

Operating and Parts Manual

RINK

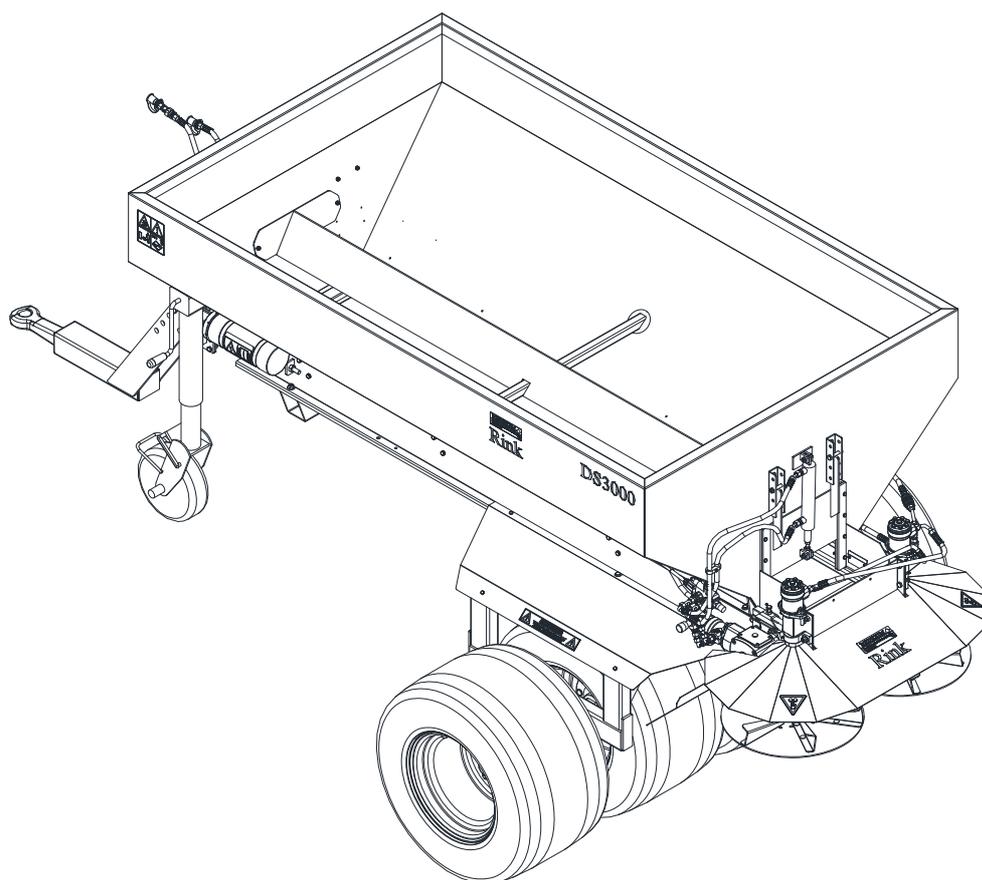
Model DS3100

Serial number:



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Translation of original manual



NOTE:
IN ORDER TO ENSURE THE SAFE USE AND TO ACHIEVE THE BEST
PERFORMANCE, IT IS ESSENTIAL THAT THIS OPERATING MANUAL IS
CAREFULLY READ BEFORE THE RINK IS USED.

1620 English 933.120.424

EC DECLARATION OF CONFORMITY

Certificate of Conformity of the Manufacturer (or Importer) for
RINK Disk Spreader DS3100

The signatory hereto

Rink Spezialmaschinen GmbH
88279 Amtzell
Germany

declares hereby that the machine described below complies with the relevant provisions of the **Machines Directive (2006/42/EC)**.

1. Machines - designation:	<u>RINK Disk Spreader DS3100</u>
2. Manufacturer or importer	<u>Rink Spezialmaschinen GmbH Alfons-Stübe-Weg 4 88279 Amtzell</u>
3. Model:	<u>DS3100</u>
4. Machine/serial number:	<u>831633</u>
5. Year of manufacture:	<u>2016</u>

Amtzell,

21/05/2019

Uli Bachmann

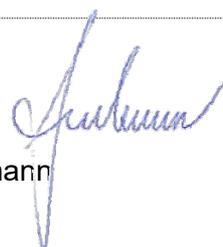


TABLE OF CONTENTS

EC DECLARATION OF CONFORMITY	2
SAFETY PROVISIONS	4-5
BRIEF DESCRIPTION	6
TECHNICAL DATA	6
FIRST COMMISSIONING	7
OPERATION	8
Attaching and detaching	8
Before each course	8
Loading	8
SPREADING	9
Controls.....	9
Setting spread thickness.....	10
Spread chart	10
Use of different spread materials.....	11
Disk setting in case of uneven spread pattern.....	11
CARE and MAINTENANCE	12
Smear bearings with multi-purpose grease (after every 50 operating hours)	12
Oil change in conveyor belt gear unit (after every 100 operating hours).....	13
Setting overpressure and throttle valve	13
Service axles (after every 100 operating hours).....	14
Tensioning the conveyor belt (against slipping)	14
Removing and installing conveyor belt	15
Tensioning conveyor belt after installation.....	15
External oil supply [#]	16
Lighting system	17
Troubleshooting	18
SPARE PARTS	19

We reserve the right to make technical changes.

Configurations marked with [#] are only delivered as special equipment.



