact KUXMANN Landmaschinen for more information!

- Adjustment and repair work on the brake system may only be carried out at specialist workshops or by recognized brake repair services.
- Repair work on tyres and wheels may only be carried out by qualified personnel and with suitable assembly tools.
- Welding work and work on the electrical and hydraulic system may only be carried out by qualified personnel.

If new components are installed during repairs, the same warnings and instructions with which the original parts have already been fitted with must be attached to the components.