SAFETY PROVISIONS



- **RINK Disk Spreader DS3100** is designed exclusively for spreading fine-grained loose grit such as sand, gravel, granulate and similar materials.
- Any use which goes beyond these limits is not regarded as intended use. The manufacturer shall not be held liable for damages resulting from unintended use. The risk shall be carried by the operator alone.
- The intended use also includes observation of operation, maintenance and service conditions specified by the manufacturer.
- **RINK Disk Spreader DS3100** has been produced according to the state of the art in this field and is reliable; however, operating the **RINK Disk Spreader DS3100** may be dangerous for the life and health of the operator and other people, unless it is used, serviced and repaired by the persons, who are familiar with the machine and advised about the dangers.
- Every person entrusted in the operator's company with operation, servicing and repairs of the spreader has to read and understand the operating instructions, in particular, the **Safety Provisions** chapter.
- Use only **original spare parts from the manufacturer** when making repairs.
- Along with the hints in these operating instructions, generally acknowledged **safety and accident prevention rules** shall be adhered to.
- When using public roads adhere to applicable traffic rules (StVZO).
- The spreader may only be used on the public roads after successful registration. Full conclusion of TÜV (German Technical Inspection Agency) and necessary additional safety devices (lighting system, wheel chocks)# are available at customer's request.
- Transport of people is prohibited!
- **It is prohibited to enter the loading bridge when the spreader system is running.** A corresponding instruction is stuck onto mudguards on both sides of the **RINK Disk Spreader DS3100**. This instruction should always remain readable and replaced if damaged.
- The operator is **obliged to check the RINK Disk Spreader DS3100** for **signs of damage and defects** before commissioning. Any changes to the **RINK Disk Spreader DS3100** (including changes in operation), which may adversely affect safety, are to be eliminated immediately. Any changes or additions to the **RINK Disk Spreader DS3100** are generally prohibited for safety reasons (except for the changes/additions approved by the manufacturer). If any modifications to the **RINK Disk Spreader DS3100** are made, the current valid CE label will lose its validity and will have to be renewed by the person, who has undertaken the modifications on their own.



SAFETY PROVISIONS



- The permissible drawbar load of the towing vehicle must be kept in mind.
- Before setting off, check the surroundings and ensure sufficient visibility.
- During operation, no one may stay in the danger area of the spreader, as there is a risk of injury from rotating parts and ejected foreign particles.
- Make sure that suitable clothing is worn. Wear safety shoes and long trousers. Long hair must be tied together. Do not use any loose garments. Use suitable personal protective devices, according to applicable occupational safety guidelines and regulations.
- In close vicinity to the spreader disks of the **RINK Disk Spreader DS3100** the noise level is 74 dB (a).
- Wear certified hearing protection when operating the machine.



- Adjustment and repairs may only be carried out by authorised specialist personnel. Depressurise the hydraulic system before repairing it. Check hydraulic hose lines on a regular basis and replace if damaged. Hydraulic hose lines must comply with the technical requirements of the machine manufacturer.



Used oil is a threat to the environment; dispose of it in accordance with the environmental regulations.

BRIEF DESCRIPTION

RINK Disk Spreader DS3100 serves for spreading fine-grained loose grit such as sand, gravel and similar materials. Spreader system of the disk spreader is driven by a gear unit with hydraulic motor for conveyor belt and a hydraulic motor for every spreader disk. The rotation speed of the hydraulic motors for the conveyor belt and spreader disks is continuously adjustable by a flow regulator. Thus the grit can be metered. Spread width and volume can be defined by driving speed, spreader disk and conveyor belt speed.

TECHNICAL DATA

Dimensions of RINK Disk Spreader DS3100

Length	4.80 m
Width	2.30 m
Height	2.05 m

Load quantity 3.0 m³

Weight

permissible total weight	6500 kg
permissible axle load	6000 kg
permissible drawbar load	800 kg
empty weight	1300 kg

Spread width (continuously adjustable) up to 12 m

Spread thickness 0.3 - 15 mm

Tyres 4 x 19.0 - 45/17-10

Tyre pressure 2.00 bar

Permissible maximum speed 25 km/h

Tractor power 33 KW (45 HP)

Hydraulic power requirements

Oil minimum flow rate for the towing vehicle	25 l/min
Oil minimum pressure for the towing vehicle	140 bar

The name plate is placed on the front (right) of the spreader.

FIRST COMMISSIONING

- Re-tighten the wheel nuts.
- Check the wheel hub play and adjust if necessary.
- Check the tyre pressure.
- If the **RINK Disk Spreader DS3100** is to be used on public roads, a registration plate must be placed onto a retaining plate provided for this purpose on the rear part on the left. (only subject to approval and upon successful registration)
- Check the lighting system#.



Recheck these items after the first drive under load!

OPERATION

Attaching and detaching

- Attach the **RINK Disk Spreader DS3100** to the towing vehicle.
- Connect hydraulic lines (3) and (4) to the towing vehicle, as closed oil circulation is required (see p. 9 – fig. 1).
- Connect securely valve actuator (5) for the conveyor belt to the towing vehicle through the supplied mount (see p. 9 – fig. 1).
- **In case of external oil supply[#]** (see p. 16) plug on the plug-on pump onto the PTO connecting joint of the tractor and secure against twisting using the fitted torque arm. The PTO shaft may only be switched on in stationary throttle, since switching on the PTO shaft under load may lead to breakage of the linking pinion of the gear pump. To enable optimum operating mode, the PTO shaft rotating speed must be approx. 450 1/min corresponding to 25 l/min. The oil temperature at the start of the works should be approx. 25 °C (sight glass on oil tank); warm up the hydraulic system if necessary. Too low PTO shaft rotation speed or oil temperature affects the performance of the spreader. Before the works are started, check the oil level in the hydraulic tank (middle of the sight glass). At the moment of shipment, the hydraulic system is filled with hydraulic oil **Plantosyn 3268 ECO**. Too low oil level may lead to the hydraulic pump damage.
- Plug in the seven-pin plug of the lighting system at the towing vehicle (see p. 17 – fig. 10).
- Fully raise the support wheel, then release the support wheel clamp and pull the support wheel upward as far as possible and clamp it.



Lay hydraulic hoses so that they neither touch the ground, nor rub the towing vehicle.

Detaching occurs in reverse order!



Depressurise the hydraulic system at the towing vehicle before detaching.

Before each course

- Check the **RINK Disk Spreader DS3100** for visible damages and repair them.
- Check the tyre pressure.
- Check the guide track of the conveyor belt, adjust if necessary to prevent side rubbing (see p. 15).
- Check the lighting system[#].

Loading

- Observe the desired maximum ground pressure.
- Observe permissible total weight when loading.

SPREADING

The spreader disk system is activated automatically as the hydraulics are switched on. The conveyor belt and slider (6) are activated by valve (5) activation – slider (6) first and then the conveyor belt after brief delay. Select slider positions A-D before starting the work (see page 10).

Controls

- (1) Conveyor belt speed regulator
- (2) Spreader disk speed regulator
- (3) Return line
- (4) Pressure line
- (5) Valve actuator for conveyor belt and slider
- (6) Slider (see p. 10 – fig. 2).
- (7) Guide plate (see p. 11 – fig. 3).

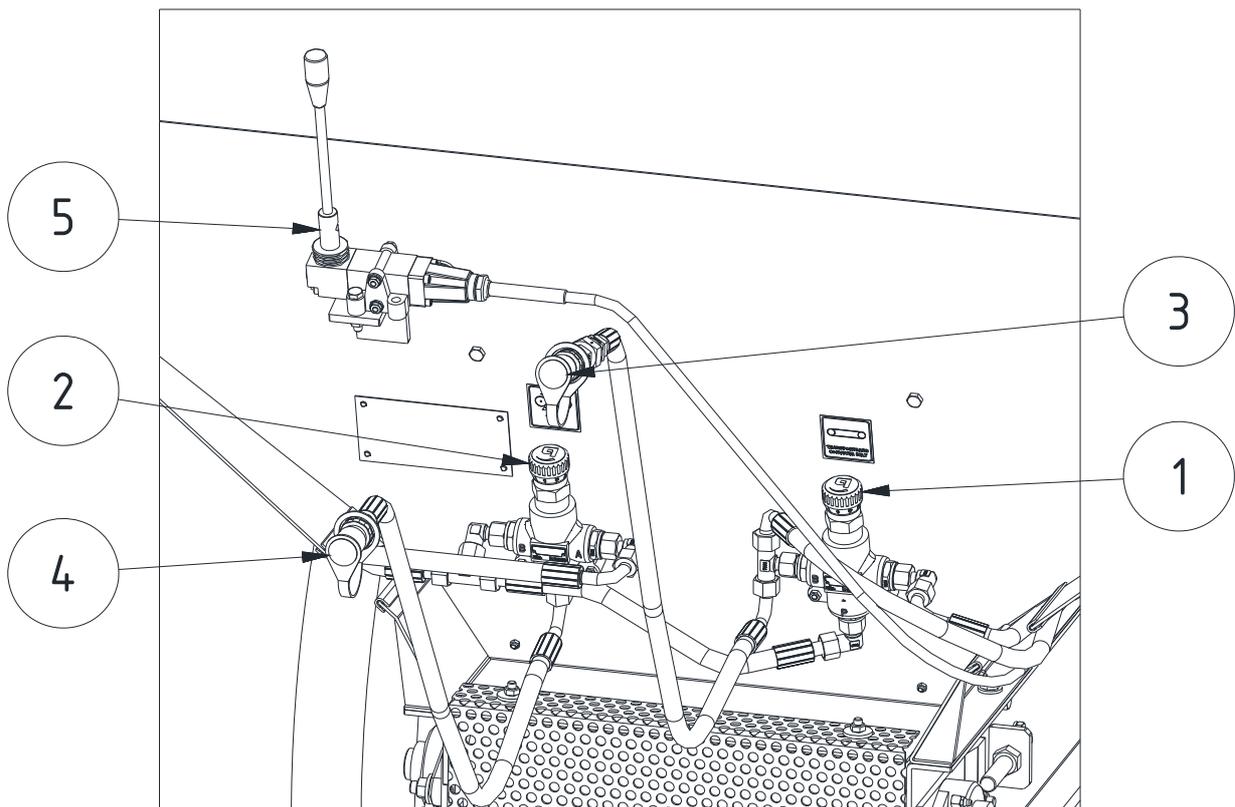


Fig. 1: Controls

Setting spread thickness

The spread thickness depends on:

- speed of the towing vehicle
- speed of the conveyor belt - regulator (1)
- speed of the spreader disks - regulator (2)
- automatic slider (6) opening (A-D)

Spread chart

Spread volume	Spreader disk Regulator (2)	Conveyor belt Regulator (1)	Slider position Slider (6)	Spread width
Thin	8-10	8-10	A	10 m
Medium	6-7	8-10	B	8 m
Thick	4	8-10	C-D	4 m

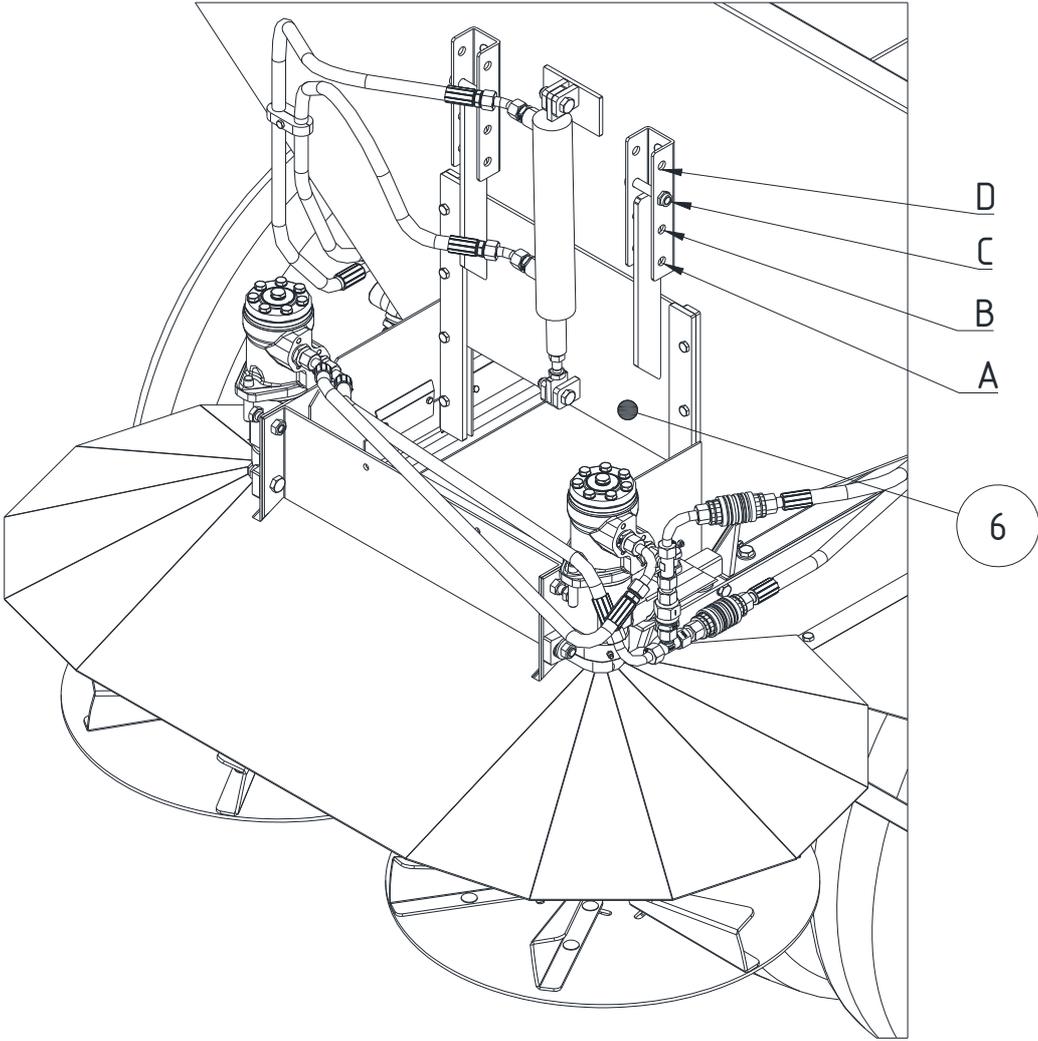


Fig. 2: Controls

Use of different spread materials

Different spread materials require different settings. The **RINK Disk Spreader DS3100** can be adjusted to any spread materials in the following manner.

- Rotation of the throwing vanes (see disk setting with uneven spread pattern - fig. 4)
- Regulation of the conveyor belt speed by regulator (1) (see p. 9 - fig.1)
- Regulation of the spreader disk speed by regulator (2) (see p. 9 - fig.1)
- Setting the opening A-D of the automatic slider (6) (see page 10 - fig.2)
- Increasing or throttling the driving speed
- In case of very moist material and thick spread layer, the guide plate (7) at the spreader system (held by nut M8) can be removed (fig. 3).

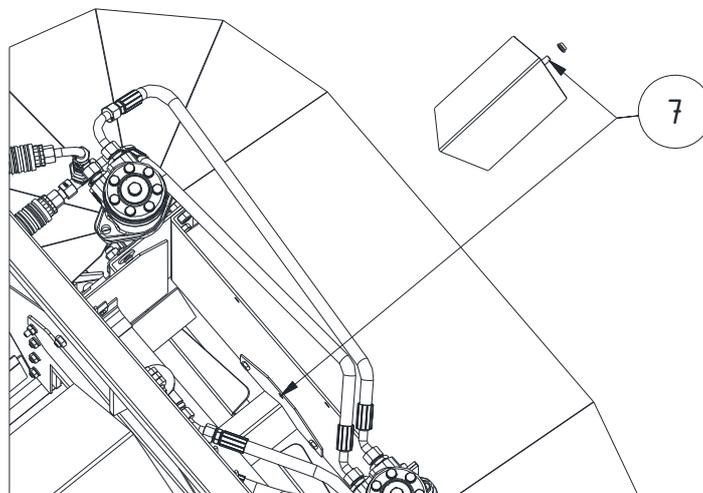


Fig. 3: Spreader system

Disk setting in case of uneven spread pattern

Throwing vane rotation

The throwing vanes (8) can be adjusted as necessary within the adjustment slots (fig. 4).

Concentration of the material outside – set every other vane (8) in direction X

Concentration of the material inside – set every other vane (8) in direction Y

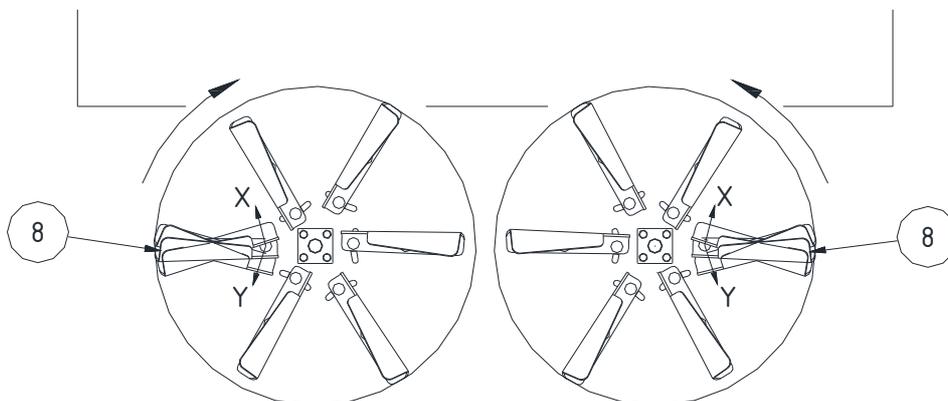


Fig. 4: Spreader disk

CARE and MAINTENANCE

Smear bearings with multi-purpose grease (after every 50 operating hours)

- (1) Bearings on both sides of the spreader disks
- (2) Bearings on both sides of the rear conveyor shaft
- (3) Bearings on both sides of the front conveyor shaft
- (4) Bearings on both running axes

Bearings without grease nipples are maintenance-free.

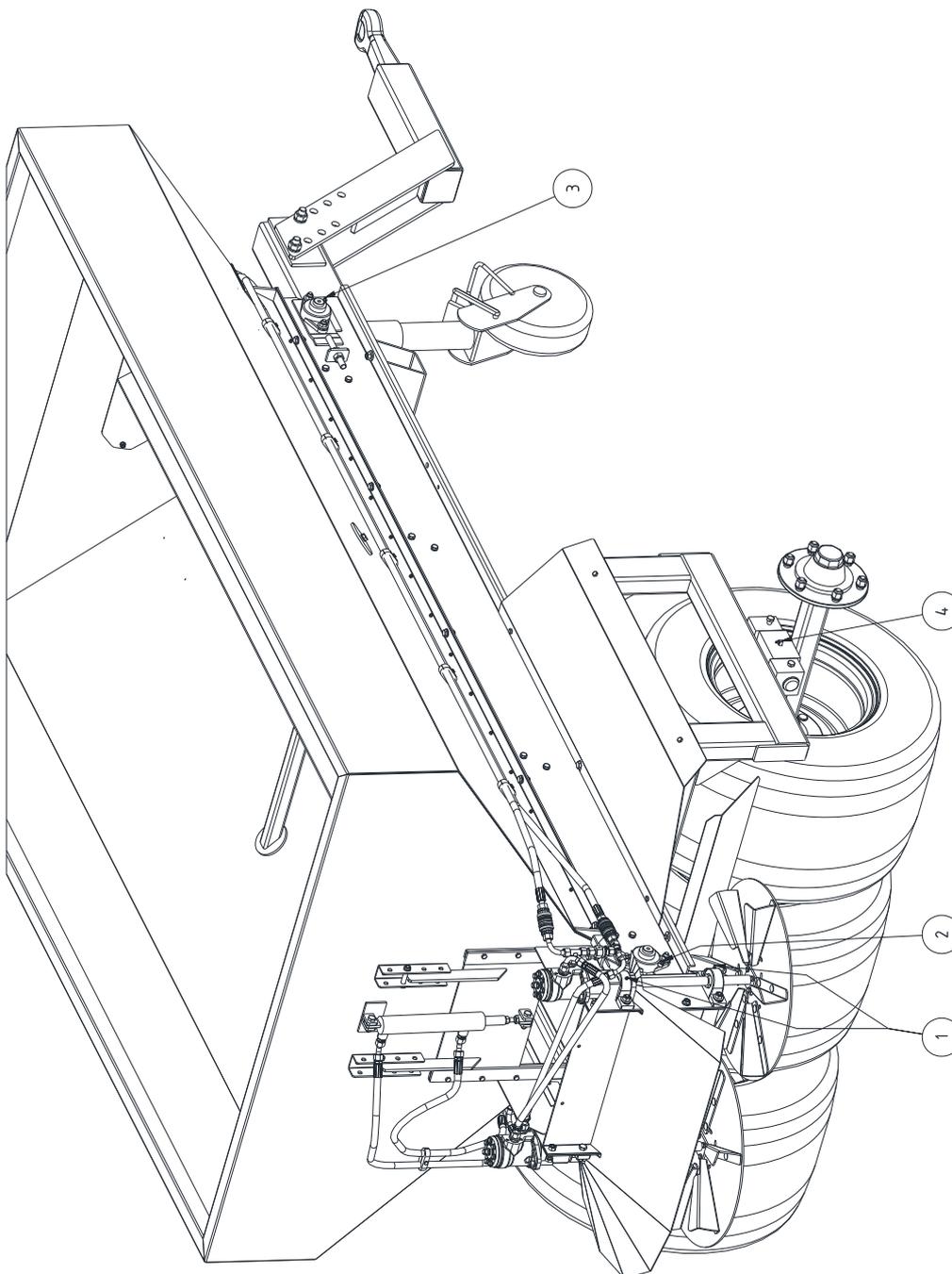


Fig. 5: Lubrication points

Oil change in conveyor belt gear unit (after every 100 operating hours)

- Unscrew the filler screw (11).
- Loosen the drain screw (12) below on the inside, and discharge the oil.
- Screw in the drain screw (12) with a new gasket.
- Fill in 0.6 l of the oil **SAE85-W140**.
- Screw in the filler screw with a new gasket.



Used oil is a threat to the environment; dispose of it in accordance with the environmental regulations.

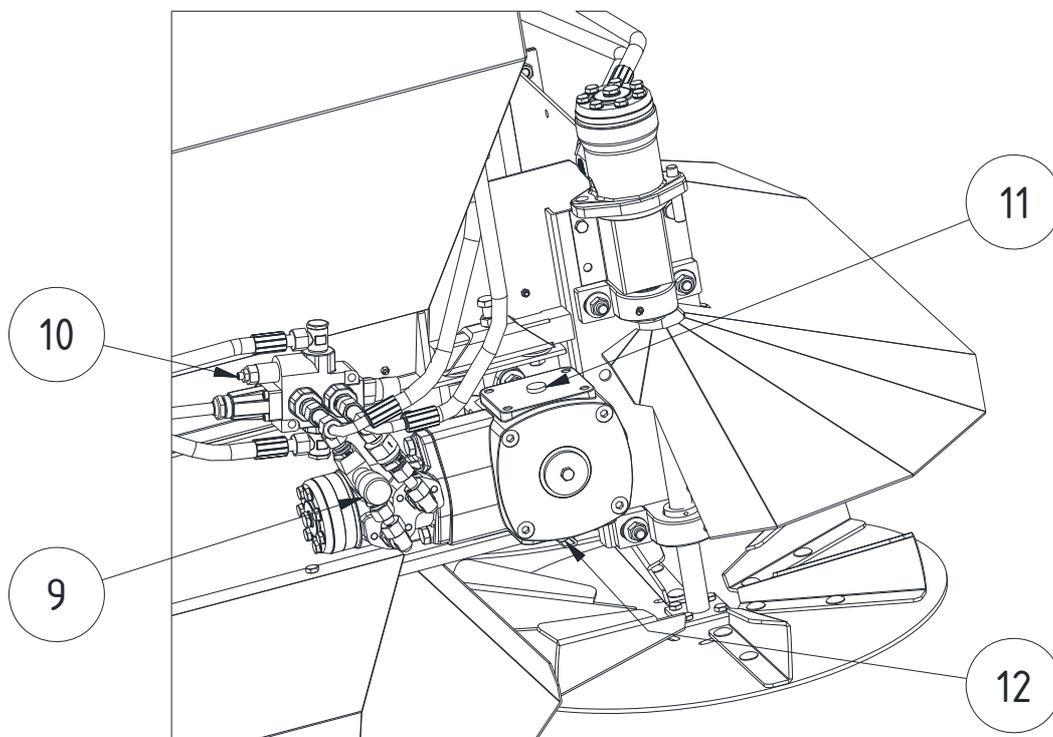


Fig. 6: Conveyor gear unit

Setting overpressure and throttle valve

- Overpressure valve (10) can be precisely set using hexagon socket (fig. 6).
- Throttle valve (9) (fig. 6) for slider regulation (6) (see p. 10 – fig. 2). Set the machine only in an empty state. Turn the throttle valve no wider than just to open the slider.



A wrong setting causes system overpressure. This may lead to serious damage of the machine!

Service axles (after every 100 operating hours)



Axles may only be serviced by authorised specialist personnel.

- Re-tighten the wheel nuts.
- Check the wheel hub play and adjust if necessary.

Tensioning the conveyor belt (against slipping)

- Loosen the counter nuts (13) on both sides.
- Tighten nuts (14) on both sides gradually, clockwise, by $\frac{1}{2}$ turn each time, in a uniform manner.
- Tighten again the counter nuts (13) on both sides.



Too much tension shortens the lifetime of the conveyor belt!

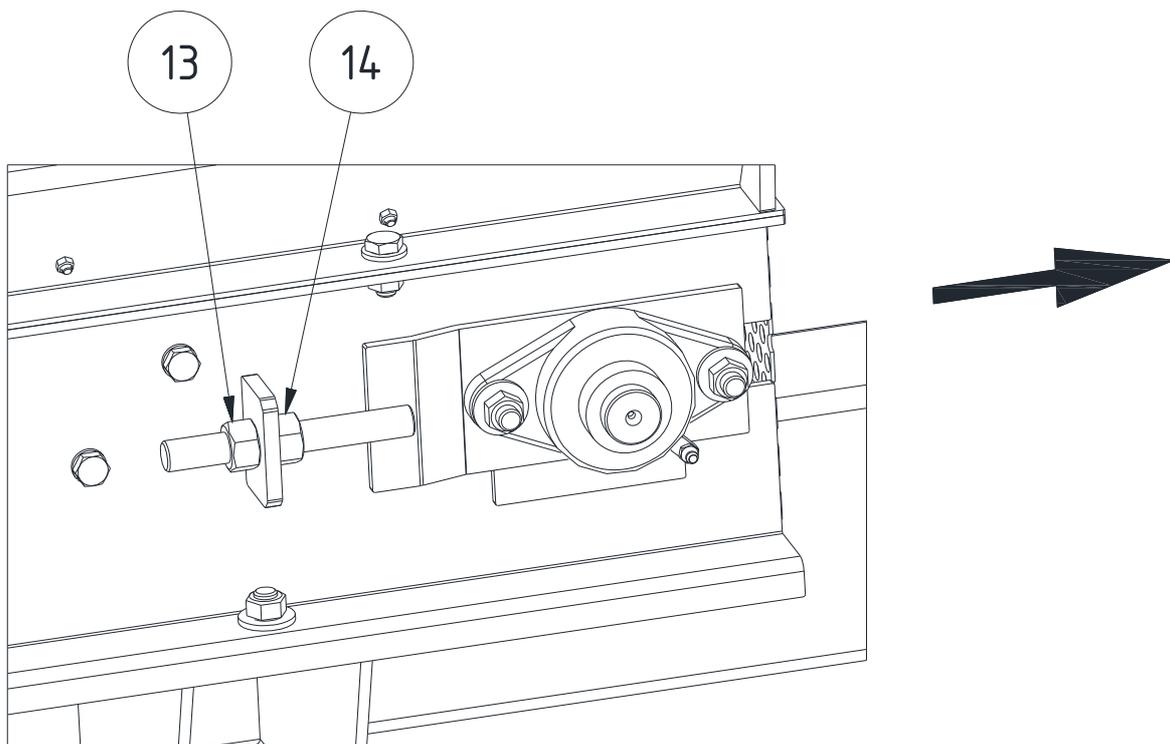


Fig. 7: Tensioning conveyor belt

Removing and installing conveyor belt

- Disconnect hydraulic plug connectors and remove the spreader system (1) after loosening screws (2).
- Remove the mudguard (3) on both sides.
- Remove the splash guard (4) and rubber cover (5) on the right in the direction of travel.
- Remove the undercarriage (6) after loosening screws (14).
- Loosen the conveyor belt (8) on both sides by loosening the nuts (9).
- Remove hopper (11) connection screws (10).
- Loosen and remove clamping rings of the bearing (12) (on the right in the direction of travel).
- Loosen screws (15) on the side part (13) and remove with the bearing (12) at once.
- Remove the conveyor belt (8).

Installation occurs in reverse order.

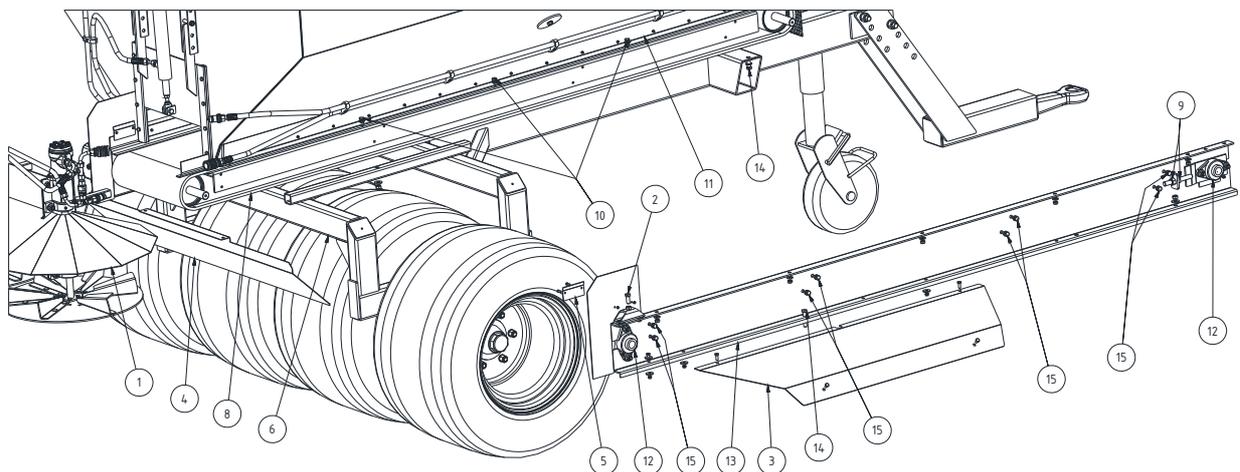


Fig. 8: Removing and installing conveyor belt

Tensioning conveyor belt after installation

- In a loosened state of the conveyor belt, mark the length of 1000 mm on the conveyor belt on both sides.
- Tighten the conveyor belt on both sides and at the same time by both traction screws (see page 14) until the marked section is stretched to maximum 1003 mm.
- Let the conveyor belt run for approx. 30 minutes until it runs centrally between the lateral guides and readjust if needed.



The conveyor belt may not rub on the sides, otherwise it will be damaged. When readjusting the conveyor belt, re-tighten gradually from the side, where the belt rubs.

Too much tension shortens the lifetime of the conveyor belt!

External oil supply[#]

Changing oil in the plug-on pump (after every 100 operating hours)

- Unscrew the bleed screw (1).
- Loosen the drain screw (2) below and discharge the oil.
- Screw in the filler screw with a new gasket.
- Turn the gear unit 180 degrees.
- Fill only with **SAE85-W140** oil up to the height of the sight glass (3).
- Screw in the drain screw (2) with a new gasket.



Used oil is a threat to the environment; dispose of it in accordance with the environmental regulations.

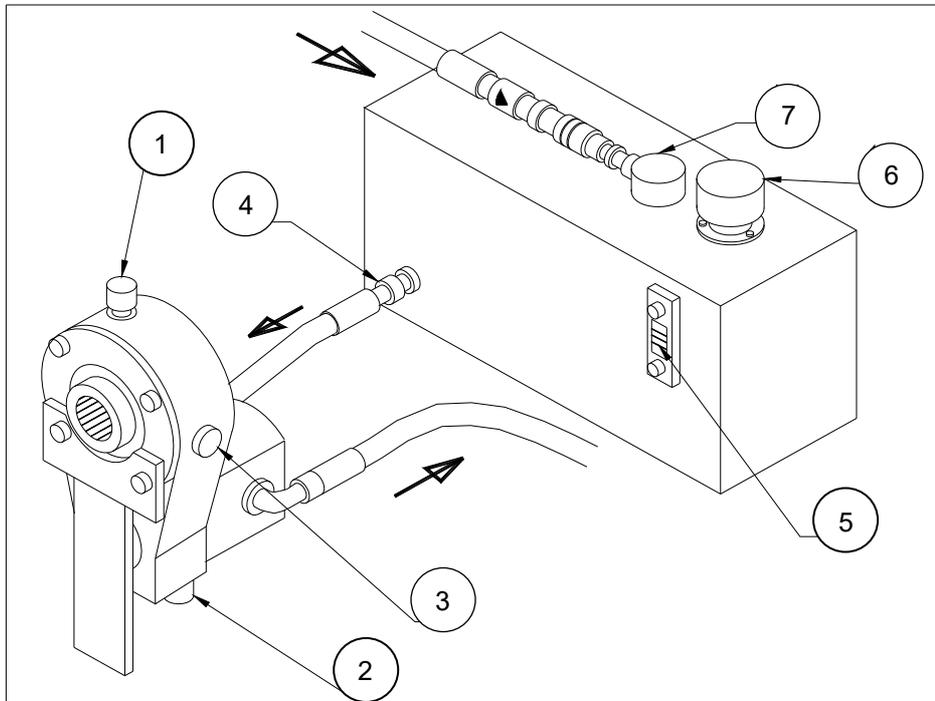


Fig. 9: External oil supply

Changing oil in hydraulic tank (as required)

- Unscrew the filler neck (6).
- Loosen the suction hose (4) and drain the oil.
- Screw the suction hose on again.
- Fill in **Plantosyn 3268 ECO** up to the middle of the hose (5).
- Screw in the filler neck (6) again.



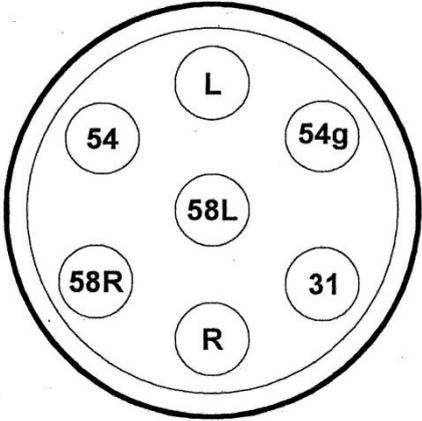
It is a closed hydraulic circuit. Nevertheless, to exclude possible impurities, the return flow filter (7) must be replaced after every 100 operating hours.



Used oil is a threat to the environment; dispose of it in accordance with the environmental regulations.

Lighting system

The lighting system must be connected with the towing vehicle by the seven-pin plug.



Code designation	Function	Cable colour
L	indicator, left	yellow
54g	(towing vehicle battery +)	---
31	ground	white
R	indicator, right	green
58R	tail light, right	brown
54	brake light	red
58L	tail light, left	black

Fig. 10: Connection diagram of 7-pole plug

Troubleshooting

<i>Problem</i>	<i>Reason</i>	<i>Solution</i>
Slider won't open	Throttle valve set too low	Readjust the throttle valve (9) until the slide opens (see p. 13)
Spread width is too narrow	Spreader disks rotation is too slow	Increase spreader disk speed by regulator (2) (see p. 9 and 10)
Spread layer is too thin	Too little material is conveyed	Increase slider opening (see p. 9 and 10)
	The speed of spreader disks is too high	Reduce the speed of spreader disks by regulator (2) (see p. 9 and 10)
	Conveyor belt speed is too low	Increase the conveyor belt speed by regulator (1) (see p. 9 and 10)
Spread layer is too thick	Too much material is conveyed	Reduce slider opening (see p. 9 and 10)
	The speed of spreader disks is too low	Increase spreader disk speed by regulator (2) (see p. 9 and 10)
	Conveyor belt speed is too high	Reduce the conveyor belt speed by regulator (1) (see p. 9 and 10)
Spread pattern is uneven	Incorrect setting of throwing vanes	Set throwing vanes (8) correctly (see p. 11)
Feed rate is uneven	Conveyor belt speed is too low	Increase the conveyor belt speed by regulator (1) (see p. 9 and 10)
Conveyor belt does not start	Conveyor belt is slipping	Tension the conveyor belt (see p. 14)
	Rear driving roller and conveyor belt do not rotate	Increase pressure in the overpressure valve (10) by one quarter turn clockwise (see p. 13)
Hydraulics does not function	Check hose connections	If necessary swap pressure line (4) and return line (3) (see p. 9)

Fig. 11: Troubleshooting

SPARE PARTS

RINK Disk Spreader DS3100

Address for ordering spare parts

<p>Rink Spezialmaschinen GmbH Alfons-Stübe-Weg 4 D-88279 Amtzell</p> <p>Telephone (07520) 95690 Fax (07520) 956940 Email: info@rink-spezial.de</p>
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Ordering spare parts

To enable prompt processing of your spare part order, you should provide the following obligatory data:

- Chassis or ID number
- Year of construction (if available)
- Part number as per relevant spare part list
- Designation
- Order number

Order example: 861613 2016 11 Conveyor belt 10860

Chassis No. Year of construction Part No. Designation Order No.